

Great Barton, Suffolk

Development Brief – Transport Assessment

Curtins Ref: 76596

Revision: 00

Issue Date: 30 November 2020

Client Name:



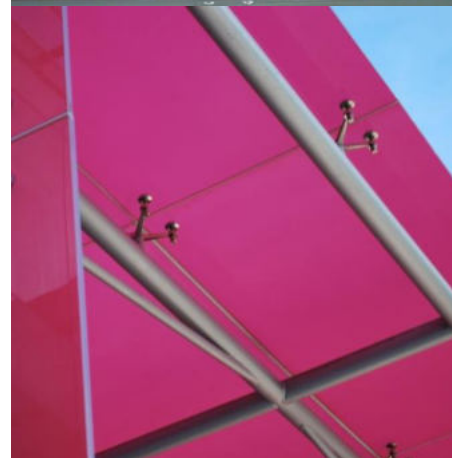
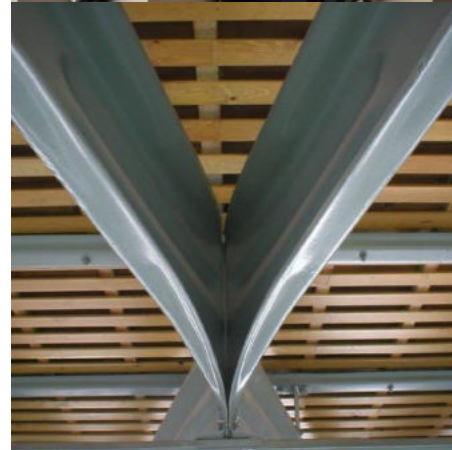
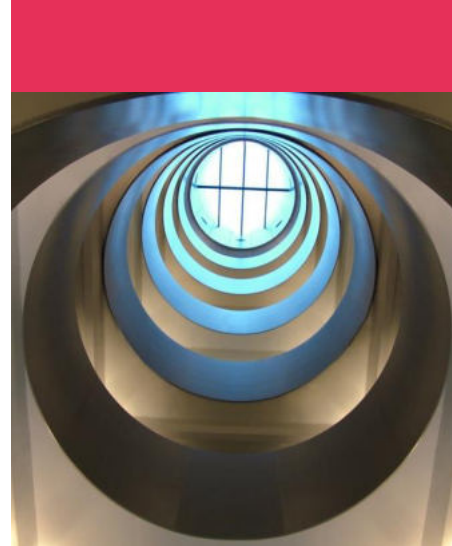
DRAFT

PRELIMINARY REPORT - FOR INFORMATION PURPOSES ONLY

BIM Reference: 76596-CUR-00-XX-RP-TP-00002-V00_Development Brief TA

Curtins
40 Compton Street
London, EC1V 0BD
Tel: 020 7324 2240
www.curtins.com

CIVILS & STRUCTURES • TRANSPORT PLANNING • ENVIRONMENTAL • INFRASTRUCTURE • GEOTECHNICAL • CONSERVATION & HERITAGE • PRINCIPAL DESIGNER
Birmingham • Bristol • Cambridge • Cardiff • Douglas • Dublin • Edinburgh • Glasgow • Kendal • Leeds • Liverpool • London • Manchester • Nottingham



Rev	Description	Issued by	Checked	Date
00	Preliminary issue.	MW	BD	30.11.20

This report has been prepared for the sole benefit, use, and information for the client. The liability of Curtins Consulting Limited with respect to the information contained in the report will not extend to any third party.

Author	Signature	Date
Martin Walton BSc (Hons) MCIHT Transport Planner		30 November 2020

Reviewed	Signature	Date
Ben Dawson BSc (Hons) MIGHT Associate – Transport Planning		30 November 2020

Authorised	Signature	Date
Ben Dawson BSc (Hons) MIGHT Associate – Transport Planning		30 November 2020

Table of contents

1.0	Introduction.....	1
1.1	Overview.....	1
1.2	Report Purpose.....	1
1.3	Report Structure.....	2
2.0	Site Context.....	3
2.1	Site Location.....	3
2.2	Local Highway Network.....	3
2.3	Collision Analysis.....	7
2.4	Historic Traffic Data.....	8
2.5	Land North East of Bury St Edmunds.....	9
2.6	Thurston Residential Developments.....	10
3.0	Transport Policy Review.....	12
3.1	Introduction.....	12
3.2	National Transport Planning Policy.....	12
3.3	Local Policy.....	15
4.0	Site Accessibility.....	21
4.1	Introduction.....	21
4.2	Pedestrian Accessibility.....	21
4.3	Cyclist Accessibility.....	23
4.4	Public Transport Accessibility.....	24
5.0	Trip Generation & Distribution Analysis.....	26
5.1	Introduction.....	26
5.2	Proposed Trip Rates.....	26
5.3	Vehicle Trip Generation: 40 Dwelling Scheme.....	26
5.4	Vehicle Trip Generation: Wider Allocation (150 Dwellings).....	26
5.5	Proposed Distribution.....	27
6.0	Highway Impact Assessment.....	28
6.1	Introduction.....	28
6.2	Study Area.....	28

6.3	Baseline Traffic Flows	29
6.4	Assessment Scenarios.....	29
6.5	Junction 1: Mill Road / School Road	30
6.6	Junction 2: A142 / Mill Road	30
6.7	Junction 3: A142 / School Road / E Barton Road	32
6.8	Summary	34
7.0	Design Considerations	35
7.1	Introduction.....	35
7.2	Vehicle Access	35
7.3	Emergency Access.....	36
7.4	Internal Layout Design	36
7.5	Parking Standards.....	37
7.6	EV Charging Guidance	38
7.7	Pedestrian Connectivity	38
7.8	Cyclist Connectivity	39
8.0	Appendices.....	40

Figures

Figure 2.1 – Site Location Plan	3
Figure 2.2 – A143 / Mill Road Junction Layout.....	4
Figure 2.3 – Existing Agricultural Access	5
Figure 2.4 – School Road / Mill Road Junction	6
Figure 2.5 – School Road / A143 / East Barton Road Junction	6
Figure 2.6 – School Road During School Drop-Off	7
Figure 2.7 – Collision Record Location & Severity	8
Figure 3.1 – Cycle Routes Key Design Principles	14
Figure 3.2 – Policy RV18: Great Barton	17
Figure 3.3 – Neighbourhood Plan Concept Diagram	19
Figure 3.4 – Neighbourhood Plan Policy GB3.....	20
Figure 4.1 – Site Walking Catchment (2,000m).....	22
Figure 4.2 – Local Cycle Network.....	23
Figure 4.3 – Site Cycling Catchment (5,000m).....	24
Figure 4.4 – Site Public Transport Accessibility Catchment.....	25

Figure 6.1 – Local Cycle Network.....	28
Figure 7.1 – Priority Junction Provision on Single Carriageway Roads (DMRB CD123).....	35
Figure 7.2 – Access Requirements >150 <300 Dwellings.....	37

Tables

Table 2.1 – DfT Historic Traffic Counter Data Summaries	8
Table 3.1 – Neighbourhood Plan Response to Rural Vision 2031 Policy Requirements.....	19
Table 4.1 – CIHT Suggested Acceptable Walking Distances	21
Table 4.2 – Distances to Key Existing Facilities & Amenities.....	22
Table 4.3 – Trip Rates: Weekday Network Peak Hours.....	24
Table 5.1 – Trip Rates: Weekday Network Peak Hours.....	26
Table 5.2 – Trip Generation: 40 Dwellings	26
Table 5.3 – Trip Generation: 150 Dwellings	26
Table 6.1 – TEMPro Growth Factors.....	29
Table 6.2 – Junction 2: PICADY Model Results	31
Table 6.3 – Junction 3: PICADY Model Results	32
Table 7.1 – Suffolk Parking Standards (2019)	38

Appendices

Appendix A – List of Committed Developments

Appendix B – Proposed Development Trip Distribution

Appendix C – Traffic Flow Diagrams

Appendix D – PICADY Model Results Output

1.0 Introduction

1.1 Overview

- 1.1.1 Curtins has been appointed on behalf of West Suffolk Council and Suffolk County Council to provide transport planning and highways advice in relation to the development of land to the south of Mill Road in Great Barton. The Planning Authority is West Suffolk Council whilst the Local Highway Authority is Suffolk County Council (SCC).
- 1.1.2 The site is allocated with the local Rural Vision 2031 for up to 40 dwellings. This was produced by St Edmundsbury Borough Council in 2014. In 2019, St Edmundsbury Borough Council merged with Forest Heath District Council to become West Suffolk Council (WSC).
- 1.1.3 In addition, the site is also subject to a draft allocation for up to 150 dwellings in the emerging Great Barton Neighbourhood Plan produced by Great Barton Parish Council (May 2020).

1.2 Report Purpose

- 1.2.1 This Transport Assessment (TA) has been prepared to support the creation of a Development Brief for the site. It demonstrates that the site location and local transport network is sufficient to accommodate future development. The TA includes a review of:
- The local highway network and available historic traffic data;
 - Transport planning policy;
 - Site vehicular access options;
 - Local highways opportunities and constraints;
 - Site accessibility analysis by active modes and public transport;
 - Initial site vehicular trip generation;
 - Local junction capacity; and
 - Site Transport Design Considerations

1.3 Report Structure

1.3.1 The remainder of this report has been structured as follows:

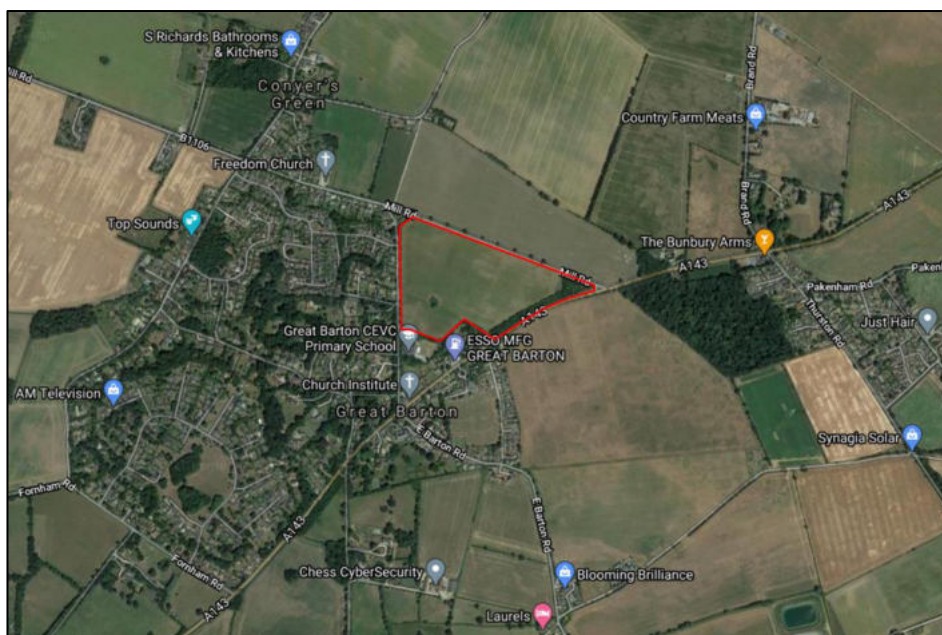
- **Section 2:** Site Context
- **Section 3:** Transport Policy Review
- **Section 4:** Site Accessibility Analysis
- **Section 5:** Trip Generation Analysis
- **Section 6:** Highway Impact Assessment
- **Section 7:** Design Considerations

2.0 Site Context

2.1 Site Location

- 2.1.1 The site is located in the north-eastern corner of the village of Great Barton, approximately 4.5km north-east of Bury St. Edmunds. The site is undeveloped and bound to the north by Mill Road, to the west by School Road, to the east by the A143 and to the south by Great Barton Primary School and the rear gardens of properties fronting the A143.

Figure 2.1 – Site Location Plan



2.2 Local Highway Network

- 2.2.1 This section provides a review of the key local roads and junctions surrounding the development site.

Mill Road (B1106)

- 2.2.2 Mill Road is a classified 'B' road which is formed of a single carriageway subject to the national speed limit in the vicinity of the site. This reduces to 30mph upon entering Great Barton to the west. The carriageway is straight in alignment with good visibility and has an average width of 6.1m. Mill Road does not currently benefit from any pedestrian or cyclist infrastructure.
- 2.2.3 Mill Road is straight and has excellent visibility in both directions in proximity to the site. There are no existing vehicle access points from Mill Road into the development site.
- 2.2.4 Upon turning right out of any future access onto Mill Road, the first junction any driver would encounter would be the priority junction with the A143, for which Mill Road forms the minor arm. Likewise, the first junction encountered when turning left out the site access would be the priority junction with School Road, for which Mill Road forms the major arm.

The Street (A143)

- 2.2.5 The A134 is a single carriageway 'A' road subject to a speed limit of 40mph in the vicinity of the site and the junction with Mill Road. The carriageway is relatively straight in alignment, with an average width of 7.1m to the south of the Mill Road junction and 12.8m immediately to the north of the junction. The wider carriageway width to the north is due to the presence of a ghost island right turn pocket onto Mill Road.
- 2.2.6 A 1.2m wide footway is present along the northern side of the carriageway, however, no pedestrian crossing facilities are provided where the route crosses the Mill Road junction.
- 2.2.7 The junction with Mill Road has an uncommon arrangement, whereby a second priority junction is provided for vehicles arriving/departing to the south on the A143. This arrangement is shown in **Figure 2.2** and is believed to be due to the acute angle at which Mill Road intersects the A143, which makes it difficult for left-in/right-out manoeuvres at the junction.

Figure 2.2 – A143 / Mill Road Junction Layout

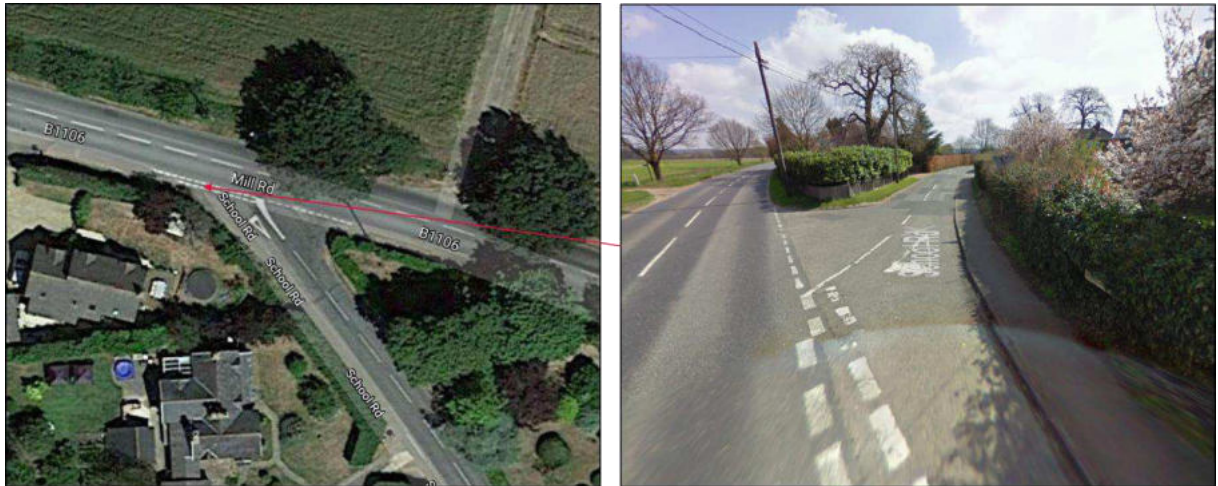


- 2.2.8 A Department for Transport (DfT) traffic counter (ID 26704) is present on the A143 circa 200m north of the Mill Road junction. The counter indicates that during 2019 the A143 experienced an Annual Average Daily Traffic (AADT) flow of 15,917 vehicles, of which 5.6% were classified as heavy goods vehicles (HGV).
- 2.2.9 An existing agricultural access is present to the east of the site in the form of an informal vehicle crossover taken from the A143. The location and arrangement of this existing access point is shown in **Figure 2.3**.

Figure 2.3 – Existing Agricultural Access**School Road**

- 2.2.10 School Road is a single carriageway unclassified road approximately 600m in length and is primarily subject to a speed limit of 30mph, with the exception of a 20mph School Safety Zone approximately 200m long outside Great Barton Primary School and Pre-School. The carriageway is straight in alignment with an average width of 4.8m and provides access to individual residential dwellings and streets providing access to the wider village to the west and Great Barton Primary School and Pre-School to the east.
- 2.2.11 At the southern end of School Road, 1.5m wide footways extend along both sides of the carriageway for approximately 350m, and thereafter only on the western side. School Road forms part of National Cycle Route 13, although no formal markings are provided on or off the carriageway to denote this. An intermittent row of trees is present along the eastern side of the carriageway, separating School Road from the site.
- 2.2.12 At its northern extent School Road forms the minor arm of a priority 'T' junction with Mill Road, with no pedestrian crossing facilities provided at the junction. School Road intersects Mill Road at an acute angle and as such vehicles turning left onto Mill Road have partially restricted visibility. School Road is only 4.6m in width upon approach to the junction and its layout is shown in **Figure 2.4**.

Figure 2.4 – School Road / Mill Road Junction



- 2.2.13 At its southern extent School Road forms the northern minor arm of a crossroads with East Barton Road (minor) and the A143 (major). Double yellow lines extend 20m back from the junction along either side of School Road and a yellow hatched box is present within the southbound lane of the A143.
- 2.2.14 Footways are present either side of the junction bellmouth however no pedestrian crossing facility exists. The junction is constrained on either side by residential properties fronting the A143, however, an SCC owned grass verge is present on the eastern side of the bellmouth, which could allow for a future uncontrolled crossing facility to be provided. The junction location and layout are shown in **Figure 2.5**.

Figure 2.5 – School Road / A143 / East Barton Road Junction



- 2.2.15 'School Keep Clear' markings are in place along the school's frontage with School Road, however, parking on the remainder of the carriageway is unrestricted. There are also two school bus stops located on School Road adjacent to the south of the primary school along with a pelican crossing.
- 2.2.16 Great Barton Primary School and the adjacent Pre-School are provided with a limited level of off-street car parking, likely for use by staff. As such, School Road is likely used during by parents/guardians to drop-off/collect pupils at the start and end of the school day. This is confirmed within St. Edmundsbury Rural 2031 Vision document which states the following with regards to School Road:

'It is recognised that School Road can be quite congested at peak times, therefore consideration would have to be given to the infrastructure, with the possibility of a school car park or pick up point.'

2.2.17 The image shown in **Figure 2.6** highlights the demand for on-street car parking on School Road during the school drop-off/collection periods.

Figure 2.6 – School Road During School Drop-Off

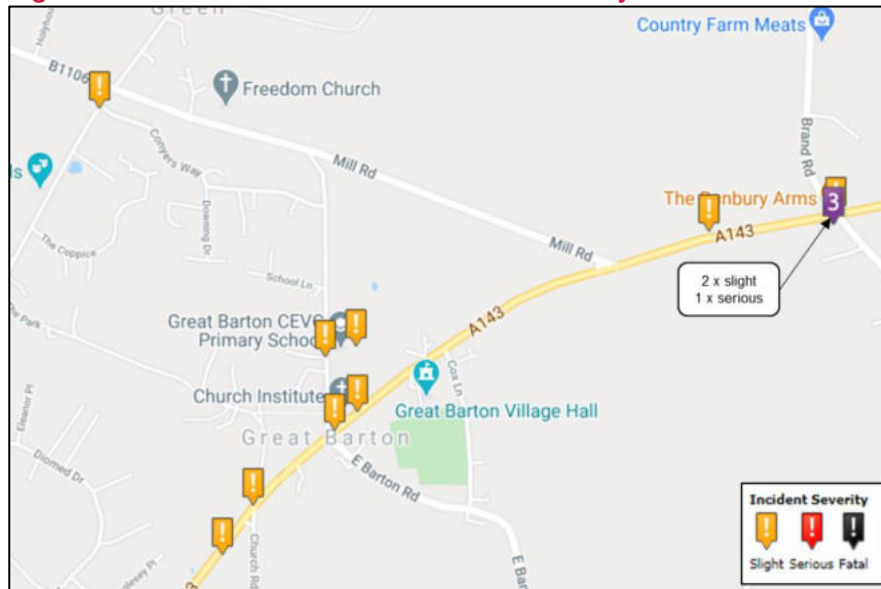


(Source: Great Barton Neighbourhood Plan, 2020)

2.3 Collision Analysis

2.3.1 The online tool CrashMap has been used to identify the location and severity of any road collisions that have occurred within the most recent five-year period for which data is available (2015-2019). CrashMap uses official data published by the DfT which in turn sources its data from records submitted to them by police forces. This data has allowed for a high-level review to be undertaken to see whether there are any clusters of accidents indicating existing deficiencies in the local highway. **Figure 2.7** illustrates the locations and severities of any road accidents in the local area.

Figure 2.7 – Collision Record Location & Severity



2.3.2 **Figure 2.7** indicates that eleven slight and one serious accidents have occurred in the near vicinity of the site during the most recent five-year period. Nine of these accidents occurred on the A143, which is to be expected on 'A' roads with a high vehicle and HGV flows.

2.3.3 No accidents have occurred on Mill Road along the site frontage or at the A143 or School Road junctions. However, two slight accidents have occurred at the School Road / A143 junction in addition to a further two on School Road itself. The proximity of these accidents close to Great Barton Primary School are likely attributed to the congestion issues associated with the school drop-off period discussed earlier in this report.

2.4 Historic Traffic Data

2.4.1 It has not been possible to undertake traffic surveys due to the ongoing restrictions associated with Covid-19. As such, historic traffic data from varying sources has been used where possible to understand the existing baseline traffic conditions at key junctions and road links.

2.4.2 The DfT has three traffic counters in the vicinity of the site, the results of which are summarised in **Table 2.1**.

Table 2.1 – DfT Historic Traffic Counter Data Summaries

Count ID	Link	Year	AADT (veh)	HGV %
26704	A143 (North of Mill Road)	2019	15,917	5.6%
801127	Livermore Road	2018	1,232	0.4%
802732	E Barton Road	2018	791	2.9%

- 2.4.3 Whilst the data shown in **Table 2.1** is useful in understanding the volume and types of vehicles travelling on the available links, mainly the A143, it is not sufficient for undertake detailed capacity assessments. However, the Transport Assessment for the Land North East of Bury St. Edmunds scheme (discussed in Section 2.5), prepared by WSP, did undertake capacity assessments of the School Road and Mill Road junctions with the A143. The capacity assessments were based on baseline flows extracted from the Suffolk County Traffic Model (SCTM).
- 2.4.4 The SCTM is a countywide strategic transport model, produced by SCC using the modelling tool SATURN and has been validated to a 2016 base year. The model forecast years are 2021 and 2036. In order to assess the impact of the scheme WSP agreed several assessment scenarios with SCC based on the pre-existing forecast scenarios adapted to include all committed development in the area.
- 2.4.5 The committed developments contained in the 2021 and 2036 future year scenarios are shown in the Table 3.2 of **Appendix A**, which has been extracted from WSP's TTN2: Modelling Protocol Note (July 2019).
- 2.4.6 The raw 2016 survey data used to inform the SCTM is not readily available, however, the 2021 and 2036 traffic flow data has been extracted from the WSP TA. The 2021 and 2036 'Do Something' scenarios have been used as the baseline against which the proposed development will be assessed, as these scenarios not only include the flows associated with committed developments referenced in **Appendix A**, but also the development flows associated with the Bury St. Edmunds scheme itself.
- 2.4.7 How this historic data has been used is discussed in detail in Section 6 of this report.

2.5 Land North East of Bury St Edmunds

- 2.5.1 St Joseph Homes Limited which are part of Berkeley Group Holdings Plc have submitted a hybrid planning application (referred to as Land North East of Bury St Edmunds) for up to 1,375 residential dwellings on land to the south west of Great Barton. The full development description is as follows:
- “A) an outline application (with all matters reserved except for access) for up to 1375 no dwellings, access (including access onto A143 and creation of cycle path, footway through underpass), public open space and landscaping; local centre uses (A1; A2; A3; A4; A5; B1; D1; or D2); primary school; and associated infrastructure and works (including drainage infrastructure and substations), and B) full details for Phase 1 of the outline application including no. of dwellings, garages, access roads, parking, open space, drainage infrastructure and associated infrastructure and works.”*
- 2.5.2 The site is located between the A143 Bury Road and the Cambridge to Ipswich Railway Line and covers an area of 78.67ha which is currently used for agricultural purposes.
- 2.5.3 The proposed development will create two new priority-controlled roundabouts to access the site from the A143 which forms the northern boundary of the site.
- 2.5.4 In addition to the two proposed roundabouts, the masterplan for the development looks to improve local pedestrian and cycle links. These include:
- A new informal pedestrian/cyclist crossing point at the junction of the A143 and The Avenue;

- Incorporating the existing PROW network into the site masterplan, ensuring permeability through the site; and
 - Provision of a three metre wide shared cycle footway link delineating the southern side of the A143 between the new southern roundabout and Orttewell Road.
- 2.5.5 Furthermore, discussion between St Joseph Homes Limited and SCC Highways are currently ongoing with regards to the provision of a new pedestrian/cycle connection directly to the north of the site onto the A143. This would provide an onward connection to Great Barton.
- 2.5.6 A new crossing point on the A143 would be provided which would comprise localised widening of the A143 and the provision of a central refuge island to help pedestrians and cyclists cross the road. There are currently two options, one to provide a crossing point to the north of Fornham Road and one to the south.
- 2.5.7 As part of the supporting material submitted with the hybrid planning application for the scheme, a detailed Transport Assessment has been produced. This assessed the potential for any impacts on the surrounding highway network as well as the wider strategic network.
- 2.5.8 This included a review of highway collisions data collected from SCC between 2014 and 2019. The highway links included within this analysis include the A143 (including the School Road/East Barton Road and Mill Road junction) and Mill Road. The assessment identified that there were no existing highway safety issues that would likely be exacerbated by the additional traffic from the development.
- 2.5.9 In addition to the above, extensive capacity assessments were undertaken of the local and strategic highway network. Following this exercise and number of pieces of mitigation were proposed. These included improvements at the following junctions:
- A143 Compiegne Way / Orttewell Road / Barton Road;
 - A143 Compiegne Way / A134
 - A143 Bury Road / Fornham Road
- 2.5.10 The Mill Road/A143 junction was also individually assessed as part of the work undertaken in support of the proposed development. It was found that the junction operates well within its theoretical capacity and no mitigation is required.
- 2.5.11 Similarly, no material impacts are predicted on the strategic road network as part of the Land North East of Bury St Edmunds proposals.

2.6 Thurston Residential Developments

- 2.6.1 A collection of residential developments were given planning consent in 2016 for approximately 800 dwellings. These were collectively called the Thurston 5. Following this a number of additional residential planning applications have also been submitted in the village. If all approved these will take the number of new consented dwellings in Thurston to approximately 1,200 since 2016.

- 2.6.2 As part of the original Thurston 5, SCC Highways commissioned an independent study of the cumulative impacts of the proposed residential developments on the highway network.
- 2.6.3 This included detailed junction modelling at six junctions. Five of the junctions that were assessed are located within the village. The remaining junction that was assessed was the A143/Thurston Road crossroads.
- 2.6.4 It was found that queuing regularly occurs at this junction (specifically on the Thurston Road arms) and the junction operated over capacity. It was identified that contributions from the Thurston 5 will be used to upgrade the junction from a priority controlled crossroads to a signalised junction which includes a right-hand turn lane.
- 2.6.5 In assessing the proposed signalised junction it was found that the junction would still be operating at capacity on two arms during the AM peak period. It is understood that no further mitigation to the junction layout is considered possible, however, the installation of a MOVA system (Microprocessor Optimised Vehicle Actuation) could improve the operation of the junction.

3.0 Transport Policy Review

3.1 Introduction

3.1.1 This section of the report outlines the national, regional and local planning policies relevant to the proposed development site.

3.2 National Transport Planning Policy

National Planning Policy Framework (NPPF)

3.2.1 The National Planning Policy Framework (NPPF) was adopted in February 2019 and outlines the potential benefits and outlines transport issues which should be considered from the earliest stages of plan-making and development proposals.

3.2.2 Section 9, Promoting Sustainable Transport, of the NPPF outlines the important role that considering development applications should ensure that:

- *'appropriate opportunities to promote sustainable transport 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.*

3.2.3 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; and*
- *Provide for high quality walking and cycling networks and supporting facilities such as cycle parking (drawing on Local Cycling and Walking Infrastructure Plans);*

3.2.4 Paragraph 108 of the NPPF states applications for development should:

- a) *“Give priority 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;*

- b) *Address the needs of people with disabilities and reduced mobility in relation to all modes of transport;*
- c) *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;*
- d) *Allow for the efficient delivery of goods and access by service and emergency vehicles; and*
- e) *Be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations.”*

3.2.5 Paragraph 109 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 would be severe.

Gear Change: A bold vision for cycling and walking (2020)

3.2.6 The UK Government has ambitions to significantly increase cycling and walking within the UK. It outlines a number of clear benefits to increasing walking and cycling that include:

- Health benefits;
- Wellbeing benefits;
- Benefits to the environment, congestion and air quality; and
- Economic benefits including benefits to the local economy.

3.2.7 The document sets out its actions to increase walking and cycling under four key themes.

Theme 1: Better Streets for Cycles and People

3.2.8 This theme discusses the creation of additional cycle routes segregated from pedestrians and traffic and the benefits which this can have.

3.2.9 In addition, the creation of more “school streets” is discussed. Under these schemes, during term time, local authorities close streets to through traffic and have parking restrictions at school pick-up and drop-off times. Access is maintained for residents and other requirements, such as to drop off children who may have mobility difficulties and cannot walk far. The schemes can reduce the number of people driving their children to school by up to a third and reduce the risk of casualties by reducing the chance for vehicle / pedestrian / cycle conflict.

3.2.10 A number of design principles in the creation of cycle routes are highlighted within the document which are summarised in **Figure 3.1**. These design principles are expanding on in greater detail within Local Transport Note 1/20 July 2020 – Cycle Infrastructure Design.

Figure 3.1 – Cycle Routes Key Design Principles



(Source: *Gear Change A bold vision for cycling and walking (2020)*)

Theme 2: Putting cycling and walking at the heart of transport, place-making, and health policy

3.2.11 This theme identifies a number of key headlines which are:

- The Government is looking to significantly increase spending on walking and cycling schemes;
- They will ensure that new local and strategic 'A' road schemes include appropriate provision for cycling;
- They will make sure the railways and buses work better with cyclists;
- Cycle parking should be increased and located where needed; and
- All new housing and business developments should be built around making sustainable travel, including cycling and walking, the first choice for journeys.

Theme 3: Empowering and encouraging local authorities

3.2.12 This theme identifies the need for local authorities to do more for cycling on their roads, including appropriate maintenance.

- 3.2.13 The Government has identified £2 billion of new investment, in addition to existing funding, that will be provided over the next five years, the great majority of which will be given to local authorities to increase walking and cycling.
- 3.2.14 Local authorities will be given more powers under the Traffic Management Act 2004 to allow enforcement against moving traffic offences such as disregarding one-way systems or entering mandatory cycle lanes.
- 3.2.15 The Government will not fund or part-fund any scheme that does not meet the new standards and principles described in Theme 1 and Local Transport Note 1/20 (Department for Transport, 2020).
- 3.2.16 The guidance details that a new commissioning body and inspectorate, Active Travel England, led by a new national cycling and walking commissioner will be established. Active Travel England will inspect, and publish annual reports on, highway authorities, grading them on their performance on active travel and identifying particularly dangerous failings in their highways for cyclists and pedestrians.

Theme 4: We will enable people to cycle and protect them when they cycle

- 3.2.17 This theme discusses improving the ability of people to cycle and protecting them when they do. The Government wants to ensure that cycle training is available to every adult and child.
- 3.2.18 Furthermore, the Government wishes to work more closely with the NHS to incentivise GPs to prescribe cycling and building cycle facilities in towns with poor health.
- 3.2.19 In addition, the Government has identified the following actions under Theme 4:
- Doing more to combat bike theft;
 - Make legal changes to protect vulnerable road users;
 - Updating The Highway Code to strengthen and improve safety for all road users;
 - Create higher safety standards on lorries; and
 - Establish a national electrically-assisted bike support programme.

3.3 Local Policy

Suffolk Local Transport Plan 2011 – 2031 (2010)

- 3.3.1 The Local Transport Plan (LTP) illustrates the importance of transport in supporting and facilitating future sustainable economic growth by:
- *maintaining (and in the future improving) our transport networks;*
 - *tackling congestion;*
 - *improving access to jobs and markets; and*
 - *encouraging a shift to more sustainable travel patterns.*

- 3.3.2 The LTP identifies the requirement to reduce the immediate need for travel through better spatial planning so that homes and employment are better connected.
- 3.3.3 In addition, measures should be explored that influence the choices that people make about how to travel to work, school and other services, particularly in the peak morning and evening periods when most congestion occurs.
- 3.3.4 The LTP also acknowledges that there is an air quality issues within Great Barton and severance issues created by the A143. It states:

“There is an air quality issue within Great Barton due to the volume of traffic, heavy goods vehicle numbers and parking in the centre of the village. Queuing and the volume of vehicles can result in delays to journeys and can also create a segregation effect in hampering social interaction within the village on one side of the road to the Suffolk Local Transport Plan 2011-2031 Part 1 – Transport Strategy 23 other. The A143 also segregates parts of the village.

Suffolk Design Guide for Residential Areas

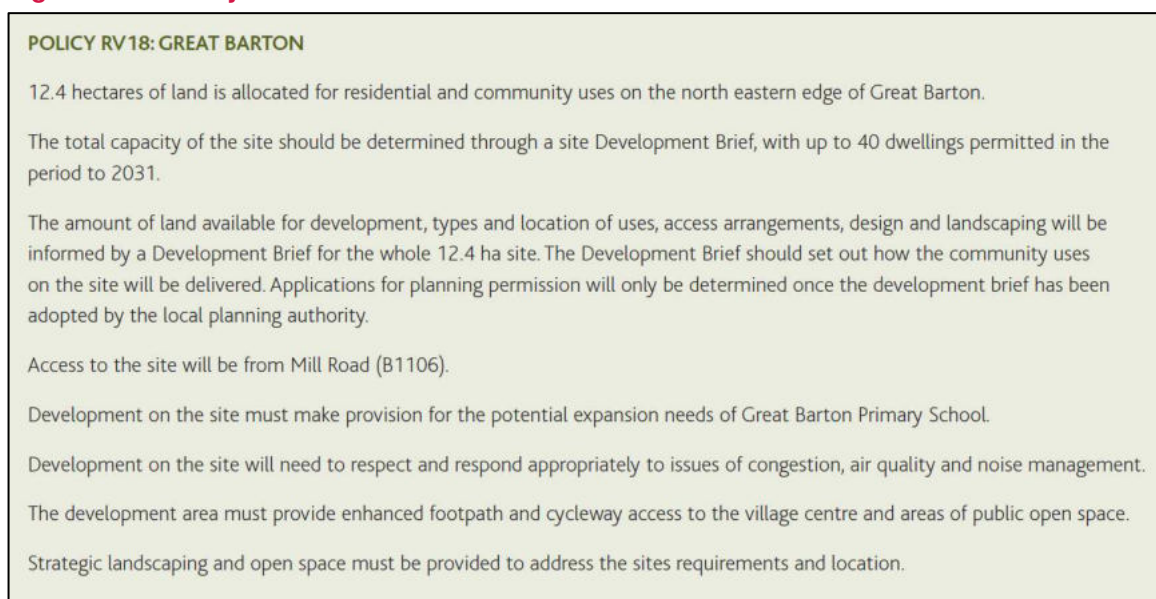
- 3.3.5 The Suffolk Design Guide for Residential Areas is used as supplementary planning guidance by all local authorities in Suffolk. It was revised in 2000 in accordance to changes in planning policy guidance.
- 3.3.6 The Deign Guide aims to set out the principles, or guidance which should be adopted by all those involved in the development of housing development.
- 3.3.7 It sets out principles relating to all road users as well as sets out parking standards in relation to new developments.

Rural Vision 2031

- 3.3.8 The site is allocated for up to 40 dwellings as part of the Rural Vision 2031, produced by St Edmundsbury Borough Council in 2014 (Policy RV18: Great Barton).
- 3.3.9 The Rural Vision 2031, designates Great Barton as a Local Service Centre within the Core Strategy in recognition of the range of local services and facilities it has to serve the community and surrounding rural population.
- 3.3.10 However, it does go onto recognise that new development in Great Barton may be potentially constrained due to safety issues and access on to the A143.
- 3.3.11 The A143 is a key strategic link within the area, the Rural Vision 2031 document highlights that any new development within the village, may produce the need for local junction safety assessments and investigation into potential upgrades.
- 3.3.12 It should also be noted that the document also acknowledges that the public transport links to Bury St Edmunds are very good with frequent bus services available.
- 3.3.13 Following an appraisal of the evidence base collected to support the Rural Vision 2031, it was determined that development to the north east, adjacent to the school, would be the most appropriate location for the future long-term growth of Great Barton.

- 3.3.14 In identifying the development site as the most suitable place for growth, the Parish Council identified a number of opportunities and constraints specific to transport and highways:
- The Parish Council would like to find a way to address current infrastructure problems in the village including tackling the A143 which separates key facilities from the main village population; parking issues on School Road; the need for the primary school to expand; and the provision of day-to-day services for the local community.
 - This area would be appropriate for a long-term mixed-use development which would take into account the needs of the primary school and address the current issues around car parking and congestion on School Road.
 - Access to the development site will be from Mill Road (B1106). There are speeding issues on this road and measures to address this should be considered as part of any proposals for development on the site.
 - Consideration should be given to the provision of measures that would assist in improving access to Great Barton Primary School. Any proposals for development on the site should allow for the future expansion of Great Barton
 - The opportunity for improving sustainable transport links in the village should be investigated including the viability of the provision of a dedicated cycle route from the village into Bury St Edmunds. A transport assessment and safety audit will be required as part of any proposals for development on the site.
- 3.3.15 The exact wording of Policy RV18 of the Rural Vision 2031 document is shown in **Figure 3.2**.

Figure 3.2 – Policy RV18: Great Barton



3.3.16 The Rural Vision 2031 document also identifies the aspirations for a local by-pass around Great Barton. This is reflected in the Suffolk Local Transport Plan 2011-2031, however, it acknowledges, there is no capital investment available to undertake this project at the present time.

Great Barton Neighbourhood Plan (2019 - 2041)

3.3.17 The draft Great Barton Neighbourhood Plan has been produced by Great Barton Parish Council and is expected to be adopted in May 2021.

3.3.18 The Neighbourhood Plan identifies a number of transport objectives which are:

- To promote measures to improve the safety of the roads and footways through the Parish.
- To provide improvements to footpath connections through the Parish including measures to enhance pedestrian safety and safe crossing points.
- To maintain, develop and enhance cycle routes through the Parish.
- To ensure that new development provides sufficient parking.
- To minimise the impact of future development on the existing highway network; and
- To encourage non-car modes, including public transport.

3.3.19 The Neighbourhood Plan identifies the Rural Vision 2031, policy RV18, and acknowledges that the site has a capacity for more than 40 homes, however, it recognises that any future development should be informed and supported by a Development Brief.

3.3.20 The Parish Council with support from external consultants have identified a number of Development Principles with regards to the development site. Those specific to 'Access and Movement' are as follows:

- A high level of connectivity between existing and new residential areas, external public rights of way and open spaces;
- A singular vehicular access from Mill Road;
- No vehicular access from School Road or the A143;
- Ensure that highway safety for all users is given primary consideration;
- Footpath and cycleway connections through the site to provide links between School Road, Mill Road and the A134;
- The provision of a footpath along the Mill Road frontage;
- Appropriate pedestrian crossing facilities to connect the site to the wider area; and
- A convenient area for use as a school pick up/drop off facility.

3.3.21 As part of the Neighbourhood Plan a concept diagram has been produced and is shown in **Figure 3.3**.

Figure 3.3 – Neighbourhood Plan Concept Diagram



3.3.22 The Neighbourhood Plan and the accompanying work undertaken to support it uses the Concept Diagram to identify its responses to the RV18 Policy requirements set out within the Rural Vision 2031 document. These summaries, as provided in the Neighbourhood Plan, are provided in **Table 3.1**.

Table 3.1 – Neighbourhood Plan Response to Rural Vision 2031 Policy Requirements

Policy RV18 Requirement	Concept Diagram Response
Access to the site will be from Mill Road (B1106).	The Concept Diagram supports this and specifically does not allow vehicular access to the site from School Road.
Development on the site must make provision for the potential expansion needs of Great Barton Primary School.	An area for community use immediately north of the Primary School and Pre-School is identified which will enable the school to expand.
Development on the site will need to respect and respond appropriately to issues of congestion, air quality and noise management.	The Concept Diagram makes provision for an access off Mill Road and the County Council will be encouraged to manage and reduce on-street parking on School Road.
The development area must provide enhanced footpath and cycleway access to the village centre and areas of public open space.	The Concept Diagram is based on the principle of providing convenient and attractive pedestrian and cycle links to nearby facilities and off-site public rights of way.
Strategic landscaping and open space must be provided to address the site's requirements and location.	Landscaping has been designed to both screen the development and provide green lungs through the site. An area of open space and recreation is provided for in the vicinity of the school / community facilities.

3.3.23 The concept diagram suggests suggesting a maximum site capacity of up to 150 homes, however, the future capacity of the site should be led by the Development Brief and supporting technical information.

3.3.24 The Exact wording of the Great Barton Neighbourhood Plan Policy GB3 is shown in **Figure 3.4**.

Figure 3.4 – Neighbourhood Plan Policy GB3

Policy GB 3 - Land at School Road (The Triangle)

12.4 hectares of land at School Road, known as The Triangle and identified on the Policies Map, is allocated for the following development:

- i) up to 150 dwellings including 15% bungalows and 30% affordable housing;
- ii) community facilities that could include the uses identified in Policy GB7;
- iii) at least 0.65 hectares of land for the expansion of the primary school; and
- iv) recreational open space and children's play.

Development of the site should be undertaken in accordance with the Concept Diagram (Figure 12) and the Development Principles set out in this Plan and any future adopted development brief for the site as required by Policy RV 18 of the Rural Vision 2031 Local Plan document.

Proposals should also enable the reduction of traffic speeds on Mill Road and the provision of safe crossing points on School Road, Mill Road and the A143 (The Street) to enable safe and sustainable travel to the wider public rights of way network and village facilities.

Housing proposals should provide a mix of sizes and types in accordance with the need identified in the Neighbourhood Plan unless clear and demonstrable evidence is provided to justify an alternative response that is supported by the local community.

The affordable housing provision should be designed so that it is 'tenure blind' (so that it is indistinguishable from open market housing), be distributed around the site and not concentrated in any one area.

Proposals that include an element of self-build housing will be supported.

4.0 Site Accessibility

4.1 Introduction

4.1.1 The accessibility of the proposed development site by non-car modes is considered in the context of the following:

- Pedestrian Accessibility;
- Cyclist Accessibility; and
- Public Transport Accessibility.

4.2 Pedestrian Accessibility

4.2.1 Research has indicated that acceptable walking distances depend on a number of factors, including the quality of the development, the type of amenity offered, the surrounding area, and other local facilities. The Chartered Institution for Highways and Transportation (CIHT) document entitled 'Providing for Journeys on Foot' suggests walking distances which are relevant to this assessment. These are reproduced in **Table 4.1**.

Table 4.1 – CIHT Suggested Acceptable Walking Distances

Category	Town Centres (m)	Commuting/School/Sightseeing (m)	Elsewhere/Local Services (m)
Desirable	200	500	400
Acceptable	400	1,000	800
Preferred Maximum	800	2,000	1,200

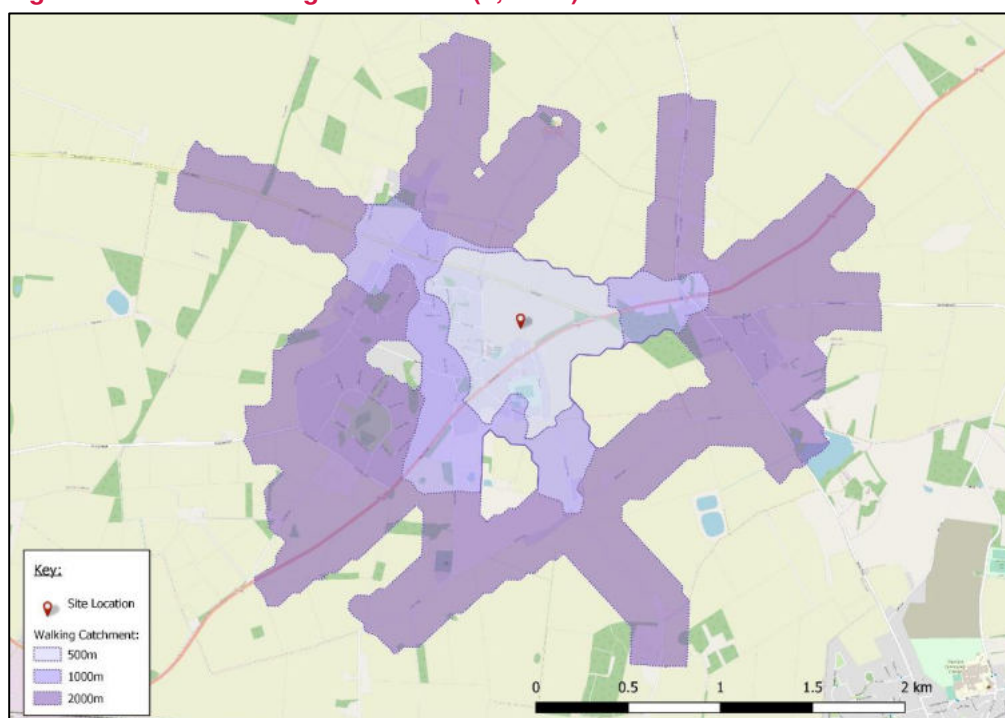
4.2.2 A number of key facilities and amenities are located within walking distance of the site. **Table 4.2** highlights these locations in respect to the acceptable walking distances in **Table 4.1**.

4.2.3 New pedestrian access points are expected to be created on Mill Road, School Road and the A143, as such the distances stated below have been measured from the centre of the site frontage closest to the destination.

Table 4.2 – Distances to Key Existing Facilities & Amenities

Destination	Walking Distance (m)	Acceptability
Great Barton Primary School	220	Desirable
Esso Garage & Shop	240	Desirable
Village Hall	350	Desirable
Cox Lane Playing Field	350	Desirable
Great Barton Post Office	450	Acceptable
Freedom Church	500	Acceptable
Bus Stop (A143)	550	Acceptable
The Bunbury Arms	750	Acceptable

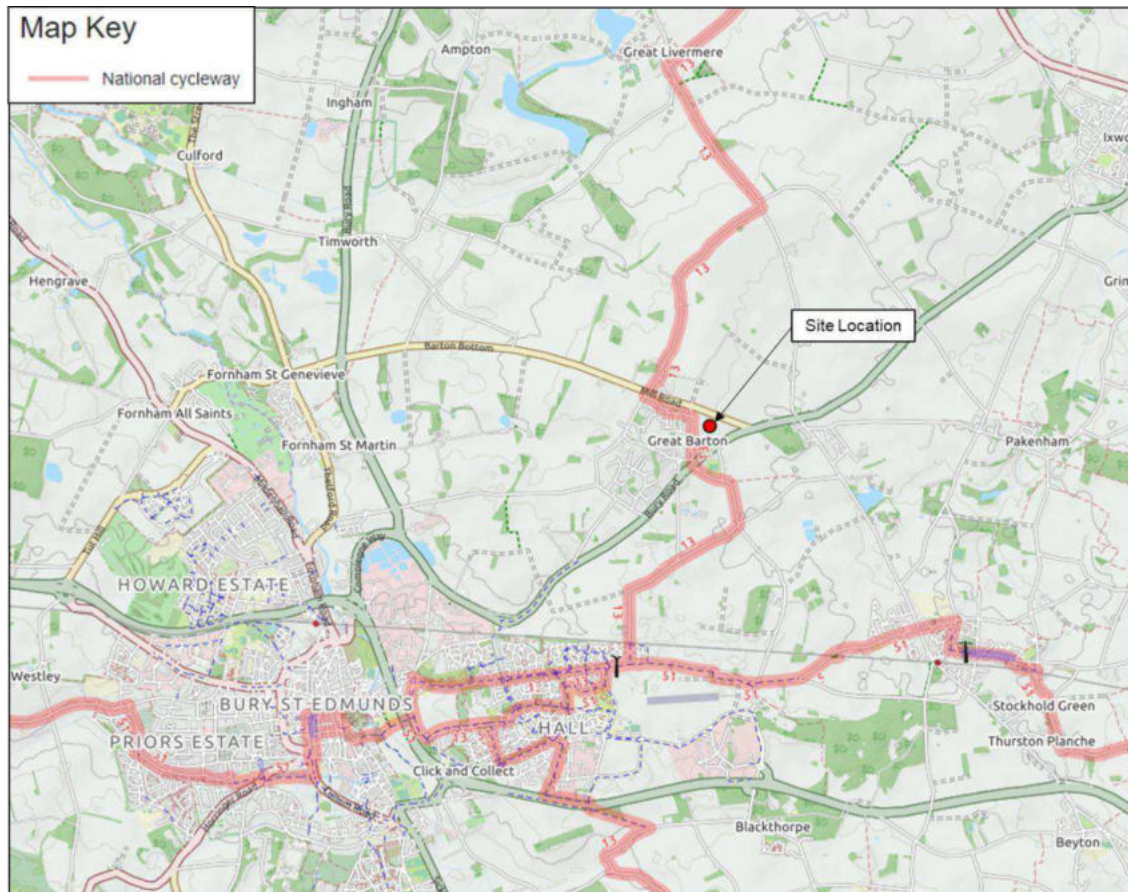
- 4.2.4 A number of community uses such as a post office, convenience shop, café and multi-use games area (MUGA) are to be located within the site as part of any forthcoming development in line with the draft Great Barton Neighbourhood Plan design principles. These uses would be located within the desirable walking distances specified in **Table 4.1**, thereby increasing the overall sustainability of the site in terms of location.
- 4.2.5 It should also be noted that the Draft Neighbourhood Plan has set a number of objects that seek to provide improvements to footpath and cycle routes through the parish.
- 4.2.6 **Figure 4.1** illustrates the 2.0km walking catchment measured from the centre of the site. The walking isochrones were generated using TRACC Basemap accessibility planning software.

Figure 4.1 – Site Walking Catchment (2,000m)

4.3 Cyclist Accessibility

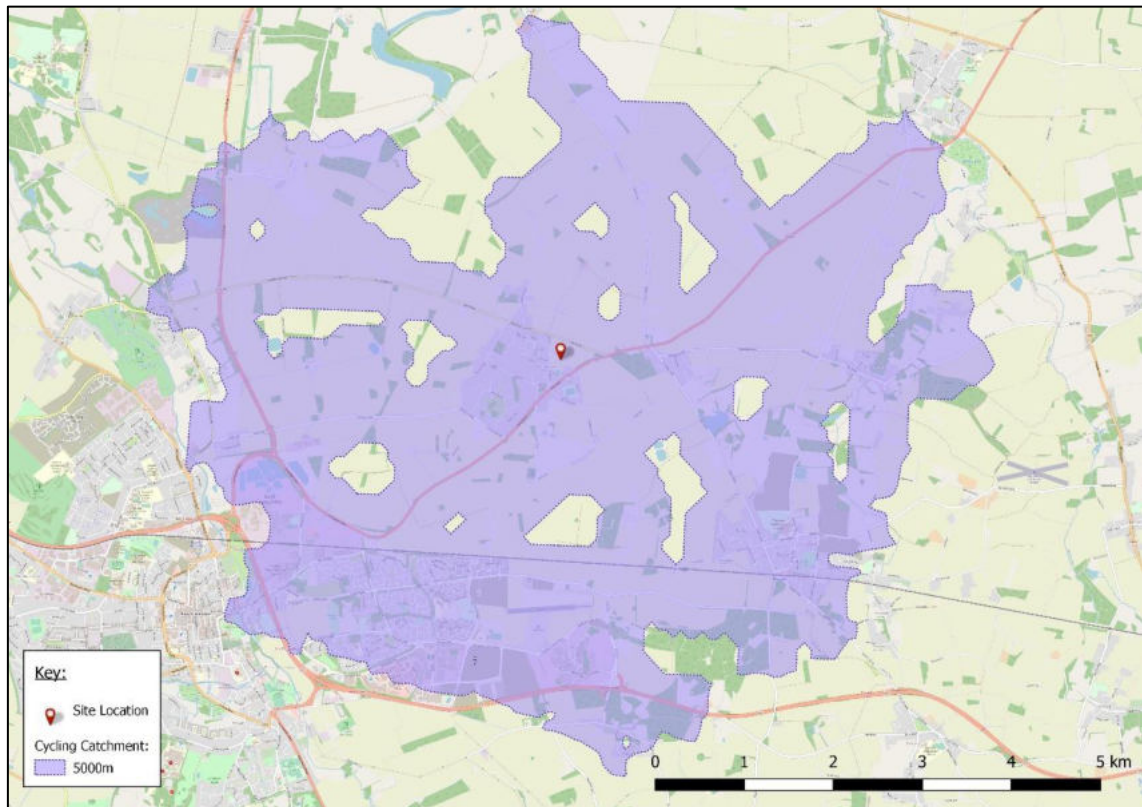
- 4.3.1 School Road forms part of National Cycle Route 13, which connects Great Barton to Bury St. Edmunds in the south and Thetford in the north. No formal markings are provided on or off the carriageway to denote this. The location of the site in the context to the local cycle network is shown in **Figure 4.2**.

Figure 4.2 – Local Cycle Network



- 4.3.2 It is generally considered that 5.0km is an acceptable distance to cycle travel to work or nearby facilities and amenities. As with walking, this distance is illustrative, and will vary by individual according to their personal mobility and fitness and will be influenced by their perception and prejudices on such factors such as local topography and attitude towards particular travel modes.
- 4.3.3 **Figure 4.3** illustrates the a 5.0km cycling catchment measured from the centre of the site. The cycling isochrone was generated using Basemap's TRACC accessibility planning software.

Figure 4.3 – Site Cycling Catchment (5,000m)



4.4 Public Transport Accessibility

Local Bus Services

- 4.4.1 Bus services 300, 304, 338 pass through Great Barton and can be accessed from a public bus stop on the A143 circa 500m from the site. Both bus stops comprise flag and timetable arrangements and are sheltered. A summary of the services and their frequencies are summarised in **Table 4.3**.
- 4.4.2 Bus service 304 also stops at the Great Barton Primary School bus stop on school days at 08:08 and 15:36.

Table 4.3 – Trip Rates: Weekday Network Peak Hours

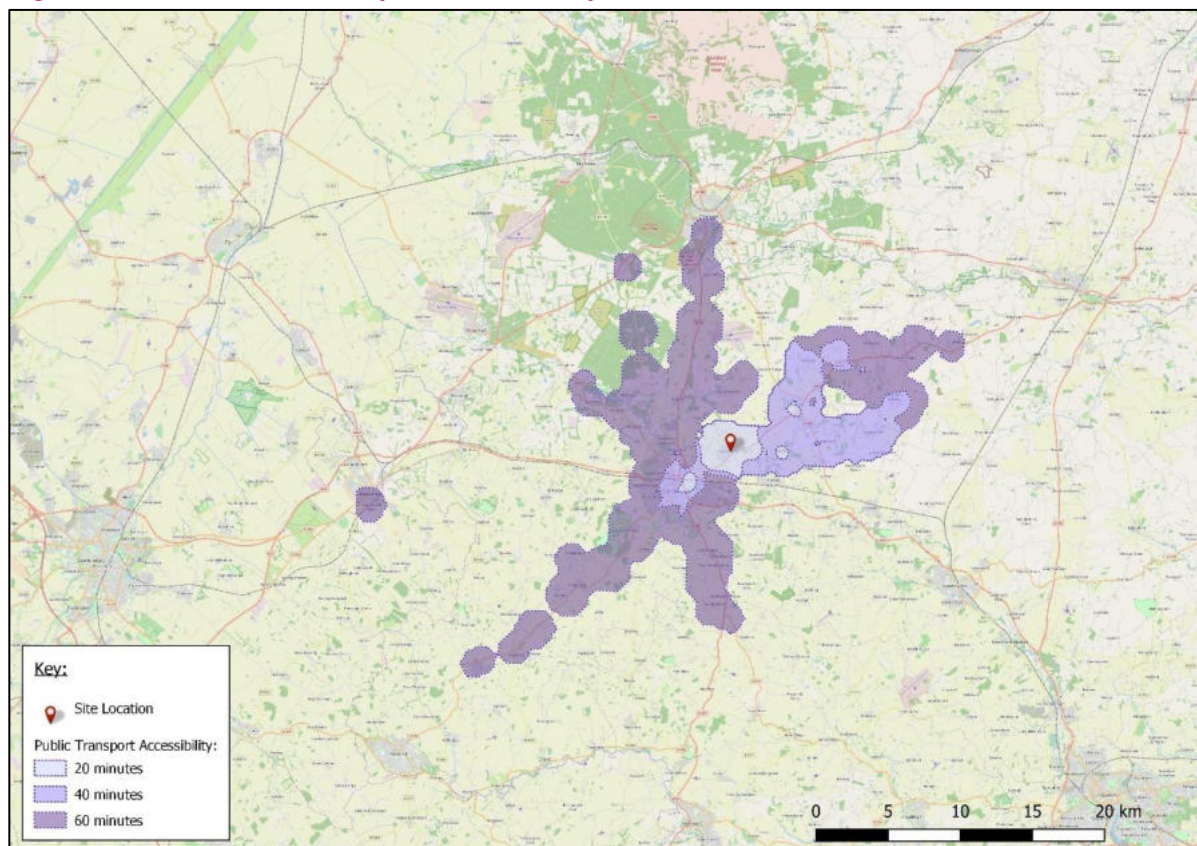
Service	Route	Frequency	
		Weekday	Saturday
300	Bury St. Edmunds - Ixworth Thorpe - Ixworth - Pakenham	Wednesdays Only Southbound: 09:52 Northbound: 13:52	No Service
304	Bury St. Edmunds - Stanton - Ixworth - Diss	Southbound: 07:07, 10:11, 13:32 Northbound: 08:06, 12:06, 16:06, 18:57	Southbound: 08:31, 11:16, 15:02, 16:34 Northbound: 12:31, 16:00, 18:01
338	Bury St. Edmunds - Stanton - Ixworth - Garboldisham	Southbound: 07:31, 10:45, 13:59 Northbound: 08:53, 15:01, 17:46	Southbound: 08:26, 10:00, 13:49 Northbound: 08:56, 11:25, 17:41

- 4.4.3 Future residents commuting to work in Bury St. Edmunds would be able to use bus routes 304 or 338, both of which offer peak hour services, providing a viable option to the private car. Furthermore, all the bus services specified in **Table 4.3** stop at Bury St. Edmunds bus and rail station within circa 15 minutes, where further connections are available.

Rail Services

- 4.4.4 The nearest rail station to the site is Thurston, located 3.8km (11-minute cycle) to the south-east. The station is managed by Greater Anglia and is served by local services between Ipswich and Cambridge. Thurston station has step free access and is provided with four Sheffield stand cycle hoops and 14 car parking spaces.
- 4.4.5 Bury St. Edmunds rail station is located in the town centre and is accessible within a 15-minute bus journey or 19-minute cycle (6.0km) from the site. The station is managed by Greater Anglia and is also located on the Ipswich – Ely / Cambridge line. The station has step free access and is provided with 24 cycle parking spaces and 23 car parking spaces.
- 4.4.6 The Rural 2031 document acknowledges that the public transport links to Bury St Edmunds are very good with frequent wide-ranging bus services available.
- 4.4.7 The areas accessible within 60 minutes during the AM weekday peak period are shown on the plan shown in **Figure 4.5**.

Figure 4.4 – Site Public Transport Accessibility Catchment



5.0 Trip Generation & Distribution Analysis

5.1 Introduction

5.1.1 This section of the report assesses the impact of the future development off the Mill Road site on the local transport network, with an emphasis on the network peak hours.

5.2 Proposed Trip Rates

5.2.1 It is important that a consistent approach is followed when forecasting future traffic demand in the region. As such, the vehicular trips rates contained in the 2019 Transport Assessment for the 'Land North East of Bury St Edmunds' scheme have been extracted and used to calculate the anticipated level of vehicular trips generated by the proposed development.

5.2.2 The trip rates have been reproduced in **Table 5.1** and were originally derived from the TRICS database.

Table 5.1 – Trip Rates: Weekday Network Peak Hours

Period	Trip Rate (per dwelling)		
	Arrival	Departure	Two-way
AM Peak (08:00 - 09:00)	0.163	0.460	0.623
PM Peak (17:00 - 18:00)	0.364	0.166	0.530

5.3 Vehicle Trip Generation: 40 Dwelling Scheme

5.3.1 The initial phase of the proposed development would provide a total of 40 dwellings. The resulting weekday network peak hour vehicular trip generation (per vehicle) is shown in **Table 5.2**.

Table 5.2 – Trip Generation: 40 Dwellings

Period	Trip Rate (per vehicle)		
	Arrival	Departure	Two-way
AM Peak (08:00 - 09:00)	7	18	25
PM Peak (17:00 - 18:00)	15	7	21

5.3.2 **Table 5.2** demonstrates that the proposed 40 dwelling scheme would generate a total of 25 two-way trips during the AM peak hour and 21 during the PM peak hour.

5.4 Vehicle Trip Generation: Wider Allocation (150 Dwellings)

5.4.1 The wider site allocation as set out within the Great Barton Neighbourhood Plan is for up to 150 dwellings. For the purpose of a robust assessment the vehicle trip generation associated with the wider allocation has also been calculated and is shown in **Table 5.3**.

Table 5.3 – Trip Generation: 150 Dwellings

Period	Trip Rate (per vehicle)		
	Arrival	Departure	Two-way
AM Peak (08:00 - 09:00)	24	69	93
PM Peak (17:00 - 18:00)	55	25	80

5.4.2 **Table 5.3** demonstrates that the wider allocation has the potential to generate up to 93 two-way vehicular trips during the AM peak hour and 80 during the PM hour.

5.5 Proposed Distribution

5.5.1 The development trips have been distributed through the local highway network so that the schemes impact on key local junctions can be understood. The trip distribution has been based on 2011 Census Journey to Work data for those living in Bury St. Edmunds Ward 004 (Nomis database super output area E02006276).

5.5.2 The proposed distribution is shown in the flow diagrams contained at **Appendix B**.

6.0 Highway Impact Assessment

6.1 Introduction

6.1.1 This section of the report assesses the proposed vehicle trip generation impact on the local highway network in terms of capacity and delay.

6.2 Study Area

6.2.1 The study area has been defined by the three local junctions that are likely to experience the greatest changes in peak hour trips once the Mill Road site vehicle trips have been distributed through the network. The junctions with the greatest impacts are listed below and are also referenced in **Figure 6.1**:

1. Mill Road / School Road priority junction;
2. A142 / Mill Road priority junction; and
3. A142 / School Road / E Barton Road crossroads.

Figure 6.1 – Local Cycle Network



6.3 Baseline Traffic Flows

6.3.1 The traffic flows used in the SCTM traffic model for the 2021 and 2036 'Do Something' scenarios have been extracted from WSP's TA for the Land North-East of Bury St. Edmunds scheme as discussed in Section 2.4 of this report. These flows have been used as the baseline against which the proposed trip generation has been assessed, as these scenarios not only include the flows associated with committed developments referenced in **Appendix A**, but also the development flows associated with the Bury St. Edmunds scheme itself.

6.4 Assessment Scenarios

6.4.1 In line with the approach taken for the Land North-East of Bury St. Edmunds scheme, the future assessment years will form 2021 and 2036. The intermediate year of 2026 has also been included within the assessment, as is usually the case for highway impact assessment that require detailed junction modelling.

6.4.2 The intermediate future assessment year 2026 has been calculated by using the industry standard traffic forecasting tool TEMPro to generate the peak hour traffic growth factors shown in **Table 6.1**.

Table 6.1 – TEMPro Growth Factors

Period	Growth Factor	
	AM	PM
2021 - 2026	1.0785	1.0804

6.4.3 The assessment scenarios have been listed below for clarity:

1. 2021 Baseline (WSP 2021 'Do Something Scenario')
2. 2021 Baseline + Development (40 dwellings)
3. 2021 Baseline + Development (150 dwellings)
4. 2026 Baseline (2021 Baseline x TEMPro growth factor)
5. 2026 Baseline + Development (40 dwellings)
6. 2026 Baseline + Development (150 dwellings)
7. 2036 Baseline (WSP 2036 'Do Something Scenario')
8. 2036 Baseline + Development (40 dwellings)
9. 2036 Baseline + Development (150 dwellings)

6.4.4 The corresponding traffic flow diagrams for each of the above scenarios is provided at **Appendix C**.

6.5 Junction 1: Mill Road / School Road

- 6.5.1 As stated in Section 2 of this report it has not been possible to obtain any historic turning counts for traffic at the Mill Road / School Road junction. However, the proposed distribution exercise indicates that no development trips are expected to turn onto School Road at this junction, but rather continue unobstructed along the Mill Road.
- 6.5.2 The proposed 40 dwelling scheme would generate in the region of 10 peak hour vehicle trips along the major arm of the junction (Mill Road) and the 150 dwelling wider allocation would generate circa 40 trips i.e. one vehicle every minute and a half. This level of increase of throughflow traffic on the major arm would likely result in a minor decrease in capacity and increase in queueing at the junction but would be minimal given that the impacted traffic streams would continue to flow largely unobstructed.
- 6.5.3 However, as part of the wider allocation a new dedicated drop-off / pick-up facility is to be located within the site and accessed from Mill Road as stated in the Draft Neighbourhood Plan under Policy GB3. As such, the number of vehicles using School Road during the school peak periods would decrease thereby, in theory, benefiting the Mill Road / School Road junction.
- 6.5.4 Although the proposed trip generation is expected to have a limited negative impact on the junction during the network peak hour, it is envisaged that a positive impact in terms of capacity and vehicle queueing would be observed during the school peak period.
- 6.5.5 As such, the initial impact assessment concludes that no capacity issues at this junction are expected to prevent the development of the site. This is further validated within the WSP TA for the Bury St. Edmunds scheme (Table 7.9), which used the SCTM to calculate the link capacity of Mill Road. The exercise highlighted that even during the worst case 2036 'Do Something' scenario, flows along Mill Road were only at 65% of its total link capacity.

6.6 Junction 2: A142 / Mill Road

- 6.6.1 The A142 / Mill Road junction has been assessed using the PICADY module of Junctions 9. PICADY results refer to the Ratio of Flow to Capacity (RFC) and queue length predicted on each arm of the junction. An RFC of 1.00 indicates that the arm in question is operating at its theoretical capacity, whilst an RFC of 0.85 or less indicates that the arm is operating within its practical capacity.
- 6.6.2 **Table 6.2** summarises the PICADY results with the full model outputs provided at **Appendix D**.

Table 6.2 – Junction 2: PICADY Model Results

Arm	AM			PM		
	RFC	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)
2021 Base						
Mill Road	0.27	0.4	8.63	0.86	5.6	52.99
A143	0.54	1.2	12.24	0.31	0.4	10.21
2021 Base + 40 Dwellings						
Mill Road	0.28	0.4	8.72	0.86	5.7	53.73
A143	0.54	1.2	12.28	0.32	0.5	10.3
2021 Base + 150 Dwellings						
Mill Road	0.29	0.4	8.95	0.87	6.2	57.75
A143	0.54	1.2	12.45	0.33	0.5	10.57
2026 Base						
Mill Road	0.29	0.4	9.12	0.97	16.3	144.51
A143	0.59	1.4	14.08	0.35	0.5	11.32
2026 Base + 40 Dwellings						
Mill Road	0.3	0.4	9.21	0.97	16.8	148.29
A143	0.59	1.4	14.14	0.36	0.6	11.43
2026 Base + 150 Dwellings						
Mill Road	0.32	0.5	9.48	0.98	18.8	164.72
A143	0.6	1.5	14.36	0.37	0.6	11.76
2036 Base						
Mill Road	0.61	1.5	16.9	0.92	9.3	86.47
A143	0.83	4.7	34.59	0.44	0.8	13.01
2036 Base + 40 Dwellings						
Mill Road	0.62	1.6	17.23	0.92	9.5	88.23
A143	0.83	4.7	34.92	0.45	0.8	13.15
2036 Base + 150 Dwellings						
Mill Road	0.64	1.7	18.18	0.93	10.7	97.98
A143	0.84	5	36.29	0.46	0.9	13.6

6.6.3 The junction assessment results summarised in **Table 6.2** show that all arms of the priority junction are forecast to operate within their theoretical capacity in both the AM and PM peak hours in all scenarios i.e. all arms operate with an RFC value below 1.0.

6.6.4 However, Mill Road is shown to operate above its practical capacity (0.85) during the PM peak in all scenarios. It is clear from the results that the development traffic is not the cause for the observed increase in practical capacity, but rather the background traffic growth associated with the committed developments and further TEMPro growth factors. The increase in queuing as a result of the development is less than one PCU for the 40-dwelling scheme and a maximum of two PCUs for the 150 dwelling wider allocation. As such, the proposed development trips are expected to have a non-material impact at the junction.

6.6.5 The results of the PICADY model built by WSP as part of the Land North East of Bury St. Edmunds TA indicated similar incremental increases in RFC values between the scenarios, although the overall values for Mill Road were circa 5% lower than those shown in **Table 6.2**. This is likely due to differences in the geometric parameters entered, however, the raw model inputs were not included in the appendices of the WSP TA and as such are unable to be validated. Discussions will be held with SCC to determine whether any mitigation measures are required, however, it should be noted that none were proposed within the WSP TA.

6.7 Junction 3: A142 / School Road / E Barton Road

6.7.1 The A142 / School Road / E Barton Road junction has also been assessed using the PICADY module of Junctions 9.

6.7.2 **Table 6.2** summarises the PICADY results with the full model outputs provided at **Appendix D**.

Table 6.3 – Junction 3: PICADY Model Results

Arm	AM			PM		
	RFC	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)
2021 Base						
E Barton Road	0.16	0.2	19.62	0.34	0.5	21.3
A143 East	0	0	0	0	0	0
School Road	0.08	0.1	15.9	0.12	0.1	18.35
A143 West	0.05	0.1	4.67	0.01	0	3.21
2021 Base + 40 Dwellings						
E Barton Road	0.16	0.2	19.78	0.34	0.5	21.56
A143 East	0	0	0	0	0	0
School Road	0.08	0.1	15.99	0.12	0.1	18.46
A143 West	0.05	0.1	4.66	0.01	0	3.2
2021 Base + 150 Dwellings						
E Barton Road	0.17	0.2	20.37	0.35	0.5	22.06
A143 East	0	0	0	0	0	0
School Road	0.08	0.1	16.22	0.12	0.1	18.79
A143 West	0.05	0.1	4.66	0.01	0	3.18
2026 Base						
E Barton Road	0.19	0.2	22.66	0.39	0.6	25.02
A143 East	0	0	0	0	0	0
School Road	0.09	0.1	17.4	0.15	0.2	20.88
A143 West	0.05	0.1	4.59	0.01	0	3.09
2026 Base + 40 Dwellings						
E Barton Road	0.19	0.2	22.87	0.4	0.7	25.4
A143 East	0	0	0	0	0	0
School Road	0.09	0.1	17.5	0.15	0.2	21.06
A143 West	0.05	0.1	4.59	0.01	0	3.08
2026 Base + 150 Dwellings						
E Barton Road	0.2	0.2	23.62	0.41	0.7	26.07
A143 East	0	0	0	0	0	0
School Road	0.09	0.1	17.78	0.15	0.2	21.46
A143 West	0.05	0.1	4.59	0.01	0	3.07
2036 Base						
E Barton Road	0.57	1.3	33.52	1.24	96.2	1281.5
A143 East	0	0	0	0	0	0
School Road	0.17	0.2	18.9	0.4	0.6	30.75
A143 West	0.16	0.5	4.65	0.04	0.1	3.21
2036 Base + 40 Dwellings						
E Barton Road	0.57	1.3	33.99	1.25	99.3	1326.41
A143 East	0	0	0	0	0	0
School Road	0.17	0.2	19.02	0.41	0.7	31.95
A143 West	0.16	0.5	4.65	0.04	0.1	3.2
2036 Base + 150 Dwellings						
E Barton Road	0.59	1.4	35.8	1.27	104.9	1416.42

A143 East	0	0	0	0	0	0
School Road	0.18	0.2	19.37	0.44	0.7	35.21
A143 West	0.16	0.5	4.66	0.04	0.1	3.18

- 6.7.3 The junction assessment results summarised in **Table 6.3** show that all arms of the priority junction are forecast to operate within their practical capacity in both the AM and PM peak hours in all scenarios up until 2036 i.e. all arms operate with an RFC value below 0.85.
- 6.7.4 East Barton Road is shown to exceed its theoretical capacity during the PM peak hour of the 2036 baseline scenario i.e. operating at 124% of its capacity. The additional proposed development traffic does slightly exacerbate the observed capacity and queue lengths, however, these impacts are considered modest given that the proposed development would only route one car down E Barton Road for the 40 dwelling scheme and three cars for the 150 dwelling wider allocation during the PM peak period.
- 6.7.5 It is important to note that in instances where RFC values exceed a junctions theoretical capacity, increases are not proportional and are therefore not representative of the actual impact of the development traffic. Furthermore, the modelling software used is not able to account for the yellow box markings on the A143 in front of the East Barton Road arm of the junction. These markings would ensure vehicles would continue to be able to enter/exit East Barton Road should any queuing occur on the A143.
- 6.7.6 The significant uplift in RFC and queue lengths observed on East Barton Road during the 2036 baseline scenario is due to a large level of committed development traffic associated with the Land North East of Bury St. Edmunds scheme being distributed along this link. It is understood that ongoing discussions with SCC are currently taking place with regards to the volume of traffic being routed along East Barton Road.
- 6.7.7 The model results output report is provided at **Appendix D**.

6.8 Summary

- 6.8.1 The results of the junction models have indicated that the A143 / Mill Road and A143 / School Road / East Barton Road junctions would exceed their practical and theoretical capacities respectively during the future assessment years. However, the proposed development trips are not the driving factor causing this, but rather the background traffic growth experienced in the region as the result of the numerous committed developments.
- 6.8.2 As such, conversations will need to be held with SCC to determine a level of mitigation proportional to the development proposals impact.

7.0 Design Considerations

7.1 Introduction

7.1.1 This section of the report discusses the key transport and highways design considerations when considering development of the Mill Road site.

7.2 Vehicle Access

7.2.1 Vehicle access into the site shall only be from Mill Road, as required by Rural Vision 2031. No existing vegetation or services have been identified from the site topographical survey that would prevent vehicular access being achieved from Mill Road.

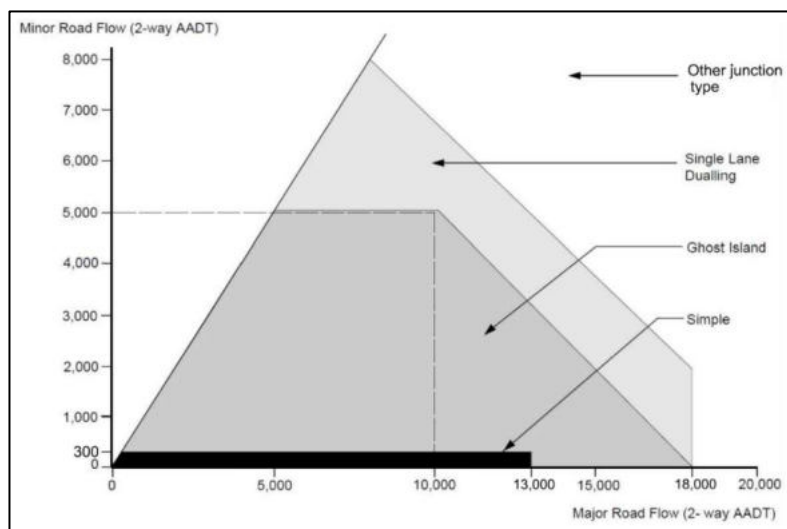
7.2.2 The site access should be provided with a minimum carriageway width of 5.5m with 6.0m radii at the junction bell mouths. Footways should be provided either side of the carriageway with a minimum width of 1.8m.

7.2.3 Mill Road is currently subject to the national speed limit in the location that vehicular access is to be achieved. The speed limit reduces to 30mph upon entering the village of Great Barton. It is advised that the 30mph village speed limit is extended further east along Mill Road up to the junction with the A143.

7.2.4 On this basis, unobstructed visibility is required in both directions upon exit from the proposed site access onto Mill Road to allow a vehicle to emerge safely. Visibility is normally required from a setback or 'x' distance of 2.4m along the minor arm. The stopping site distance (SSD) or 'y' distance over which visibility is required in each direction along the main road is related to the speed of approaching vehicles. The 'y' distance required for the posted speed limit of 30mph is 43m as outlined in Table 10.1 of Manual for Streets 2.

7.2.5 The Design Manual for Roads and Bridges CD123 details the type of priority junction provision required on single carriageway roads based on AADT. The chart shown in **Figure 7.1** displays the relationship between the major and minor arm AADT and junction type.

Figure 7.1 – Priority Junction Provision on Single Carriageway Roads (DMRB CD123)



- 7.2.6 **Figure 7.1** indicates that ghost island right-turn pocket is required at junctions where the minor arm generates in excess of 300 AADT and the major arm in excess of 13,000 AADT. Although AADT data for Mill Road has not yet been able to be obtained, it will likely be significantly below the 13,000 specified for the minor arm given that the A143 is shown to have 15,917. As such, a simple priority 'T' junction would be an appropriate design for the site vehicle access.
- 7.2.7 Policy RV18 states that any development on the site must make provision for the potential expansion needs of Great Barton Primary School. The development principles for Draft Neighbourhood Plan Policy GB3 then goes on to state that any new school drop-off facility should be accessed from Mill Road. Despite this statement with the Draft Neighbourhood Plan, it is advised that any such drop-off facility should be accessed from School Road and not accessed from within the development.

7.3 Emergency Access

- 7.3.1 The following is based on guidance taken from government produced building regulations guidance for fire safety for residential and non-residential buildings. More detailed guidance should be provided by the project's fire engineering consultant.
- 7.3.2 A fire appliance vehicle should be able to access all points within a dwelling within 45m. The access route for emergency vehicles should measure a minimum width of 3.7m and have a height clearance of at least 3.7m.
- 7.3.3 Fire vehicles should not be required to reverse distances greater than 20m. A turning area should be provided where the distance exceeds this.
- 7.3.4 With regards to the 150-dwelling wider allocation, consideration should be given as to whether any new pedestrian/cyclist accesses could also be used as a secondary emergency access should the main site access be blocked.

7.4 Internal Layout Design

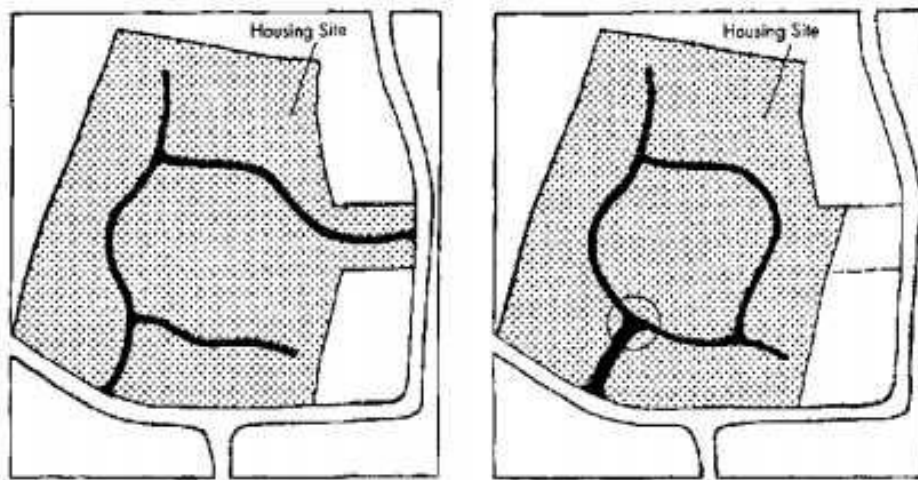
- 7.4.1 SCC categorises residential roads into the following hierarchy:
- **Major Access Roads** – residential roads with footways that would not normally serve than 300 dwellings and may give shared direct access to dwellings.
 - **Minor Access Roads** – residential roads with footways that provide direct access to dwellings and parking spaces but would not normally serve more than 100 dwellings.
 - **Shared Surface Roads** – residential roads without footways that would not normally serve more than 50 dwellings if looped or 25 in the form of a cul-de-sac.
 - **Shared Driveways** – unadopted paved areas that may serve the driveways of up to five dwellings.

7.4.2 The design of the residential road layouts should seek to reduce vehicle speeds and be considerate to the needs of pedestrians and cyclists.

7.4.3 For Major Access roads servicing more than 150 and up to 300 dwellings:

- a) Two points of access should be provided to the part of the site being served and the road layout should conveniently connect those points of access (**Figure 7.2a**).
- b) Where only one point of access is available the road layout should form a circuit and there should be the shortest practicable connection between this circuit and the point of access. This should always form the minor arm of a T-junction with a Local Distributor Road (**Figure 7.2b**).

Figure 7.2 – Access Requirements >150 <300 Dwellings



7.4.4 The guidance goes on to state that from an emergency access viewpoint, no more than 150 should be served by a single means of access. An emergency access could potentially be achieved from School Road and could otherwise be used by pedestrians and cyclists when not in use.

7.5 Parking Standards

7.5.1 The minimum car, cycle and powered two-wheeler (PTW) residential parking standards set out in 'Suffolk Guidance for Parking 2019' are shown in **Table 7.1**. The types and form of parking permissible on-site have been covered in a highways design consideration note prepared for the architect.

Table 7.1 – Suffolk Parking Standards (2019)

No. Beds	Car*	Cycle	PTW
1 bedroom	1 space per dwelling	2 secure covered spaces per dwelling	N/A
2 bedrooms	2 spaces per dwelling**		
3 bedrooms	2 spaces per dwelling		
4+ bedrooms	3 spaces per dwelling		
Visitor / unallocated	0.25 space per dwelling	If no garage or secure area is provided within curtilage of dwelling, then 2 covered and secure spaces per dwelling in a communal area for residents plus 2 spaces per 8 dwellings for visitors.	1 space + 1 per 20 car spaces (for first 100 car spaces), then 1 space per 30 car spaces.

* Excludes garages under 6m x 3m (internal dimension) as a parking space but can include undercroft parking and car ports.

** Reduction in this figure may be considered with robust highway mitigation.

7.6 EV Charging Guidance

- 7.6.1 For residential developments, each dwelling must have the ducting in place to allow a suitable wattage wall charging unit (minimum charge specification 7.4kw) to be installed and connected to a suitable household consumer unit, that has the capacity to charge an electric vehicle and run other household electrical appliances when required by the resident.
- 7.6.2 All charging related equipment must be fully compliant with Building Regulations and certified with the relevant British Standards.
- 7.6.3 Currently SCC do not permit charging points for low emission vehicles to be installed within areas of adoptable highway.

7.7 Pedestrian Connectivity

- 7.7.1 Pedestrian access to the development must be considered and pedestrian desire lines through the site identified. Raised footways and crossing points will be suitable for larger sites; shared space areas with low traffic speeds and a design which gives priority to pedestrians may be more appropriate at smaller sites.
- 7.7.2 A tactile/tonal distinction should be made between pedestrian areas and vehicular areas, in order that people with visual impairment can distinguish between the two. The provision of raised areas, distinctively paved footway areas and tactile paving at all dropped kerbs will achieve this.
- 7.7.3 Despite recent government restrictions their use, shared facilities within residential developments has not been prevented.
- 7.7.4 Guidance states that footways should measure a preferred minimum of 1.8m in width unobstructed. This allows for two wheelchair users to comfortably pass each other. In some areas this can be reduced

to an absolute minimum of 1.0m for a length less than 6.0m, which allows movement, however, this should be avoided unless absolutely necessary.

- 7.7.5 Provision should be made at all road junctions for pedestrians to cross the minor road through the provision of dropped kerbs flush with the carriageway and tactile paving.
- 7.7.6 New pedestrian access points should be created on Mill Road, School Road and the A143. There are no existing constraints on Mill Road that would prevent access from this location. Furthermore, the site Tree Constraints Report has confirmed that the row of trees on School Road is not subject to a Tree Preservation Order (TPO) that would otherwise limit locations where any future link could be provided. The existing agricultural access on the A143 could be upgraded to provide a shared pedestrian/cyclist connection into the site. Furthermore it is recommended that a new footway is provided along the southern carriageway of Mill Road in accordance with the Draft Neighbourhood Plan.

7.8 Cyclist Connectivity

- 7.8.1 Policy states that cycles must be treated as vehicles and not as pedestrians and would therefore share the carriageway with vehicles.
- 7.8.2 Given the scale and nature of the development, demarcated or segregated cycles routes are not considered necessary internally. However, it is crucial the internal minimum carriageway widths are suitable to safely accommodate both cyclists and vehicles. On-street parking should be avoided on primarily access roads to ensure the entirety of the carriageway is usable.
- 7.8.3 School Road forms the western boundary of the site and also forms part of National Cycle Route 13 and links Bury St. Edmunds town centre with Great Barton. The scheme should seek to provide good quality connections to this route and the wider cycle network in order to comply with DfT's document Gear Change - A Bold Vision for Cycling & Walking (2020). In addition to the existing cycle network, any future cycle links should look to directly connect to the dedicated cycle routes proposed as part of the Land North East of Bury St. Edmunds.
- 7.8.4 DfT Local Transport Note 1/20 states there are five core design principles which represent the essential requirements to achieve more people travelling by cycle or on foot. Networks should therefore be Coherent; Direct; Safe; Comfortable and Attractive.
- 7.8.5 Inclusive design and accessibility should run through all five of these core design principles. Designers should always aim to provide infrastructure that meets these principles and therefore caters for the broadest range of people.