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Technical Note

Project No: ITB16689
Project Title: Land East of Clapham Road, Bedford
Title: Transport Strategy
Ref: DS/BB/ITB16689-001
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SECTION 1 Introduction

1.1 De Merke Estates has appointed i-Transport to provide highways and transport advice in relation to promotion of land to the East of Clapham Road in Bedford for the inclusion in Bedford Borough Council's (BBC) emerging Local Plan for circa 1,000 dwellings. The site is located within an area to the east of the village of Clapham, as shown in **Image 1.1**.

Image 1.1: Site Location

Source: Henry Adams LLP & Google Maps

1.2 As well as considerable housing growth planned within the next Local Plan period, there is also a significant East-West rail infrastructure project planned that will connect Cambridge and Oxford via Bedford. The route around Bedford has recently been published as a 'preferred route', which would exit Bedford from the north through the current strategic gap before routing east towards St Neots.

1.3 Until such time that the proposed East-West railway route is confirmed, an opportunity exists to promote a small area of the site immediately adjacent to the existing settlement of Clapham. The location of the smaller area of the site is shown in **Image 1.2**.

Image 1.2: Location of Smaller Site Area – Immediately Adjacent to Existing Settlement

Source: Google Maps and Consultants' annotations

1.4 The purpose of this Technical Note is to present an initial transport strategy demonstrating how the smaller area of the site could be promoted for early delivery for some 100-150 dwellings and how the wider strategic site could be brought forward through the future Local Plan to contribute towards the planned housing growth within Bedford Borough.

1.5 This TN undertakes a high-level assessment of the site against the three key transport themes identified within paragraphs 108 and 109 of the National Planning Policy Framework (NPPF), namely:

- Will the opportunities for sustainable travel be appropriately taken up given the type of development and its location?
- Will safe and acceptable access be provided for all users?
- Will the transport impacts of the site be adequately mitigated, such that the residual cumulative impact will be acceptable (i.e. not severe), and not result in unacceptable safety impacts?

1.6 The remainder of this TN is structured as follows:

- **Section 2** – Provides a review of existing transport conditions / accessibility of the site;
- **Section 3** – Reviews how the road network in the local area will change over the coming plan period, and summaries both major and local infrastructure projects;
- **Section 4** – Presents a transport strategy to demonstrate how the wider strategic site could be delivered and contribute positively towards local transport infrastructure, as well as how the smaller site could be delivered for early delivery; and
- **Section 5** – Provides a summary of the report and its conclusions.

SECTION 2 Existing Conditions

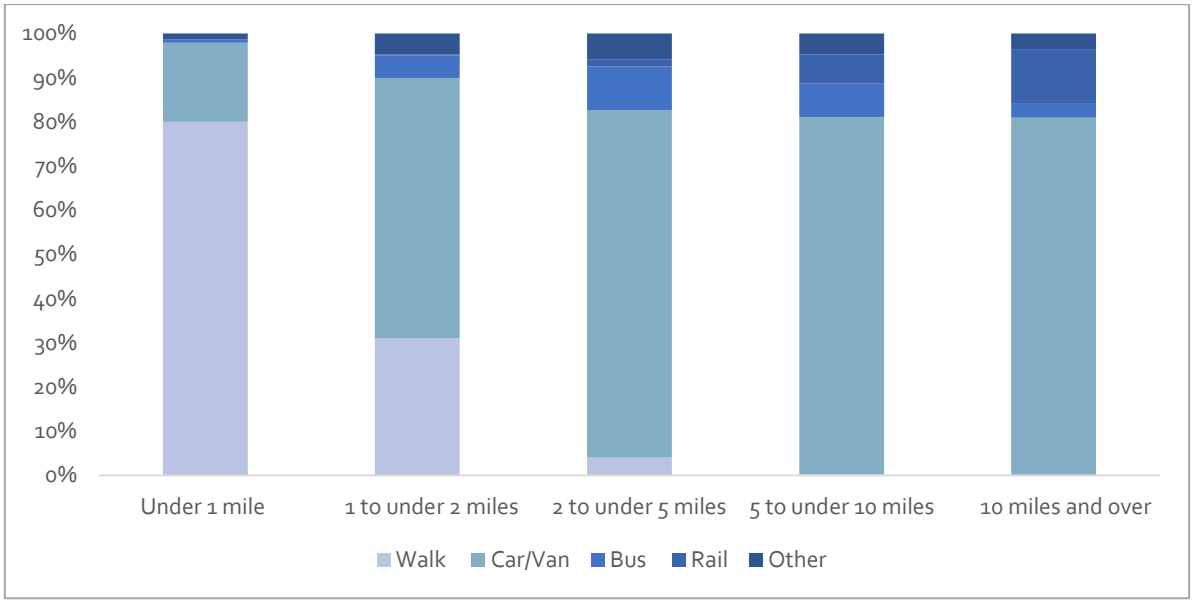
2.1 Overview

2.1.1 This section of the TN sets out the existing highway and accessibility conditions within the vicinity of the site and includes a review of the opportunities for the use of non-car modes of transport.

2.2 Local Facilities

2.2.1 The National Travel Survey (NTS) 2019 identifies the mode share of journeys of different lengths:

Image 2.1: Mode Share of Trips by Main Mode for Different Trip Lengths: England



Source: National Travel Survey: England 2019

2.2.2 The National Travel Survey 2019 (Table NTS0308)) confirms that some 80% of all trips under 1 mile (circa 1.6km) are walk trips, whilst walking accounts for some 31% of all trips between 1 and under 2 miles (circa 1.6km – 3.2km). Walking trips fall away beyond 2 miles (2 to under 4 miles = 4% walking).

2.2.3 The Department for Transport's Cycling and Walking Investment Strategy (2017) states at paragraph 1.16 that:

> ***"... there is significant potential for change in travel behaviour. Two out of every three personal trips are within five miles - an achievable distance to cycle for most people, with many shorter journeys also suitable for walking. For school children, the opportunities are even greater. Three quarters of children live within a 15 minute cycle ride of a secondary school, while more than 90% live within a 15 minute walk or bus journey from a primary school."***

2.2.4 The DfT's Gear Change A bold vision for cycling and walking states (page 11) that:

> ***"In particular, there are many shorter journeys that could be shifted from cars, to walking, or cycling. We want to see a future where half of all journeys in towns and cities are cycled or walked. 58% of car journeys in 2018 were under 5 miles. And in urban areas, more than 40% of journeys were under 2 miles in 2017–1817. For many people, these journeys are perfectly suited to cycling and walking.***

2.2.5 Based on the above:

- 1.6km = Comfortable Walking Distance;
- 3.2km = Reasonable Walking Distance and Comfortable Cycling Distance; and
- 5.0km = Reasonable Cycling Distance;

2.2.6 Clapham has been identified within the current Local Plan as a key service centre, as it has a good range of services and is well connected to large town centres by regular public transport. As such, it is considered to be an area which can sustainable support development.

2.2.7 The site is located adjacent to the existing settlement of Clapham and is located in close proximity to other local villages including Oakley (2.6km), Biddenham (2.6km) and the centre of Bedford (2.5km). All of these settlements combined provide a number of everyday facilities and services which future residents are likely to use and can easily access. Some of these are listed as follows:

- **Education** – Ursula Taylor Church of England School, Oakley Primary Academy, Bedford Modern School, Puddleducks Bedford, Edith Cavell Primary School and Nursery, Monkey Puzzle Day Nursery Bedford and Busy Bees in Bedford.
- **Sports Facilities –** Biddenham Country Park Sports Centre, Towers Health & Racquets Club, Two nearby golf clubs, three nearby sports pitches and several local recreational fields.
- **Retail –** Tesco Express, Aldi and Sainsbury's supermarkets, Clapham Post Office, local takeaway restaurants and wider retail opportunities within Bedford town centre.
- **Leisure facilities –** The Horse & Groom Pub, Bellini's Italian, Caffe Piccolo, The Fox & Hounds Pub, The Bedford Arms Pub, Oakley Sports and Social Club, Clapham Village Hall, Oakley Village Hall and various additional leisure opportunities in Bedford town centre i.e. Cinemas and restaurants.
- **Health facilities –** Priory Medical Practice, Bromham Surgery, De-ientes Dental Clapham, The Village Dental Practice and various additional health facilities in Bedford town centre.

2.2.8 This demonstrates the site is located within a reasonable walking distance and a comfortable cycling distance to the services and facilities within the surrounding area.

2.3 Walking and Cycling

Walking

2.3.1 Within immediate vicinity of the site, Green Lane accommodates a footway on the western side of the carriageway. The footway is some 2m wide and benefits from street lighting along its extent. The footway extends south towards the junction of Green Lane with Bedford Road, where it connects with the existing footway on the northern side of the carriageway.

2.3.2 To the east of the Green Lane / Bedford Road junction, a footway is accommodated on the southern side of the carriageway. The footway is some 2m wide and benefits from street lighting. The footway extends southeast along the length of Bedford Road and forms a shared footway/cycleway after approximately 200m. Further to the southeast, the shared footway/cycleway continues toward the A6 roundabout junction.

2.3.3 Approximately 200m prior to the A6 roundabout, a footway is also accommodated on the eastern side of Clapham Road and an uncontrolled pedestrian refuge island crossing is provided to facilitate pedestrian movements across the carriageway. A traffic signal-controlled pedestrian crossing is also provided some 100m to the north of the roundabout.

2.3.4 The footways on either side of Clapham Road connect with the wider pedestrian infrastructure in Bedford at the A6 roundabout junction, forming part of a continuous route towards the nearby Bedford Modern and Edith Cavell Primary Schools and an Aldi and Sainbury's supermarket. Further to the east, a continuous pedestrian route to Bedford town centre is provided.

2.3.5 To the west of the Green Lane / Bedford Road junction, footways are provided on both sides of the carriageway. The footways are some 2m wide and benefit from street lighting. The footways form part of the wider pedestrian infrastructure network within the village of Clapham and provide access to various facilities and services, including a Tesco Express, Post Office and numerous local leisure uses.

2.3.6 As part of any planning application, investigative work will be undertaken on how to further enhance the existing pedestrian provision within the surrounding area towards Bedford and within Clapham. This could take the form of upgrading the existing shared footway/cycleway along Clapham Road to create a wider and more strategic route for all non-motorised users.

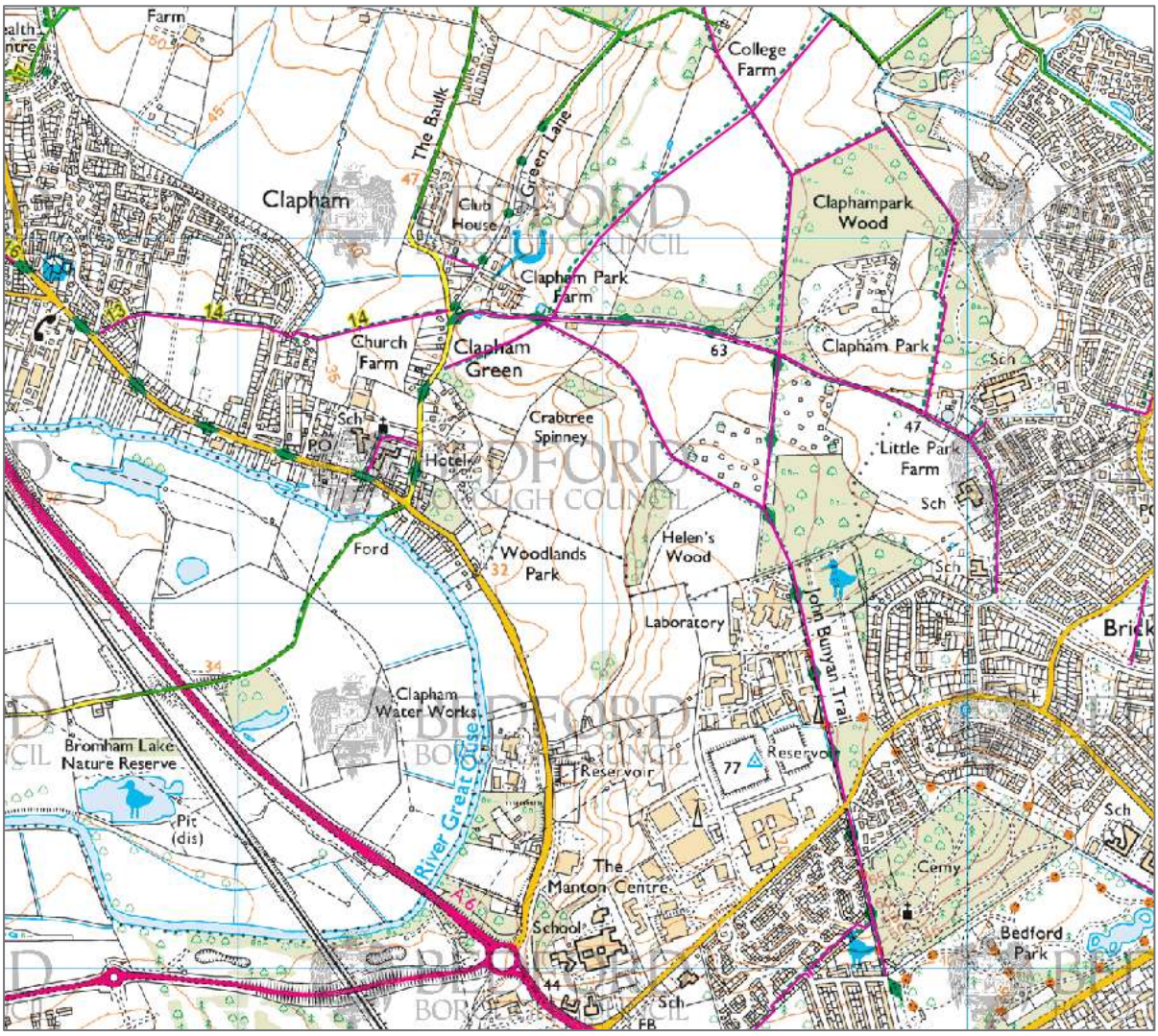
Cycling

2.3.7 The shared footway/cycleway along Clapham Road forms the only dedicated cycling infrastructure within the vicinity of the site. However, the local highway network in Clapham is subject to 30mph speed limit which encourages a slow speed traffic environment and therefore provides an attractive option for future residents to cycle on carriageway to local destinations within Clapham and nearby Bedford. The slow speed 30mph traffic environment is enforced along Clapham Road due to the presence of mobile police enforcement cameras.

Public Rights of Way (PRoW)

2.3.8 A network of PRoW pass through the site and route southeast toward Bedford, as well as west within Clapham. An extract of the WSCC PRoW map is included in **Image 2.2**.

Image 2.2: BBC PRoW Map Extract



Source: BBC Online Public Rights of Way Map

2.3.9 Footpath 10 routes northeast from Green Lane through the site, connecting with Footpath nos. 5, 9 and 24. Footpath no. 9 routes southeast through the site and forms a continuous connection into Bedford via Footpath nos. 11 and 12. The offers an alternative pedestrian route towards Bedford.

2.3.10 To the north of the site, Footpath no. 5 connects to Footpath no. 6 before joining the wider Bridleway network within close vicinity of Clapham.

2.4 Public Transport

Bus

2.4.1 The closest bus stops to the site are located on High Street, within immediate vicinity of the Green Lane / High Street priority junction. Bus stops are located on either side of the carriageway and take the form of bus stop flags with associated timetable information and on-street bus cages. In addition, the bus stop on the northern side of the carriageway accommodates a standing bus shelter.

2.4.2 A summary of the bus routes which serve these stops is presented in **Table 2.1**.

Table 2.1: Summary of Local Bus Services

Service No.	Route	Frequency		
		Weekdays	Saturday	Sunday
25	Bedford Bus Station – Rushden	One every hour First – 07:07 Last – 18:07	One every hour First – 08:17 Last – 18:07	No service
50	Rushden – Bedford	One every two hours First – 06:29 Last – 19:11	One every two hours First – 06:54 Last – 20:01	One every two hours First – 10:41 Last – 18:41
51	Oakley - Bedford	One every hour First – 06:58 Last – 18:58	One every hour First – 06:58 Last – 18:58	No service

2.4.3 In addition, the bus stops are served by a local school bus service (route no. 825) as well as a local village community bus service (route no. VL11), which operate two services per day.

2.4.4 This demonstrates it is possible to travel from the proposed site to higher order destinations further afield. As part of any future strategic development proposals, the opportunity exists to engage local bus providers regarding potential for new services or diversion of existing bus routes to directly serve the site.

Rail

2.4.5 The nearest railway station to the site is Bedford Station, which is located some 2.75km southeast of the centre of the proposed site (9 minutes cycle time). Bedford Station is served by trains operated by Thames Link and East Midlands Railway, who provide frequent services to the following destinations:

- Luton – 4 peak period services (23 minutes journey time);
- St Albans – 4 peak period services (39 minutes journey time);
- London St Pancras International – 4 peak period services (45-60 minutes journey time);
- Gatwick Airport – 4 peak period services (90-120 minutes journey time); and
- Brighton – 3 peak period services (120-130 minutes journey time).

2.4.6 The range of destinations accessibly by rail and the frequency of the services provides a realistic opportunity for future residents to travel to higher order destinations further afield by public transport.

2.5 Future Opportunities

2.5.1 The Land West of Manton Lane development is located approximately 400m to the east of the centre of the wider Clapham Road site, to the west of Manton Industrial Estate. The site is allocated for B1(a)(b) & (c) and B2 land uses as Policy AD16 of BBC's Allocations and Designations Local Plan and is likely to provide:

- A new footway/verge on the West Side of Manton Lane;
- A section of a green access route (for pedestrians and cyclists) around the northwest of Bedford; and
- Investigate the possibility of providing a cycleway on Manton Lane.

2.5.2 Such improvements will offer residents of the proposed development at the site further pedestrian/cyclist connectivity into Bedford.

SECTION 3 Future Conditions

3.1 Overview

3.1.1 This section of the TN describes the existing highway network and how it can be expected to change in the future, with local development allocations coming forward alongside strategic transport infrastructure improvements.

3.2 Major Projects

A6 Manton Lane Improvement Works

3.2.1 Transporting Bedford is an £18 million project aimed at tackling congestion in Bedford. As part of the Transporting Bedford project, improvement works are proposed at Manton Lane which will include:

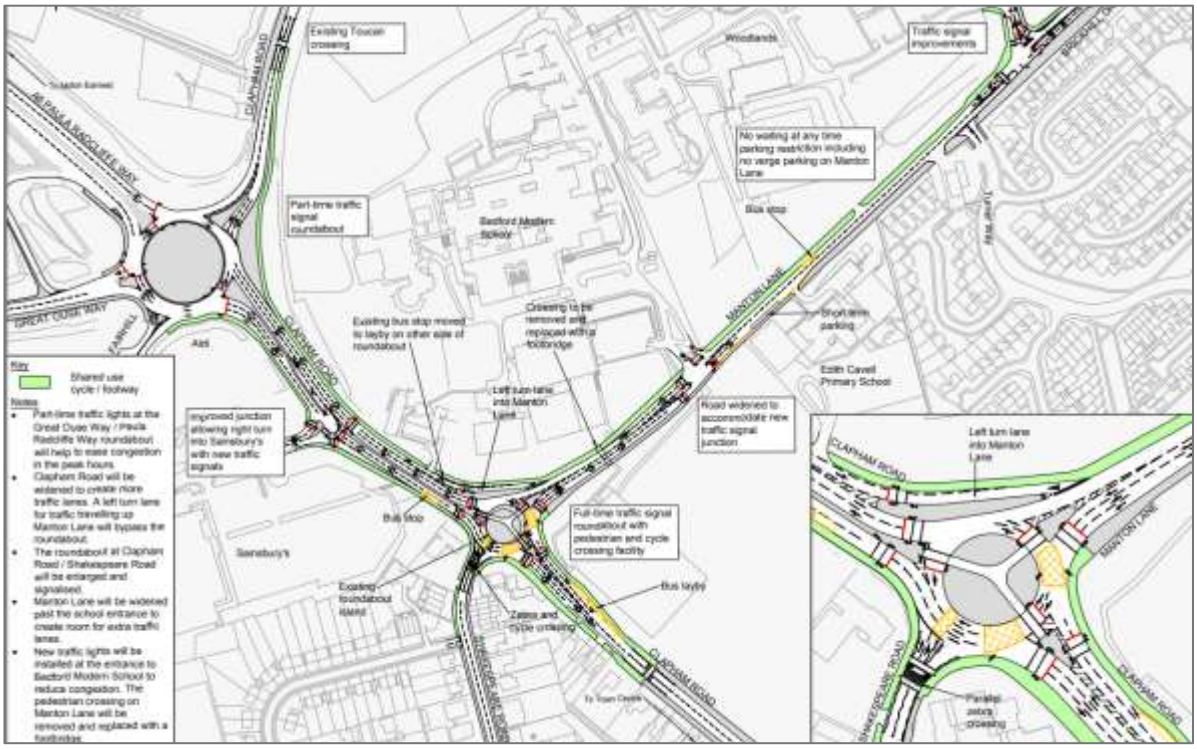
- Part-time traffic lights at the Great Ouse Way / Paula Radcliffe Way roundabout – with the aim to ease congestion at the junction during the peak periods.
- To the east of the roundabout junction, Clapham Road will be widened to create more traffic lanes and a left-turn lane for vehicular traffic routing up Manton Lane (in order to bypass the roundabout) will be provided.
- The Clapham Road / Shakespeare Road roundabout will be enlarged and signalised and Manton Lane is to be widened past the Bedford Modern school entrance to create room for additional traffic lanes.
- Traffic signals to be installed at the entrance to Bedford Modern school to ease congestion. A footbridge is to provided across Manton Lane as a replacement to the existing at-grade pedestrian crossing.

3.2.2 The first phase of works at Manton Lane have already been completed, which includes the widening of Manton Lane to include additional traffic lanes past Bedford Modern school and on the approach to the Manton Lane / Clapham Road roundabout and the installation of traffic signals at the junction with Bedford Modern School.

3.2.3 Work has now commenced on the installation of a footbridge over Manton Lane, with the wider improvement works around the Manton Lane / Clapham Road roundabout and the Paula Radcliffe Way / Great Ouse Way roundabout occurring in 2021.

3.2.4 An extract of the proposed Manton Lane improvement works is provided in **Image 3.1**.

Image 3.1: Extract of Manton Lane Improvement Works Technical Drawing



Source: Bedford Borough Website

East West Rail

3.2.5 East West rail is a major railway infrastructure project, aiming to deliver rail connections between Oxford and Cambridge. These connections are to be achieved by:

- Upgrading an existing section of railway between Oxford and Bicester;
- Reintroducing a section of railway between Bicester and Bletchley; and
- Building new railway infrastructure between Bedford and Cambridge.

3.2.6 A preferred route option for the new railway infrastructure between Bedford and Cambridge has recently been published and would exit Bedford from the north through the current strategic gap before routing east towards St Neots. An extract of East-West rails preferred route through Bedford is shown in **Image 3.1**.

Image 3.1: East-West Rail Preferred Options Route

Source: Extract of East-West Rail Interactive Preferred Route Tool (Online)

3.2.7 Bedford lies at the heart of the new route, helping to not only connect Bedford with Oxford and Cambridge, but also to establish Bedford as a key transport hub. The east-west railway investment will deliver infrastructure that could enable direct rail services form Bedford to Heathrow and Stansted Airports.

3.2.8 The project will provide an opportunity to create Bedford railway station as a 'rail hub', given its central location and the improved transport connectivity will support the regeneration of Bedford town centre.

3.2.9 The timescales for the Bedford to Cambridge route of East-West railway would see construction beginning in 2025. The various project stages and timescales are presented in **Image 3.2**.

Image 3.2: East-West Railway Bedford to Cambridge Construction Timescales

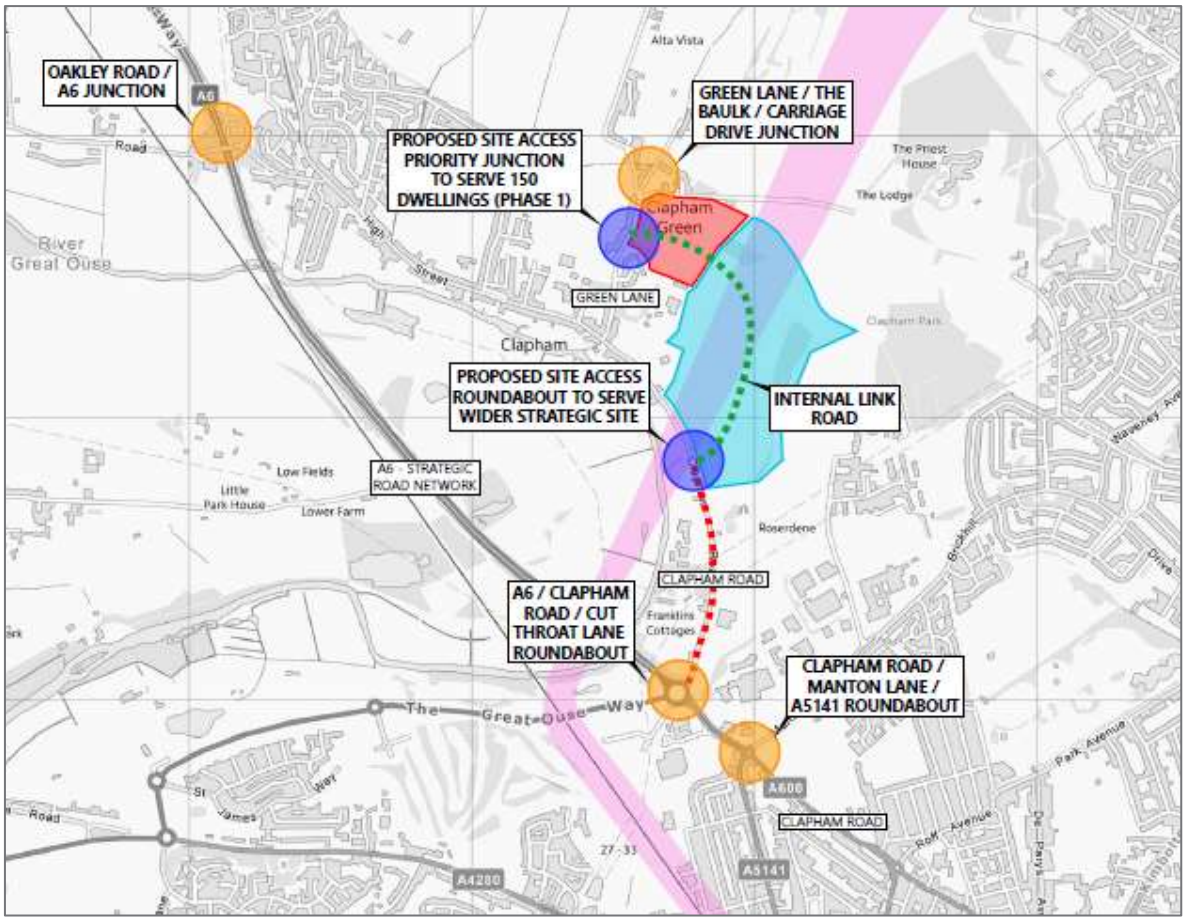
SECTION 4 Transport Strategy

4.1 Overview

4.1.1 Land East of Clapham Road in Bedford has the potential to accommodate an initial development of some 100-150 homes for early delivery, and further development of some 1,000 new dwellings in the wider strategic site area across the duration of the next plan period through allocation as part of the future BBC Local Plan.

4.1.2 The following Section sets out an initial transport strategy to achieve access to the potential development site to the East of Clapham Road for both the early delivery site and the wider strategic aspiration. The initial transport strategy provides a high-level review of how the transport strategy could contribute positively to future network conditions within the local area. The strategy would be refined as further technical assessment is undertaken as the development progresses. An overview of the transport strategy for the wider strategic site is presented in **Figure 2**, an extract of which is shown as **Image 4.1**.

Image 4.1: Extract of Transport Strategy



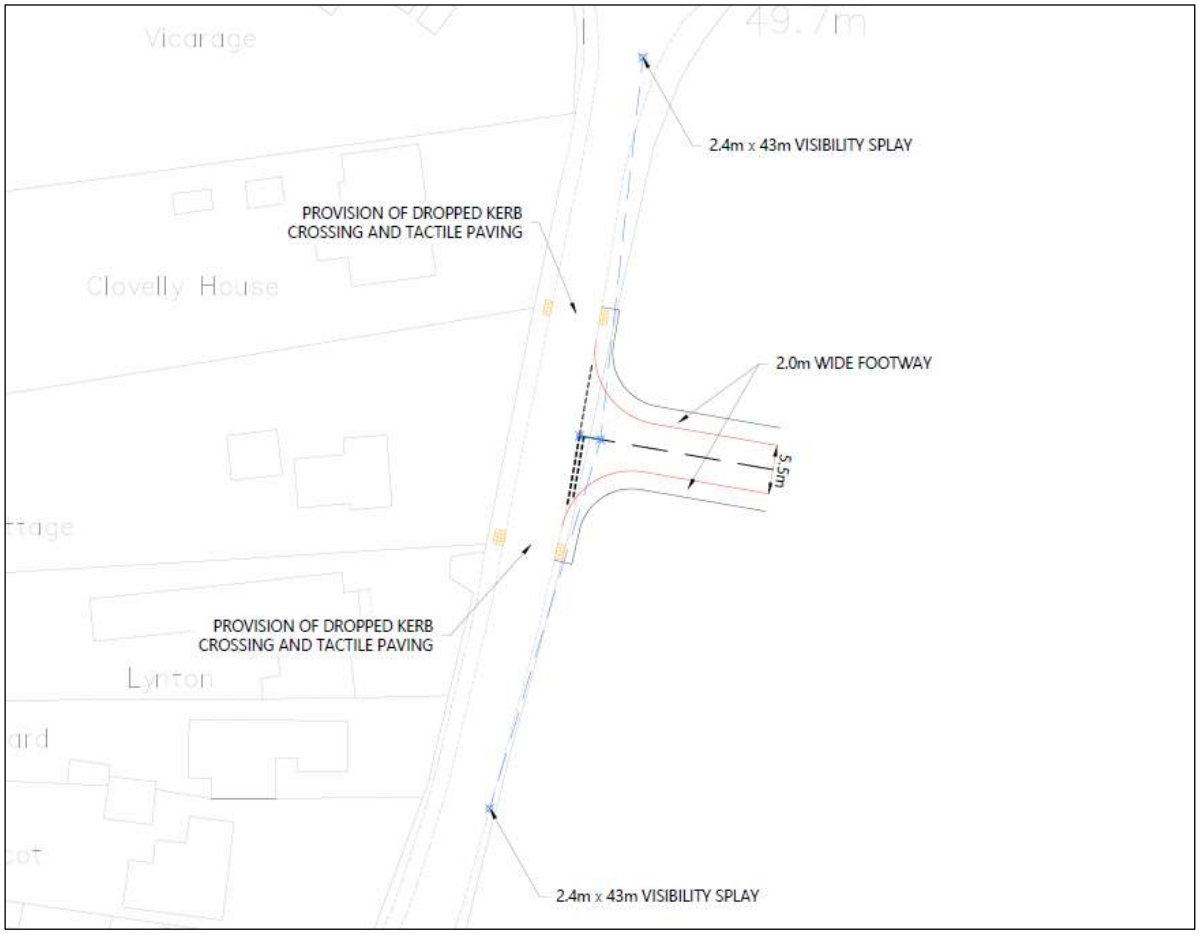
4.2 Green Lane

4.2.1 Green Lane provides a north south connection from Clapham Road in the south to Bedford and County Golf Course and a small area of residential development located off The Bank. Beyond this, the routes transition into rural lanes. The area of land situated to the south of Carriage Drive and east of Green Lane has been identified as being a feasible location to provide initial development.

4.2.2 Access to this area of the site can be achieved from Green Lane. The relatively straight alignment couple with the road bending away slightly to the west allows for excellent visibility along Green Lane while minimising the impact on hedgerow removal required to provide for visibility.

4.2.3 The access into the smaller parcel of the site can be provided in the form of a simple priority junction and a potential access design is presented in **Drawing ITB16689-GA-001**, an extract of which is provided at **Image 4.2**.

Image 4.2: Green Lane Access Arrangement



Source: ITB16689-GA-001

4.2.4 The priority junction arrangement has the following design features:

- A 5.5m wide carriageway with 2m wide footways provided on either side of the carriageway;
- Is flexibly located – the alignment of the carriageway enables the access to be relocated along the western site boundary, with the only criteria ensuring a minimum junction spacing of 25m – 43m to Carriage Drive;
- 2.4m x 43m visibility splays (in accordance with a 30mph speed limit) on either side of Green Lane;
- Dropped kerb pedestrian crossing points (with tactile paving) to facilitate pedestrian access onto the existing footway on the western side of Green Lane.

4.2.5 It was observed that there is a level difference between the site and Green Lane. In order to provide for suitable access, grading of the access road within the site will be provided so that it joins Green Lane at a gradient in keeping with contemporary design guidance. Some regrading of the embankment either side of the access will also be required in order to provide for visibility.

4.2.6 Existing pedestrian flows along Green Lane were observed to be low. To both minimise the impact on the embankment and existing vegetation and to make the most effective use of existing infrastructure, pedestrian crossing points are incorporated into the arrangement to bring pedestrians onto the existing footway provision situated to the western side of Green Lane. As part of any future transport assessment, opportunities to enhance the existing pedestrian infrastructure will be explored. For example, this could include the provision of tactile paving at crossings on key routes, and the reestablishment of full pedestrian footway widths by undertaking routine maintenance and clearing overgrown vegetation.

4.2.7 A development of some 100-150 new homes would be expected to generate circa 60-90 vehicular movements during the morning and evening peak hours, equating to 1 movement every 40-60 seconds. Green Lane was observed as being lightly trafficked. For most of its length there is good visibility along Green Lane. Traffic calming, in the form of give-way priority working, is in situ along the northern section of the road where there is less activity in the form of parked vehicles to encourage lower vehicle speeds.

4.2.8 The junction of Green Lane with Bedford Road accommodates junction protection markings, ensuring that capacity for some 3-4 vehicles to wait for an oncoming vehicle to pass before any additional queueing at the junction may obstruct through traffic along Bedford Road. Whilst there is not sufficient space to widen Green Lane in the immediate vicinity of the access to provide off-carriageway 'lay-by'

parking, most properties along Green Lane benefit from off-street car parking. While unlikely to be necessary to support a development of 100-150, it may be possible to explore the extension of the existing double-yellow line waiting restrictions at the junction bellmouth further along Green Lane.

4.3 Clapham Road

4.3.1 Access to the wider strategic site aspirations could be taken from Clapham Road. The access arrangement could take the form of a three-arm roundabout junction and a potential access design is presented in **Drawing ITB16689-GA-002**, an extract of which is provided at **Image 4.3**. The proposals are designed with reference to both the Design Manual for Roads and Bridges (DMRB) and the Manual for Streets (MfS). For context, the arrangement has been overlaid onto aerial mapping.

Image 4.3: Clapham Road Roundabout Junction

Source: ITB16689-GA-002

4.3.2 The roundabout junction would provide an access solution for the wider strategic land aspirations, with the site access arm potentially forming the initial segment of the main internal access road through the development. Access to minor roads within the wider development could then be formed as spurs off the main internal access road.

4.3.3 The roundabout junction has the following design features:

- Provides suitable geometry to accommodate the diversion of bus services within the site;
- Can enable access for vehicles associated with commercial uses, enabling the development of employment floorspace on within the site with direct access via Clapham Road to the A6;
- Will help to reduce traffic speeds on the approach to the village; and
- Provides an opportunity to divert traffic away from Green Lane, by forming an alternative purpose built route between Clapham Road and the northern section of Green Lane.

4.3.4 In addition, due to the location of the site at the south-eastern extent of the existing settlement of Clapham, the roundabout junction would also serve as a 'gateway' feature, providing valuable separation between Bedford and the A6 corridor and the village of Clapham. This roundabout could be combined with other features, such as public art or planted landscaping, to further enhance the sense of arrival.

4.4 Improvement Opportunities

4.4.1 As outlined in Section 2, the primary pedestrian and cycle corridor connecting to the wider network in Bedford is located alongside Clapham Road to the southeast of the site. Whilst there is an existing shared footway/cycleway along Clapham Road, there remains an opportunity to improve the existing infrastructure as part of the wider strategic development proposals at the site, benefitting both residents of the development and the wider community of Clapham.

4.4.2 The existing shared footway/cycleway along Clapham Road could be widened, such that sufficient width is provided for cyclists to pass one another, or to pass pedestrians. These improvements would extend along the length of Clapham Road toward the Clapham Road / The Great Ouse Way / Paula Radcliffe Way A6 roundabout junction, where the route will tie into the wider pedestrian/cyclist infrastructure into Bedford.

4.4.3 As part of the wider strategic development, the opportunity exists for a connection through the site to be formed to Green Lane, providing an alternative purpose built route to the northern section of Green Lane and reducing traffic flows along its southern section.

4.5 Traffic Impact and Highway Capacity

Traffic Impact

4.5.1 In order to determine the likely traffic impact of the wider strategic proposals at the site, as well as the smaller development proposals intended for early delivery, the proprietary TRICS database has been interrogated to obtain a residential trip rate.

4.5.2 The following TRICS trip rate parameters were utilised to obtain a reliable trip rate:

- Sites in England, excluding Greater London;
- Sites between 250 and 1250 homes;
- Sites surveyed within the last 7-years;
- Sites in 'suburban' and 'edge of town' locations only; and
- Sites surveyed during weekdays only (Tuesday to Thursday).

4.5.3 Vehicle trip rates have been extracted for privately owned houses only which, traditionally, generate higher levels of traffic than affordable houses. This approach is therefore robust, as it does not account for the fact that the site will provide a mixture of both affordable and private housing in reality.

4.5.4 Moreover, the impacts of the Covid-19 pandemic have seen an increasing shift towards home working for businesses throughout the country and early indications are suggesting that home working is likely to play a larger role in the economy moving onward into the future, i.e. in a 'post covid-19' world. The trip rates extracted from the TRICS database were obtained from existing developments surveyed prior to the pandemic and it is therefore possible that, due to wider home working practices, the development proposals may have materially lower peak hour trip rates in reality. This would potentially mean that the impacts of the proposed development, in traffic terms, may be lower than depicted in **Table 4.1**.

4.5.5 Notwithstanding the above, to ensure a robust assessment based upon 'typical' residential traffic generation, the extracted TRICS trip rates have been utilised to assess the likely traffic impact of the wider strategic site aspirations and the smaller site aspirations for immediate delivery. A summary of the extracted vehicular trip rates and corresponding trips for up to 1,000 homes and for the smaller scheme of up to 150 homes are presented in **Table 4.1**. The full TRICS output is presented in **Appendix A**.

Table 4.1: Vehicular Trip Rates and Trip Generation – Proposed Residential Development

	Morning Peak (0800-0900)			Evening Peak (1700-1800)		
	Arrive	Depart	Two-way	Arrive	Depart	Two-way
Trip Rate (per dwelling)	0.151	0.373	0.524	0.372	0.155	0.527
1,000 homes	151	373	524	372	155	527
150 homes	23	56	79	56	23	79

Source: TRICS and Consultant's Calculations

4.5.6 The wider strategic residential development at the site is expected to generate some 524 two-way vehicle movements during the morning peak hour and some 527 two-way vehicle movements during the evening peak hour. This broadly equates to one additional 9 additional vehicle movements per minute onto the local highway network.

4.5.7 The smaller residential scheme at the site, intended for early delivery, is expected to generate some 79 two-way vehicle movements during the morning and evening peak hours respectively. This broadly equates to one additional vehicle movement every minute during the peak hours.

Highway Capacity

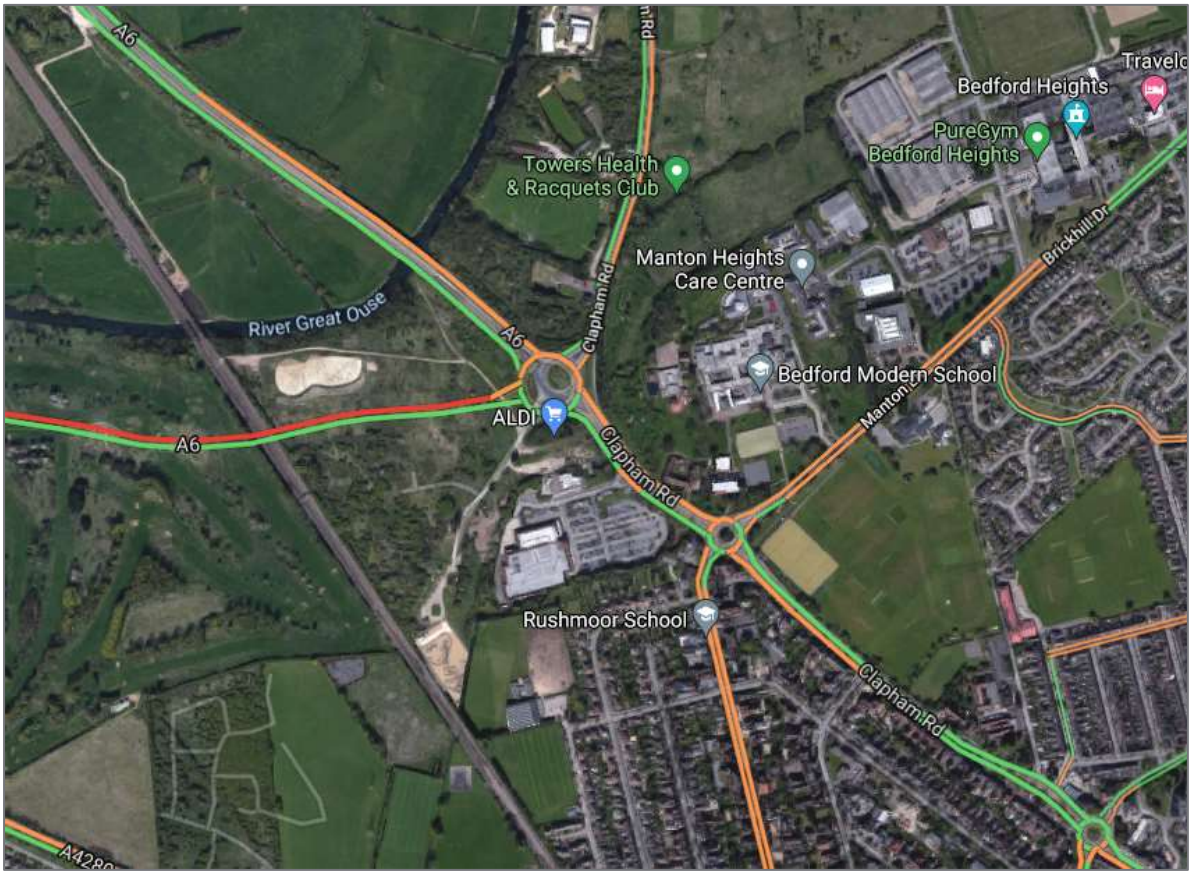
4.5.8 In terms of highway capacity constraints, the information in **Table 4.1** indicates that the wider strategic aspirations of the site will generate significantly more traffic than those associated with the smaller area of the site intended for early delivery. As such, the scope of highway capacity analysis will differ substantially between both schemes.

4.5.9 For the wider strategic development proposals, of particular importance will be the impacts of the development proposals on the following junctions:

- The proposed site access roundabout junction onto Clapham Road;
- The Green Lane / Bedford Road priority junction;
- The Clapham Road / Paula Radcliffe Way (A6) / The Great Ouse Way (A6) roundabout junction;
- The Manton Lane / Clapham Road / A5141 roundabout junction; and
- The A6 / Oakley Road dumbbell roundabout junction.

4.5.10 The junctions along the A6 corridor will be of particular significance, due to the existing capacity pressures along the network into Bedford, as indicated in **Image 4.4**.

Image 4.4: Typical Weekday (Tuesday) Traffic Conditions – A6 Corridor into Bedford



Source: Google Maps

Note: It is also pertinent to note that these 'typical' traffic conditions were obtained during the easing of lockdown restrictions in England (April 2021) and therefore the congestion seen is likely to become worse as the volume of traffic on the local highway network continues to increase post-lockdown.

4.5.11 The southbound approach into Bedford along the A6 corridor is of particular interest, as is the eastbound approach to the Clapham Road / A6 roundabout junction along The Great Ouse Way. It will be important to consider the impacts of the wider strategic development proposals on the operation of the A6 corridor within the context of the existing highway network conditions, as well as the proposed junction improvement and mitigation strategies to be implemented by BBC in the current and future plan periods. An example of these improvement schemes comprises the Manton Lane improvement scheme, outlined in Section 3 of this report.

4.5.12 Specific to the delivery of an early phase of the development proposals for some 150 homes, it will be necessary to assess the impact of the proposals on the following junctions:

- The proposed site access priority junction onto Green Lane;
- The Green Lane / Bedford Road priority junction; and
- The Clapham Road / Paula Radcliffe Way (A6) / The Great Ouse Way (A6) roundabout junction.

4.5.13 The development of some 150 homes within the smaller area of the site would generate approximately one additional vehicle movement per minute during the morning and evening peak periods. As such, it is unlikely to be necessary to assess the impacts of the proposed development along the length of the entire A6 corridor, with the focus of current national planning policy being that development must not have a 'severe' impact but accepting that a minor adverse impact can occur.

4.5.14 However, the operation of the Green Lane / Bedford Road junction will need to be subject to detailed assessment. This is due to the existing highway constraints along Green Lane, i.e:

- The narrow nature of the carriageway, limiting the possibility for two cars to pass one-another along the carriageway;
- The constrained nature of the Green Lane / Bedford Road junction mouth, limiting the number of vehicles able to queue at the give-way line before blocking back at the junction and preventing vehicles from entering Green Lane from Bedford Road; and
- The presence of on-street parking along Green Lane.

4.5.15 It will be necessary to determine the impacts of the proposed development on the operation of Green Lane and consider whether any mitigation measures, such as the lengthening of the existing double-yellow line parking restrictions along the carriageway (to limit on-street car parking) may be needed to ensure the junction continues to operate within capacity.

4.5.16 The necessary highway capacity analysis will be undertaken either as part of a Transport Study accompanying the Local Plan Review or as part of a comprehensive Transport Assessment accompanying any future planning applications.

4.6 Carbon Zero

4.6.1 With a worldwide focus on achieving carbon neutrality, and a move towards a carbon zero future, the site presents an opportunity to support these initiatives and deliver development that seeks to contribute towards achieving these aims.

4.6.2 At the forefront of this, the site is located where sustainable modes of transport are a viable alternative to car use. There are local services and facilities within Clapham and the surrounding villages, as well as Bedford town centre. This offering can be complemented further from services and facilities accompanying the wider strategic proposals on Land to the East of Clapham Road to provide a wide range of options for new and future residents.

4.6.3 The infrastructure required to support comprehensive electric vehicle charging throughout the site can be designed in from the outset, enabling a development that is 100% compatible with the use of electric vehicles and embraces the most recent technological advances in this field.

4.6.4 The establishment of 'Car Clubs' can be commenced from the outset of the development, to provide residents access to a fleet of electric vehicles, maintained and operated by a specialist car club provider.

4.6.5 The proximity of the site to the A6 also offers the opportunity for more innovative approaches to be explored, for example, the provision of a transport hub incorporating access to car club vehicles, business hub, smart technologies, bicycle / electric scooter docking and an electric vehicle 'petrol station' where vehicles would be able to access rapid charge infrastructure to refill their vehicle. Such provision would provide benefits not only to the development itself, but to the wider area where the installation of electric vehicle charging may be more difficult to achieve within the existing highway, thus helping to reduce and offset carbon emissions beyond the site boundary.

4.6.6 The early identification of land for development will enable providers of innovative transport solutions to be engaged from the outset development process, to identify the most appropriate site solutions to provide for a development that is focussed on making a positive contribution to climate change initiatives.

SECTION 5 Summary and Conclusions

5.1 De Merke Estates has appointed i-Transport to provide highways and transport advice in relation to promotion of land to the East of Clapham Road in Bedford for the inclusion in Bedford Borough Council's (BBC) emerging Local Plan for circa 1,000 dwellings.

5.2 The purpose of this Technical Note is to present an initial transport strategy demonstrating how the smaller area of the site could be promoted for early delivery for some 100-150 dwellings and how the wider strategic site could be brought forward through the future Local Plan to contribute towards the planned housing growth within Bedford Borough.

5.3 The site is located where residents would be afforded excellent opportunities for travel by sustainable travel. There is well established pedestrian and cycle infrastructure across the local area, providing connections into the village of Clapham as well as links into Bedford. Development to the east of Manton Road will bring forward further infrastructure, and the proposed development provides the opportunity to enhance this provision further.

5.4 Bus services can be accessed from the junction of High Street/Green Lane, providing regular services to destinations such as Bedford Bus Station, Rushden and Oakly. In addition, frequent rail services are available from Bedford Station some 2.75km from the site and services are set to be enhanced further by planned East-West rail improvements.

5.5 The report identifies a scope of future transport assessment to ascertain the traffic impacts of the proposed development. Of particular importance will be the assessment of impacts on the A6 corridor. Significant investment is being made to the A6 Corridor via the Transporting Bedford project, which includes £18m to improve vehicular capacity along this section of the A6.

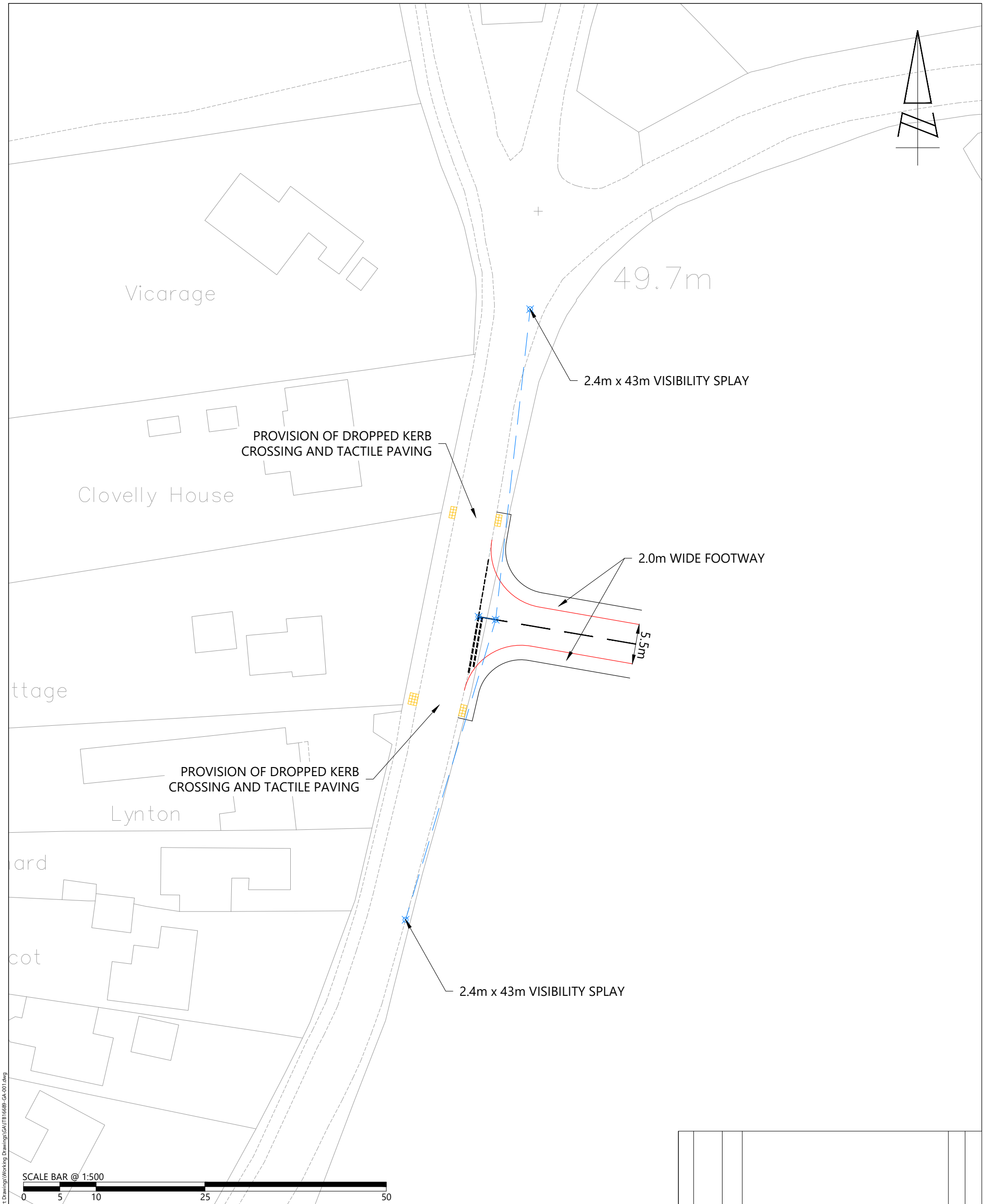
5.6 Access to the smaller development parcel can be achieved by means of a simple priority junction onto Green Lane. The alignment of the road is such that impact on existing vegetation can be minimised. Pedestrian connections will be formed by providing crossing points to established infrastructure.

5.7 Access to the wider strategic development can be achieved through a roundabout junction on Clapham Road, forming a gateway to the village and also providing a means of diverting bus services and/or commercial vehicles into the site.

5.8 The development also has the potential to support current 'Carbon Zero' priorities and can provide for a development that offers comprehensive electric vehicle charging and makes the most of its sustainable location to encourage the uptake of walking, cycling and public transport journeys. In addition, the sites proximity to the A6 corridor allows for innovative approaches to be explored, such as the provision of a 'Green Hub' incorporating public accessible rapid charging, bicycle hire and car club provision.

5.9 The Technical Note has demonstrated that the site provides a viable opportunity for development in transport terms, providing both an opportunity for the early delivery of 100-150 new homes and the longer term delivery of strategic development.

DRAWINGS



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CLIENT:

REV	DATE	BY	DESCRIPTION	CHK	APD

STATUS: FOR INFORMATION

i-Transport

Grove House, Lutyens Close, Chineham
Basingstoke, Hampshire, RG24 8AG

Tel: 01256 338640

www.i-transport.co.uk

TITLE: INITIAL SITE ACCESS ARRANGEMENT

PROJECT: CLAPHAM ROAD, BEDFORD

DRAWN:	CHECKED:	APPROVED:
SH	BB	DS
PROJECT No:	SCALE @ A3:	DATE:
ITB16689	1:500	21.04.21
DRAWING No:		REV:
ITB16689-GA-001		

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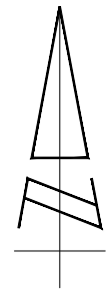

34.4m

34.7m

120m STOPPING SIGHT DISTANCE

3.0m SHARED USE FOOTWAY / CYCLEWAY

43m STOPPING SIGHT DISTANCE

4.0m SEGREGATED FOOTWAY / CYCLEWAY

40m ICD ROUNDABOUT

120m STOPPING SIGHT DISTANCE

140

SCALE BAR @ 1:1000

0 10 25 50 100

Clapham Water

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PROJECT No:	SCALE @ A3:	DATE:
ITB16689	1:1000	30.04.21

DRAWING No: ITB16689-GA-002 REV:

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120m STOPPING SIGHT DISTANCE

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40m ICD ROUNDABOUT

120m STOPPING SIGHT DISTANCE

SCALE BAR @ 1:1000

0 10 25 50 100

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PROJECT No:	SCALE @ A3:	DATE:
ITB16689	1:1000	30.04.21

DRAWING No: ITB16689-GA-002 REV:

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