

**PLANNING ACT 2008 – SECTION 88 AND THE INFRASTRUCTURE PLANNING (EXAMINATION  
PROCEDURE) RULES 2010**

**APPLICATION BY NATIONAL HIGHWAYS FOR AN ORDER GRANTING DEVELOPMENT CONSENT  
FOR THE LOWER THAMES CROSSING**

**Written Representations relating to Proposed WCH Route  
Dennis Road/West Road South Ockendon  
(Rights of Way and Access Plans Sheet 40)**

**July 2023**

**Unique Reference: 20034289**

- 1 Introduction**
- 2 Development Plan and Planning Context**
- 3 Site Context**
- 4 Proposed and Alternative Routes**

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- 2 Highways Scoping Note prepared by Transport Planning Associates
- 3 Extract showing consolidated plan from Thurrock Stakeholder Charrettes & Public Drop-Ins February 2022
- 4 Plan showing alternative WCH route

## 1 Introduction

- 1.01 This WR relates only to the proposal to provide a Walkers' Cyclists' Horse Riders' (WCH) route on land on the eastern side of Dennis Road and northern side of West Road, as shown on the Rights of Way and Access Plans Sheet 40. This will run along part of the western and southern boundaries of land known as Kemps Farm which is owned by Ingebourne Kemps Ltd. Hill Residential Ltd entered into a development agreement with the landowner to promote the land shown in Appendix 1 ("The Site") through the local plan process and secure planning permission principally for residential development.
- 1.02 Whilst Thurrock Council has yet to produce a draft local plan, early indications suggest that the Council are likely to release Green Belt land for housing and that The Site is well placed to be allocated as a 'Preferred Option' for housing. It is anticipated that development of The Site could be as early as 2026. Hill Residential is concerned to ensure that the provision of a WCH along this route should not unduly constrain development of The Site or interfere with our promotion efforts or any future application for planning permission and implementation of that planning permission. Hill Residential also believe that consideration should be given to an existing alternative route which could be upgraded to provide a better and safer WCH route.

## 2 The Development Plan and Planning Context

- 2.01 The current Local Plan timetable anticipates a Reg.18 Draft Local Plan Consultation in the summer of 2023 where 'Preferred Option' allocations are expected to be shown. The Council's timetable to produce the Local Plan shows an indicative timeline for adoption in Winter 2025. Therefore, should The Site be allocated in the new Local Plan and a planning application submitted and approved, initial site works for development could start as early as Winter 2026.
- 2.02 In the May 2023 Developer Forum presentation by Thurrock Council Officers, the minimum housing need for the district was expressed as 1,181 homes per annum. The presentation by Officers also set out the potential strategies to accommodate growth in the district. Four out of the five strategies being pursued by the Council showed the provision of over 8,000 new homes in the South Ockendon area. The Site has been submitted to the Council's 'Call for Sites' exercise so Council Officers are aware that The Site is available for development in the very short-term.
- 2.03 Thurrock Council, in conjunction with The Prince's Trust, have also undertaken community and developer design charette sessions. The South Ockendon session took place on the 8th of February 2022. Although the output from this has not been formally published, there was a commonality amongst the participants at the event that The Site should come forward as an allocation. An extract of the report showing the consolidated plan is at **Appendix 3**
- 2.04 On the assumption that The Site is removed from the Green Belt and allocated for development, Hill Residential anticipate a planning application could be submitted and approved by Winter 2026. Based on current timescales, this is likely to coincide with commencement of works for the Lower Thames Crossing.
- 2.05 We have made representations to the Local Plan process and will continue to liaise with officers and members regarding the future allocation of The Site for predominantly residential development.



### 3 Site Context

3.01 Hill Residential instructed Transport Planning Associates Ltd (TPA) to undertake an initial assessment of the likely impacts of c.750 dwellings and some commercial uses on The Site. This report is attached at **Appendix 2**

3.02 As can be seen from the plan at Appendix 3, there are many services, facilities and residential properties located within desirable or acceptable walking distances, with a number of them within the “walking neighbourhood” threshold of 800 m and many more slightly further afield. There are also a significant range of services and destinations within 2.5km and 5km of The Site to which existing local cycle links connect via National Cycle Route 137 to the south. The Site is therefore considered to be sustainable and an appropriate location for residential development. Accordingly, we are optimistic that The Site will be developed for residential use, before the Lower Thames Crossing works are completed.

## 4 Proposed and Alternative Routes

- 4.01 The WCH proposed as part of the Thames Crossing works has the potential to enhance the existing pedestrian/cycling provision but the proposed route requires a significant and prominent land take of developable land which would reduce the number of residential units which The Site could otherwise accommodate. It would also run along the side of a road which provides a connection between South Ockendon and Upminster and can therefore be busy at times. In our view there is a better alternative using publicly accessible land which would provide a more pleasant and safer route and avoid the need to take land within The Site
- 4.02 The Little Belhus Country Park to the west and south of West Road/Dennis Road already has a circular route to which public access is available from both Dennis Road and Arisdale Avenue, close to its junction with West Road. The Dennis Road access links directly with the existing public footpath which runs across The Site. The existing route, including the public access points and the car park off Arisdale Avenue are shown at **Appendix 4**. The WCH proposal could be amended to improve this and provide a WCH track that fulfils the objectives of the proposal whilst also offering a more attractive and safer route for cyclists, pedestrians and equestrians. Whilst some upgrading may be needed it could save project costs and bring forward an enhanced scheme which would also encourage use of the Country Park. We have previously raised this suggestion with National Highways but have not received any meaningful response.
- 4.03 The current proposal would require a 3-5m strip of land that forms the frontage to The Site. This would have a significant negative impact on the quantum of developable land and a consequential reduction in the value of the land. This could have significant adverse impacts on our contractual commitments.
- 4.04 In order to access The Site, it would be necessary to provide vehicular access across the WCH track at a number of points. Whilst it is not unusual for vehicle crossings to be provided over WCH routes, where alternative routes exist, it is preferable to use these where to do so would avoid any potential conflicts between users. There are no vehicular crossings over the existing route through the Little Belhus Country Park. This is therefore a further reason why consideration should be given to upgrading the existing route as an alternative to the current proposal
- 4.05 Given current estimates on timescales, there is likely to be overlap between the development of The Site and the development of the Lower Thames Crossing. Should this occur, because the WCH would form part of the Lower Thames Crossing works, there is the potential for delay in the implementation and construction of The Site resulting in the incursion of significant and unfair cost.
- 4.06 Notwithstanding the consideration of alternative locations of the WCH track, should the Lower Thames Crossing scheme proceed as currently proposed, it is paramount that we retain the ability to access The Site from both Dennis Road/Lane and West Road and that the location of any future access is not constrained by the presence of the WCH route. Our illustrative masterplan allows for a number of access points along West Road and Dennis Road. It would be unacceptable for the WCH track to inhibit our proposals in any way and both Hill Residential and Ingrebourne (Kemps) Ltd object to any proposal which would do so in the strongest terms.

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4.07 Finally, correspondence from National Highways suggests that there has not been any objection previously to this WCH route. Hill Residential and Ingrebourne (Kemps) Ltd would like to put on record formally that they have consistently made representations to National Highways similar to those set out in this statement as part of their response to earlier consultations.

## Appendix 1



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Client:  
**Hill Residential Limited**  
 The Courtyard, Abbey Barns,  
 Ickleton, CB10 1SX  
 Project:  
 Ockendon Land Parcel

Drawing:  
**Location Red Line Plan**

Scale: 1:2500@A1	Date: 12.01.2021
Drawn By: JRT	Checked By: M1
CAD Ref:	Drawing No: Rev. No:

**PRELIMINARY**

THIS DRAWING IS A COPYRIGHT  
 All dimensions to be checked on site or in the workshop before work commences.  
 Only figured dimensions to be worked to. Any discrepancies to be reported to the Architect.

Location Plan  
 Scale 1:2500

## Appendix 2

A Report for  
**HILL RESIDENTIAL LIMITED**

In respect of  
**West Road,  
SOUTH OCKENDON, THURROCK**

**Transport Scoping Note**

March 2023



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### Document Review

	Status	Author	Checker	Approver	Date
01	Draft	JM	GDG	DE	01   07   22
-	Issue	JM	GDG	DE	15   07   22
A_Draft	Draft	JM	GDG	DE	01   03   23
A	Issue	JM	GDG	DE	29   03   23

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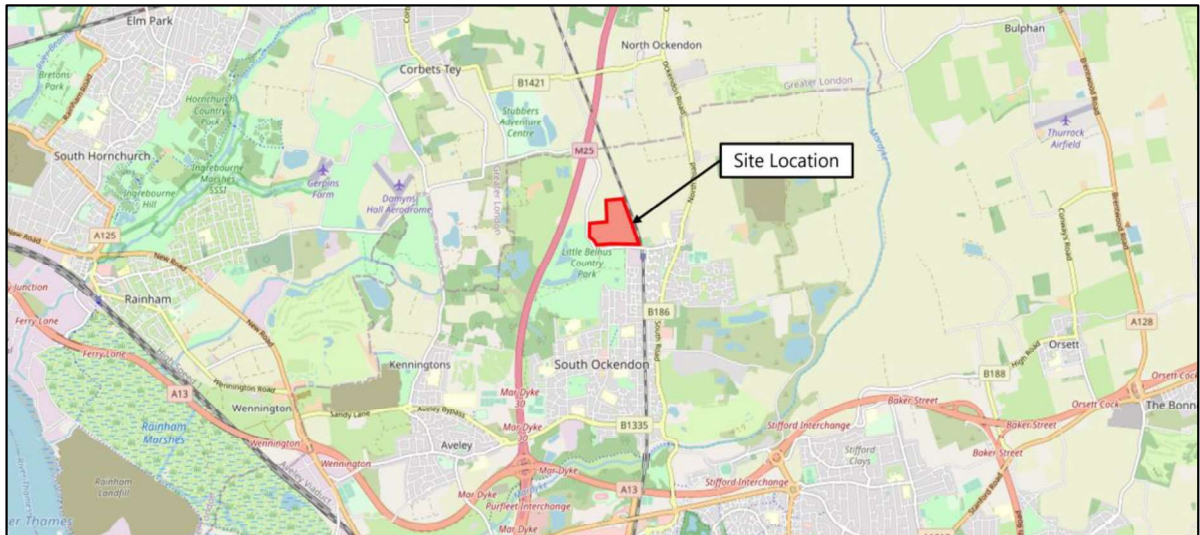
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# 1 Introduction

1.1 Transport Planning Associates (TPA) have been commissioned by Hill Residential Limited to provide transport and highways consultancy services in relation to the emerging development proposals at West Road, South Ockendon, Thurrock (the site). The location of the site is identified **Figure 1.1**.

**Figure 1.1 Site Location Plan**



Source: © OpenStreetMap Contributors

## The Site and the Emerging Proposals

- 1.2 The site comprises a parcel of land located in South Ockendon town, bordered by the Upminster to Grays railway line to the east, West Road to the south, Dennis Road / Lane to the west and farmland to the north. The local planning and highway authority for the site is Thurrock Council (TC).
- 1.3 The intention is to provide a residential-led, mixed use scheme, with aspirations to be an allocated site within the emerging Local Plan (LP). While the plans for this site are only at an early stage of their development, it is currently considered that future proposals may include circa 750 dwellings and other potential commercial and community uses. Commercial uses may comprise a supermarket or convenience store and other A1/A2/A3/A4/A5 uses. All figures and uses are subject to further feasibility work and discussions with local stakeholders and will be confirmed in due course.

## Scope

1.4 This Scoping Note (SN) has been prepared to inform discussions with TC to set out constraints, opportunities and the evolving transport strategy for a potential allocation in the emerging LP. It will focus on identifying an access strategy and outlining the methodology to assess the potential transport impacts of the development in order to provide assurance to planners to support such an allocation.

## 2 Baseline Conditions

### Existing Site

- 2.1 The site comprises an undeveloped parcel of land located in South Ockendon, bordered by a railway line to the east, West Road to the south, Dennis Road / Dennis Lane to the west and farmland to the north. The site's current predominant use is as agricultural land.
- 2.2 At present, there is an existing dropped kerb from the site onto West Road, which demonstrates that a vehicle access was established here in the past.
- 2.3 The site is highly accessible by all modes of transport, including walking, cycling, public transport (buses and rail), in addition to also being well connected to the highway network. The site's accessibility by all modes will be set out in the remainder of this Chapter.

### Walking

- 2.4 There are pedestrian footways provided along part of the site's frontage onto West Road, to the east of the junction with Arisdale Avenue. In this section of West Road, footways are provided on both sides of the street with varying widths of approximately 1.7 m to 2 m. At present, there are no formal pedestrian crossing points provided along West Road within close vicinity of the site.
- 2.5 The pedestrian infrastructure provided along West Road connects the site to a wider network of continuous and lit footways within South Ockendon, giving local residents, workers and visitors the opportunity to walk to local services and amenities in and around the town, including Ockendon rail station and a range of bus stops.
- 2.6 Overall, despite the absence of footways west of Arisdale Avenue, the quality of the local pedestrian environment surrounding the site is considered to be reasonable, due to the frequent provision of street lighting and adequately wide footways.
- 2.7 The Institution of Highways and Transportation publication '*Providing for Journeys on Foot*' identifies the desirable, acceptable and preferred maximum walking distances to various amenities. The distances in Table 2.1 below are taken from Table 3.2 of that publication and set out the thresholds considered for local services and amenities.

Table 2.1 IHT suggested Walking Distance Thresholds

	Town Centres (m)	Commuting / School / Sight-seeing (m)	Elsewhere (m)
Desirable	200	500	400
Acceptable	400	1,000	800
Preferred maximum	800	2,000	1,200

Source: Table 3.2 of Providing for Journeys on Foot (IHT)

2.8 The Institution of Highways and Transportation also advise that:

*“New developments should be located so that public transport trips involving a walking distance of less than 400m from the nearest bus stop or 800m from the nearest railway station<sup>1</sup>”.*

2.9 Manual for Streets states that walkable neighbourhoods are “characterised by having a range of facilities within 10 minutes’ (up to about 800m) walking distance of residential areas which residents may access comfortably on-foot”. The 2020 National Travel Survey stated that 82,7% of trips under one mile are undertaken on foot<sup>2</sup>, and therefore creating walkable neighbourhoods with a variety of amenities and services in close proximity will reduce the quantum of trips undertaken by private car.

2.10 The site is within desirable or acceptable walking distances from a multitude of services and facilities. These include but are not limited to Ockendon rail station, Little Belhus Country Park, Benyon Primary school, a Tesco Express, Peartree Surgery, a post office and local bus stops.

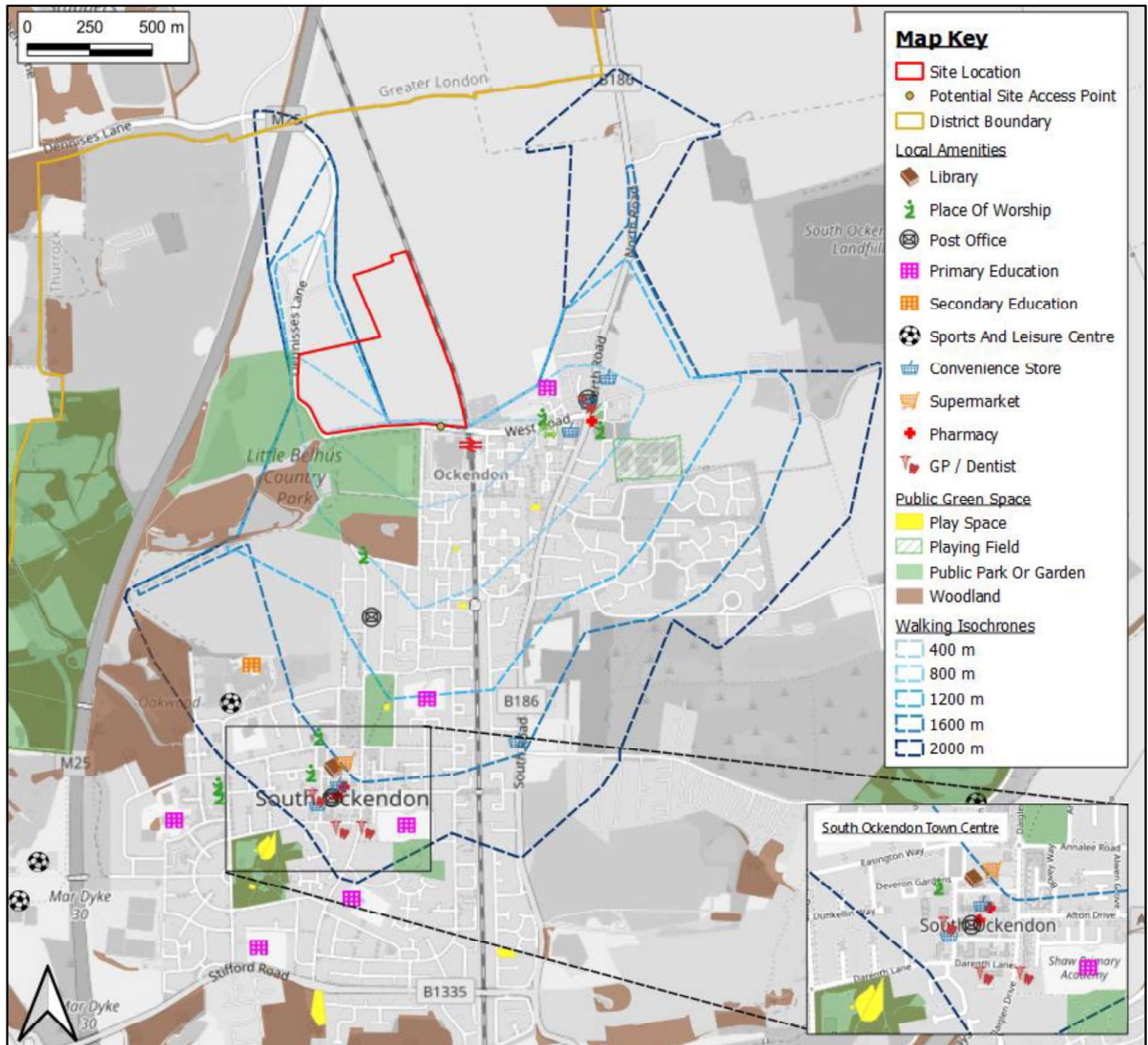
2.11 The site and the wider area are also surrounded by residential properties and local neighbourhoods, also within a short walking distances. In the context of the future of the site being a mixed-use scheme (including commercial), future staff will be able to walk to the site from a wide catchment, as an alternative to the private car.

2.12 **Figure 2.1** highlights the site’s proximity to many services and facilities, with walking isochrones to provide a reference on the approximate walking distances.

<sup>1</sup> Planning for Public Transport in New Development (IHT, 1999, para 5.21)

<sup>2</sup> NTS0308: Average number of trips by trip length and main mode: England

**Figure 2.1 Local Services and Amenities**



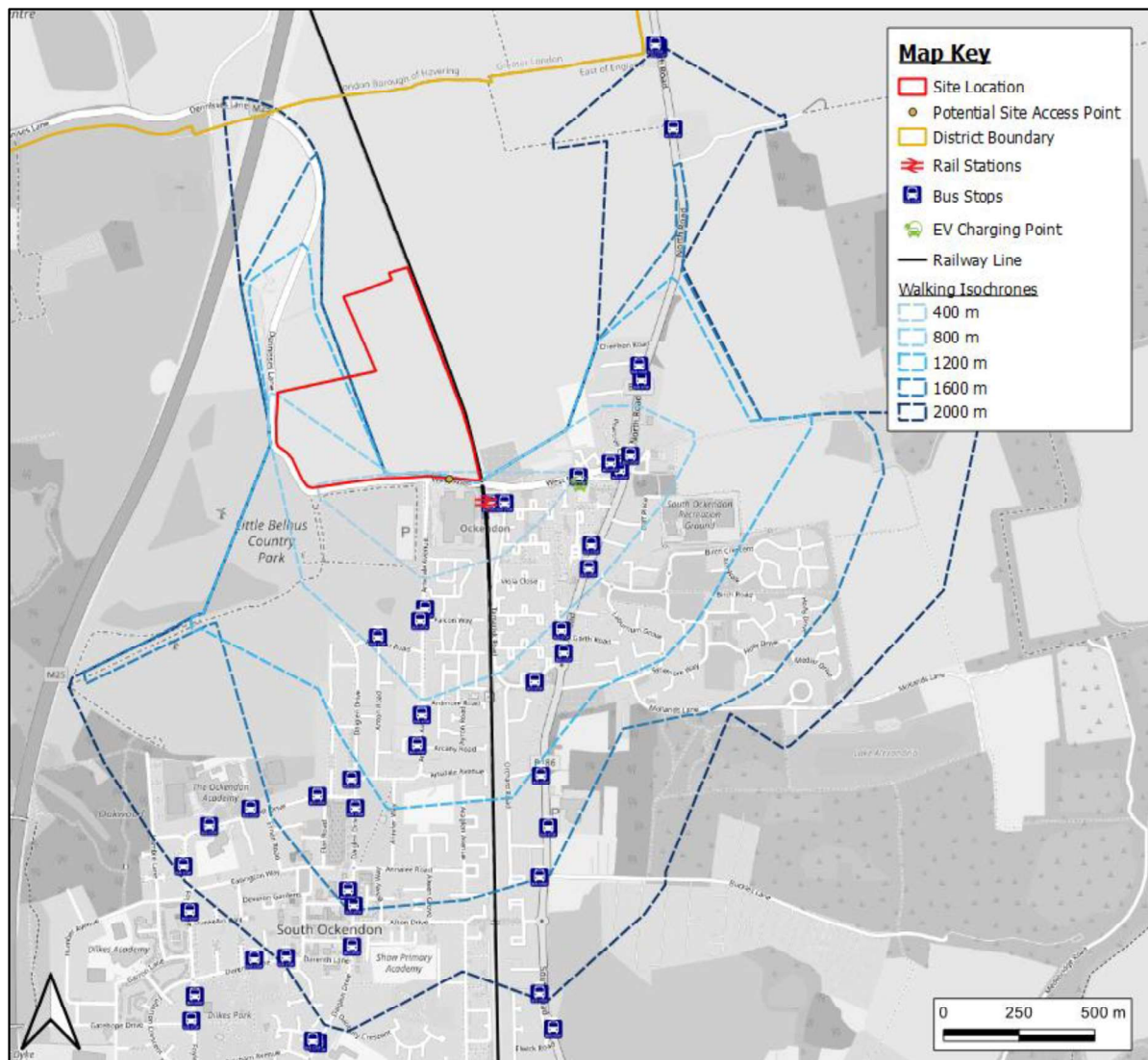
Source: ©OpenStreetMap contributors; Note: Site Boundary is indicative. Walking distances calculated from potential pedestrian access point on West Road

2.13 In the light of the above, the site’s location is considered sustainable, with many services, facilities and residential properties located within desirable or acceptable walking distances, with a number of them within the “walking neighbourhood” threshold of 800 m and many more slightly further afield.

2.14 **Figure 2.2** shows the walking catchments with context of the surrounding sustainable transport network.



**Figure 2.2 Local Public Transport Network**



Source: ©OpenStreetMap contributors

Note: Site Boundary is indicative. Walking distances calculated from potential pedestrian access point

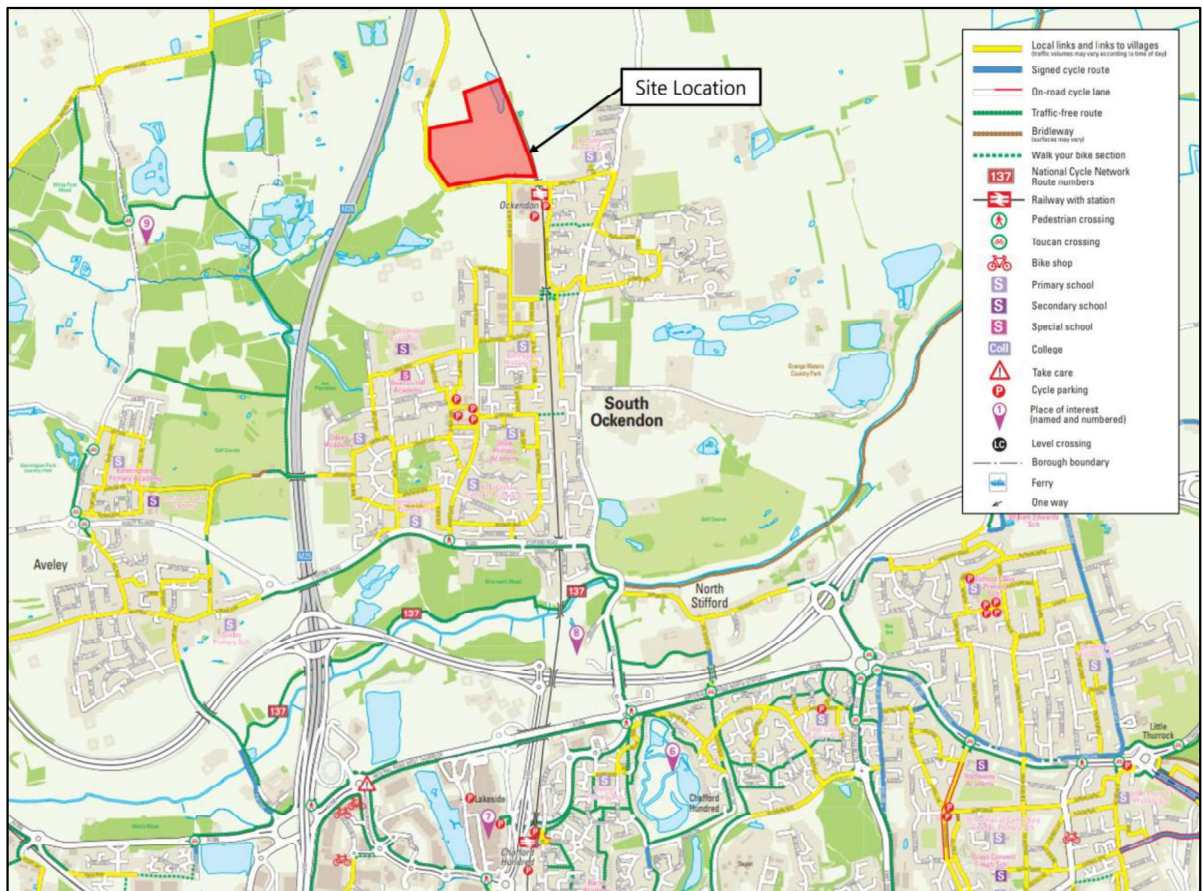
2.15 As can be seen above, the site lies within a close distance of sustainable transport infrastructure. The various modes of transport accessible from the site are set out in detail later in this section.

### Cycling

2.16 There is a comprehensive network of cycle routes within Thurrock Borough including a number of routes that run near the site, as illustrated in **Figure 2.3** below.



**Figure 2.3 Cycle Routes**



Source: TC

2.17 As shown in **Figure 2.3**, there are a number of local cycle links within the immediate vicinity of the site including those along West Road and Dennis Road / Lane. The local cycle links connect the site to National Cycle Route 137 to the south.

2.18 The bicycle is an effective mode of transport for short trips up to five to eight km (20 – 35 minutes respectively)<sup>3</sup>. Sustrans has identified a maximum distance which daily commutes could be undertaken by cycle as:

*“We know that in some areas most people are unlikely to walk for more than 2 km (1.2 miles) but are most likely to cycle between 2 (1.2 miles) and 5 km (3.1 miles) for their daily commute, so we can create maps based on both short and longer distance commutes between popular ‘journey pairs’ (start and end points)”<sup>4</sup>.*

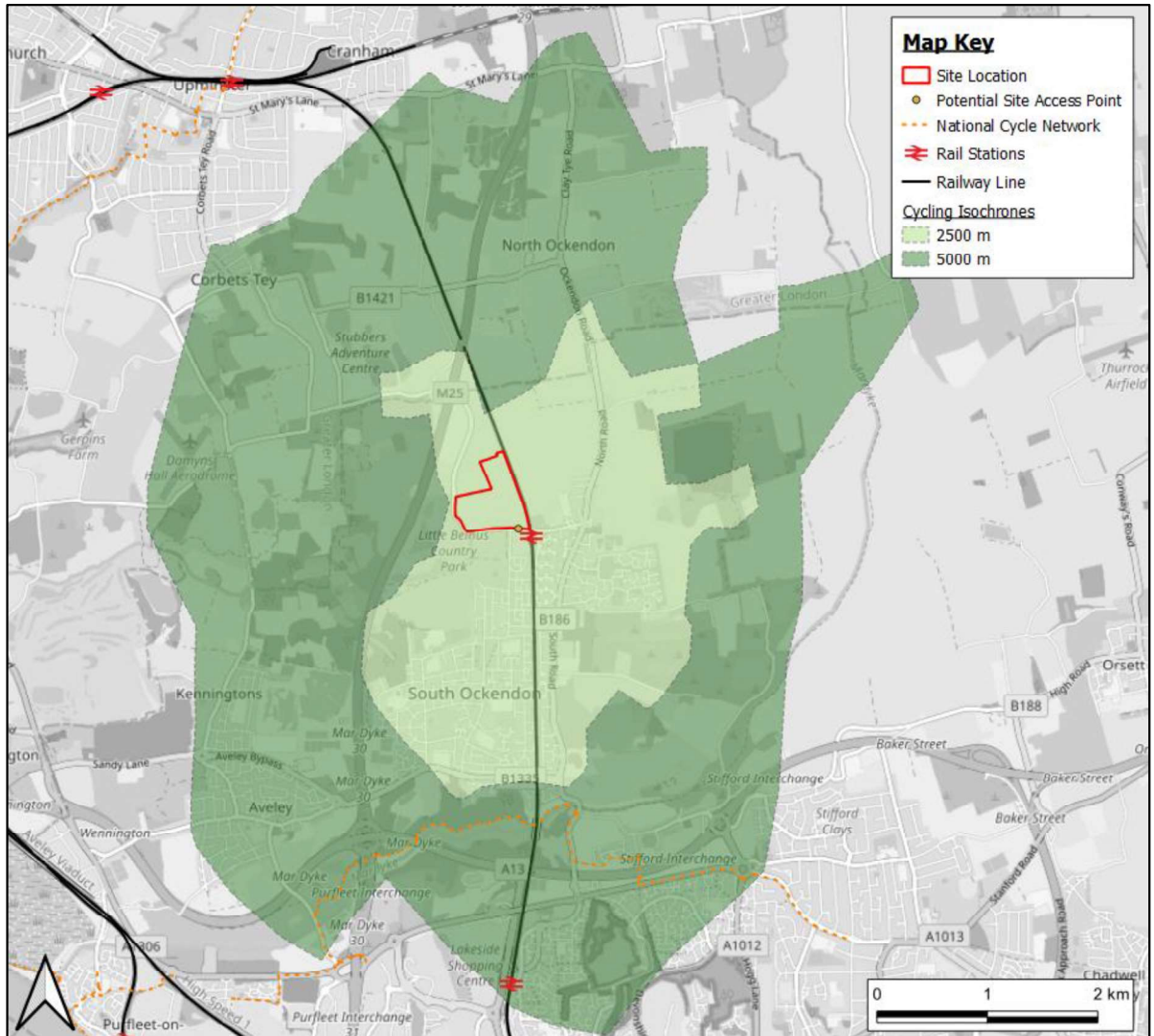
2.19 Consequently, it has been considered that a cycling catchment of 5 km is reasonable to consider for the site. Cycling isochrone plans, illustrating 2.5 km and 5 km cycling distances from the site are

<sup>3</sup> Changing Journeys to Work, An Employers Guide to Green Commuter Plans, Transport (2000)

<sup>4</sup> <https://www.sustrans.org.uk/blog/how-transport-modelling-helps-us-plan-cycle-friendly-cities>

presented in **Figure 2.4**. Potential commutable locations include Lakeside Shopping Centre, Aveley town centre and South Ockendon town centre.

**Figure 2.4** Cycling Isochrones



Source: ©OpenStreetMap contributors

Note: Site Boundary is indicative. Cycling distances calculated from potential cyclist access point

## Public Transport

### Bus

2.20 The nearest bus stops to the site are approximately 300 m to the south-east, opposite Ockendon station, and are served by three bus routes, as summarised in Table 2.2. Refer to **Figure 2.2** for the location of nearby bus stops. Timetabling information, shelters and seating are provided at these bus stops.

Table 2.2 Bus Routes and Peak Hour Frequencies

Route	Weekday	Saturday	Sunday
11 Basildon - Fobbing - Orsett - Grays - South Ockendon - Purfleet	One bus every two hours (07:45 to 19:35)	-	-
269 Grays - Stifford Clays - South Ockendon - Gt Warley - Brentwood	One bus every two hours (07:47 to 17:48)	One bus every two hours (08:23 to 17:48)	-
347 Horsham – Pulborough - Storrington - Steyning - Henfield – Burgess Hill	One bus every two hours (09:00 to 15:00)	One bus every two hours (09:00 to 15:00)	-

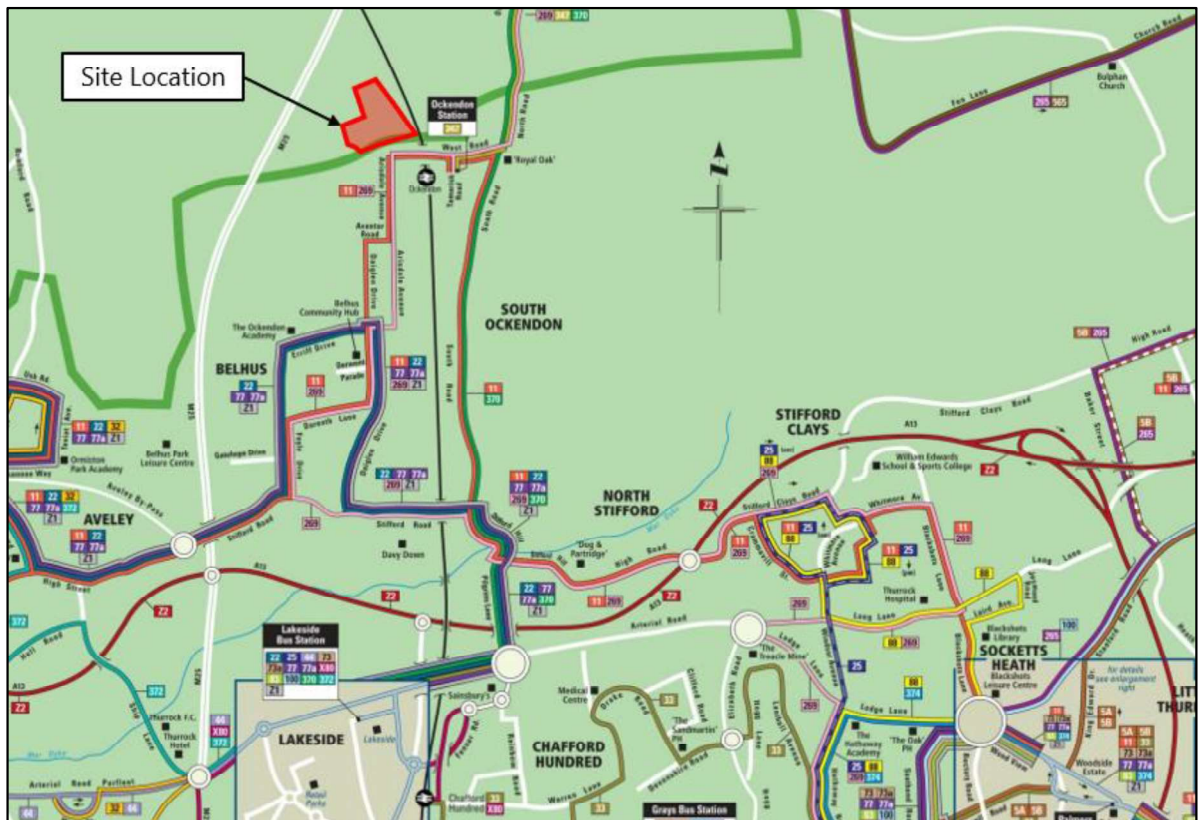
Source: <https://www.traveline.info/>

Notes: Frequency in both directions

2.21 In addition to the above, bus route 370 can be accessed from bus stops adjacent to the roundabout junction between West Road and South Road / North Road, which has approximately 4 services per hour on weekdays and 2 services per hour on Sunday.

2.22 An extract of TC’s Public Transport Map is illustrated in **Figure 2.5** below. The full map is presented in **Appendix A**.

Figure 2.5 Bus Network Map



Source: TC



### Rail

- 2.23 Ockendon railway station can be accessed within a 300 m walking distance of the site, via West Road and Tamarisk Road.
- 2.24 The station is owned by Network Rail, with services operated by c2c. The station is located on the London, Tilbury and Southend line, providing a stopping service towards Grays and London Fenchurch Street. Within a 6-minute journey, one stop to the north, Upminster station then provides interchanges with the London Underground (District Line) and Overground network.
- 2.25 A summary of these services are provided in Table 2.3, which demonstrates that future occupiers of the site will have access to numerous rail based public transport services to local and regional hubs.

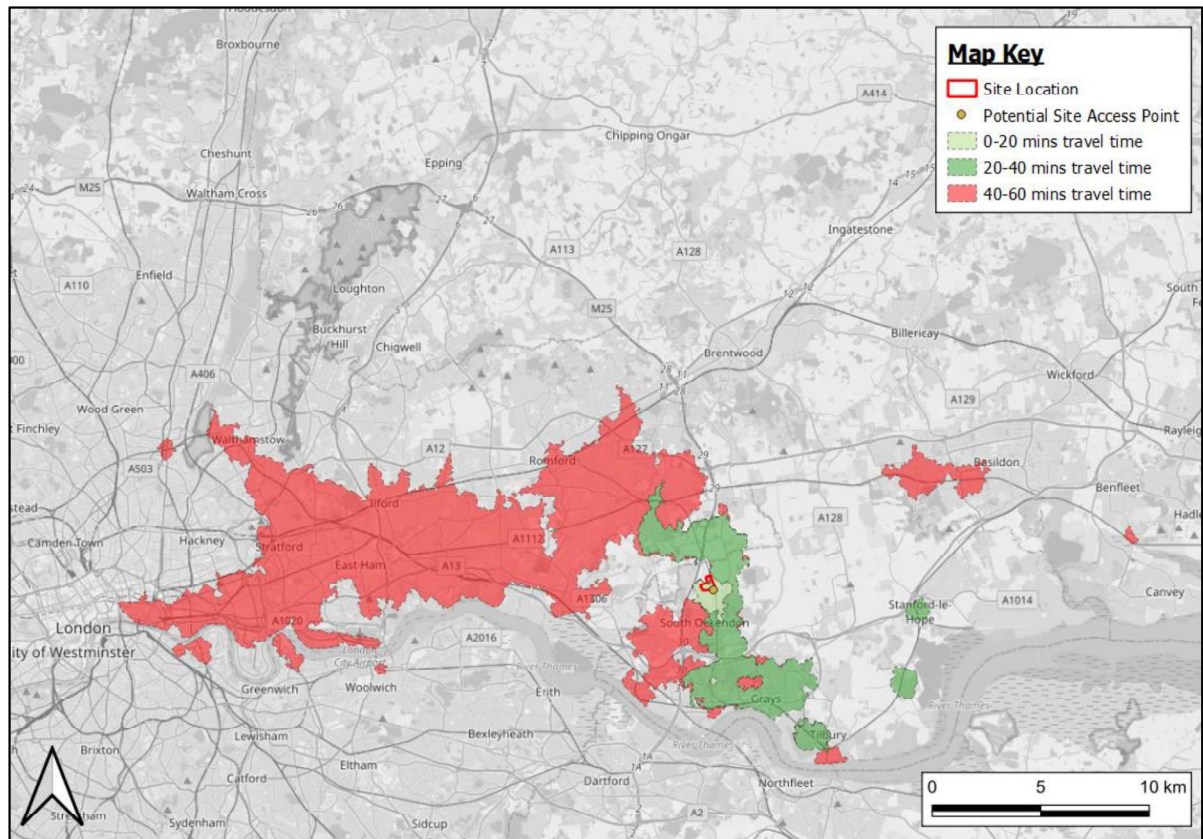
Table 2.3 Ockendon Rail Services – Peak Hour Frequencies

Destination	Approximate Duration (minutes)		First Train*	Last Train*	Approximate Journey Frequency (per hour)	
	Peak	Off-Peak			Weekday	Sundays
London Fenchurch Street	33	30	04:54	23:55	2	2
Grays	8	7	05:06	00:39	2	2
Upminster	6	6	04:54	23:55	2	2
Barking	15	15	04:54	23:55	2	2

\*Timetables correct as of May 2022. Weekday Times <https://ojp.nationalrail.co.uk/>

- 2.26 As shown in **Figure 2.6**, a number of key employment/residential locations such as Central London, Basildon, Grays, Ilford and Tilbury can be reached in less than an hour by public modes of transport. Thus, the accessible location of the development will reduce the reliance on travelling to and from the development by car.

**Figure 2.6 Public Transport Isochrones**

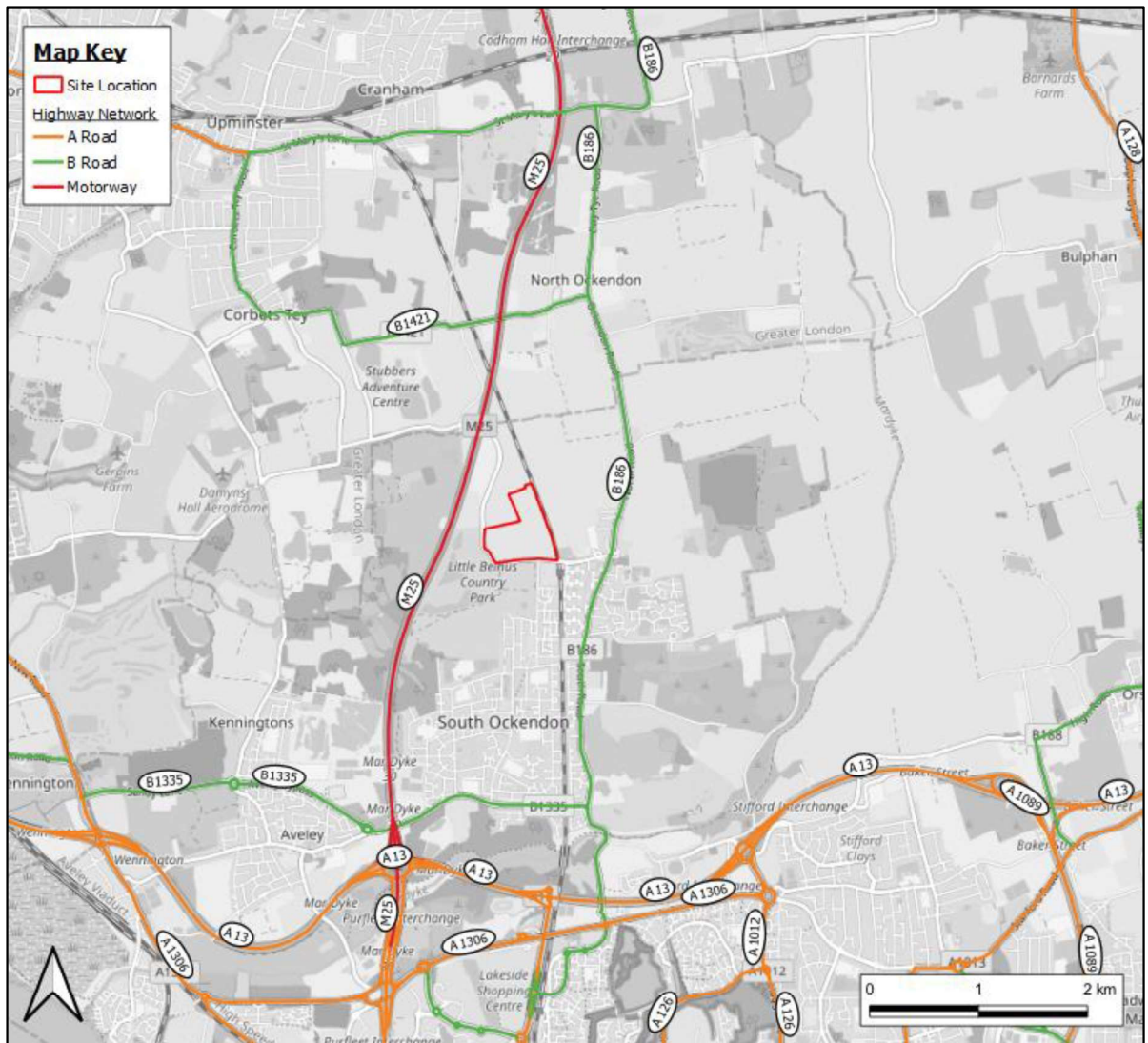


Source: ©OpenStreetMap contributors, Travel Time. Note: Weekday Off-Peak Time

## Highways

- 2.27 As previously noted, the site has frontage to West Road to the south and Dennis Road / Lane to the west. West Road links with the B186 North / South Road to the east at a roundabout junction, which runs adjacent to South Ockendon town centre and provides access to Lakeside Shopping Centre to the south.
- 2.28 The B186 also connects with the A126 and A1306, also to the south, which provide access to the wider highway network by connecting to the A13 and A282 respectively. Dennis Road / Lane becomes Dennises Lane to the west at the boundary with the London Borough of Havering (LBH), which is connected with a number of rural roads.
- 2.29 The local highway network surrounding the site is illustrated in **Figure 2.7**.

**Figure 2.7 Local Highway Network**



Source: ©OpenStreetMap contributors

- 2.30 Both West Road and Dennis Road / Lane are two-way single carriageway roads. Speed limits include the national speed limit, west of the junction with Arisdale Road, transitioning to a 20mph the east of the junction via a short section of 30mph around the junction. Dennis Road / Lane is subject to the national speed limit for its entirety. A 40mph speed limit is imposed on Dennises Lane at the boundary with LBH.
- 2.31 Along the site’s frontage onto West Road, to the east of the 20mph speed limit, is a mixture of single and double yellow line road markings. Where the national speed is implemented on West Road and Dennis Road, single white lines are marked on both sides of the road (albeit faded), thus restricting parking here at any time.
- 2.32 Arisdale Avenue, which connects to West Road at a priority give-way junction, is populated by on-street parking along the eastern kerb line of the road.

### Collision Data

- 2.33 The most recent five-year period crash data on the CrashMap website reveals that 12 Personal Injury Collisions (PICs) occurred in the vicinity of the site within the study area illustrated in **Figure 2.8**.
- 2.34 The collisions within the blue, dashed line below illustrate the extent which will be analysed as part of future assessments, with a focus on serious and fatal collisions, obtaining collision data from TC.

**Figure 2.8 PICs near the Site**



Source: © CrashMap

### Surveys, Committed

#### Traffic Surveys

- 2.35 Traffic surveys were undertaken between November and December 2022, with the main collection day of the manual counts at the junctions being in November, a neutral month in accordance with Transport Analysis Guidance (TAG) Unit M1.2<sup>5</sup>. They were undertaken by A-T-R and are reproduced within **Appendix B**.

<sup>5</sup> Paragraph 3.3.7

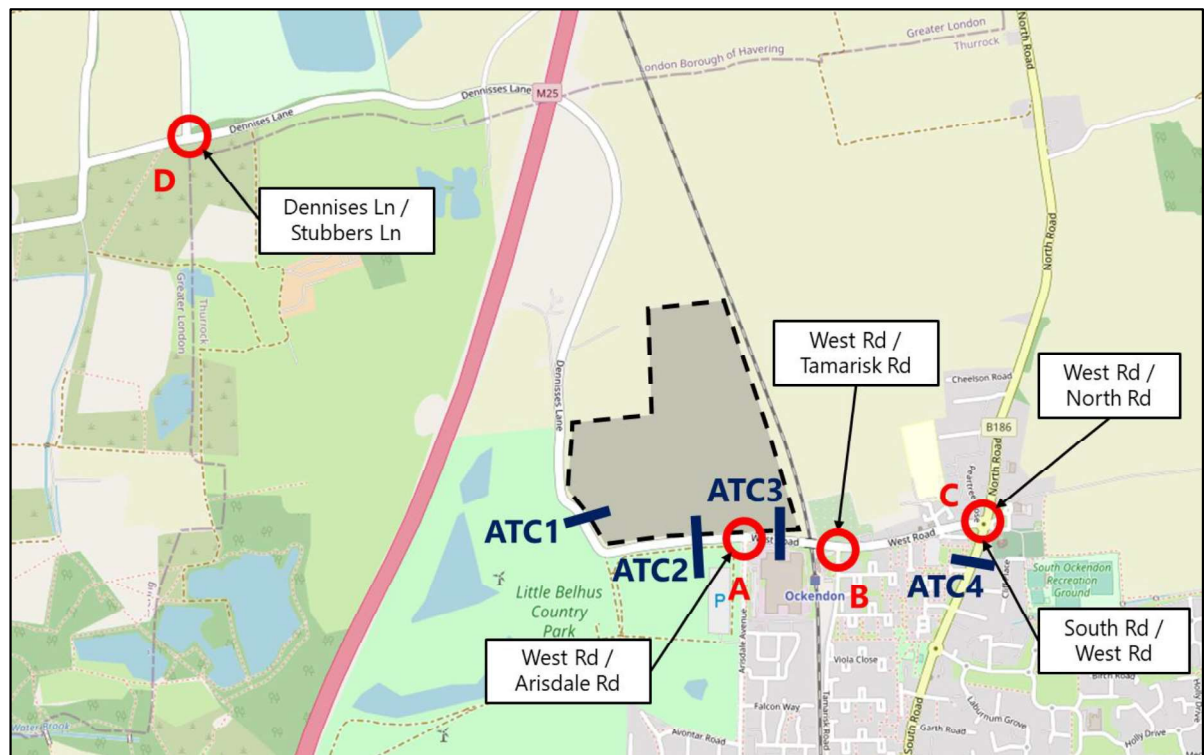


- 2.36 Manual Classified Counts (**MCCs**) were carried out at four junctions between 07:00 and 10:00 and 16:00 and 19:00 of Tuesday 29 November and included classified movements reported in 15-minute intervals, with spot queues also recorded.
- 2.37 Automatic Traffic Counts (**ATCs**), recording volumes, categories and speeds, were undertaken for one week, particularly on w/c Monday 28 November 2022 (therefore overlapping the day of the MCCs).
- 2.38 The locations are listed at Table 2.4 and illustrated in **Figure 2.3**.

Table 2.4 List of Surveys

Type	ID	Location
<b>MCCs</b>	<b>A</b>	West Rd / Arisdale Rd (3-arm Priority)
	<b>B</b>	West Rd / Tamarisk Rd (3-arm Priority)
	<b>C</b>	West Rd / North Rd (mini-Roundabout)
	<b>D</b>	South Rd / West Rd (3-arm Priority)
<b>ATCs</b>	<b>1</b>	Dennises Lane (west)
	<b>2</b>	Dennises Lane (south)
	<b>3</b>	West Road
	<b>4</b>	South Road

Figure 2.3 Location of the surveys





### *Committed Developments, Background Growth*

- 2.39 It is understood that the last phase of development at Arisdale Industrial Estate<sup>6</sup> (total of circa 650 dwellings), Arisdale Avenue is either complete or near completion with a large proportion of the completed properties being occupied.
- 2.40 We seek confirmation from TC on what schemes should be considered for the purpose of the cumulative impact assessment in the future TA.
- 2.41 At this stage, background traffic growth was factored in using the TEMPro growth factors illustrated as follows.

Table 2.5 TEMPro growth factors (2022 – 2027)

Time Period	Origin	Destination	Average
AM Peak	1.1476	1.1328	1.1402
PM Peak	1.1379	1.1463	1.1421

TEMPro

### *Committed Infrastructure Improvements*

- 2.42 Confirmation is also sought in relation to any planned or committed infrastructure improvements that should be taken into account in the masterplan and the impact assessment, for example on West Road itself, near the site. This is particularly relevant in the context of the potential programme of improvements proposed by TC within the new Local Plan, and also of what would otherwise be unmitigated background growth (associated with other developments) in any future assessment.
- 2.43 In addition, consideration will need to be made for the Lower Thames Crossing (LTC), which is yet to be formally approved but is expected to commence construction in 2024 and see completion by 2030<sup>7</sup>. The project proposes a crossing of the Thames Estuary, connecting Essex and Kent, comprising 14.3 miles of new road connecting the M2/A2, A13 and M25, and 50 new viaducts / bridges.
- 2.44 A new interchange is proposed with the M25 approximately 3 km south of junction 29 on the M25. The proposals would comprise significant work in the local area and increase capacity. Non-motorised users (walkers, cyclists and horse riders - WCH) will also benefit from local improvements, which would

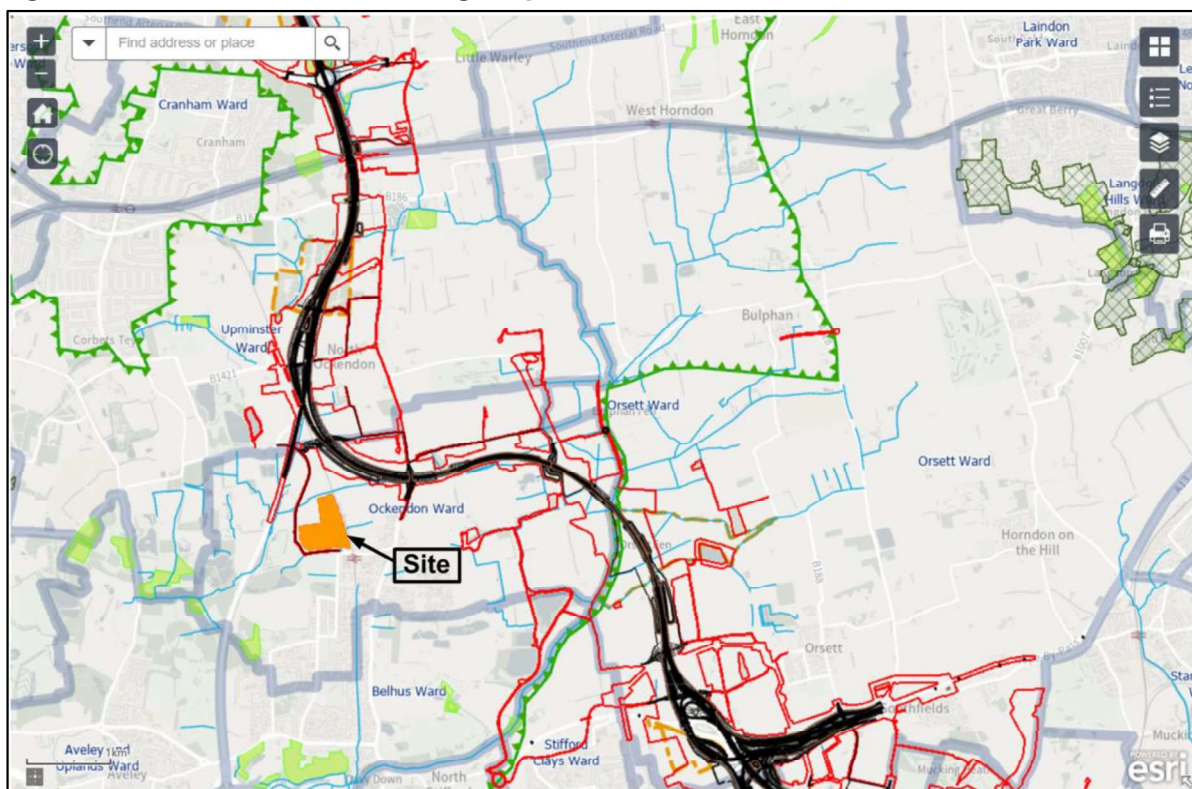
<sup>6</sup> Planning Reference: 09/50035/TTGOUT

<sup>7</sup> <https://nationalhighways.co.uk/our-roads/lower-thames-crossing/what-is-the-lower-thames-crossing/the-lower-thames-crossing-route/>

comprise works along Dennis Lane, where a new “Proposed walking, cycling or horse-riding route” is anticipated. This is particularly relevant as it is abutting the site boundary.

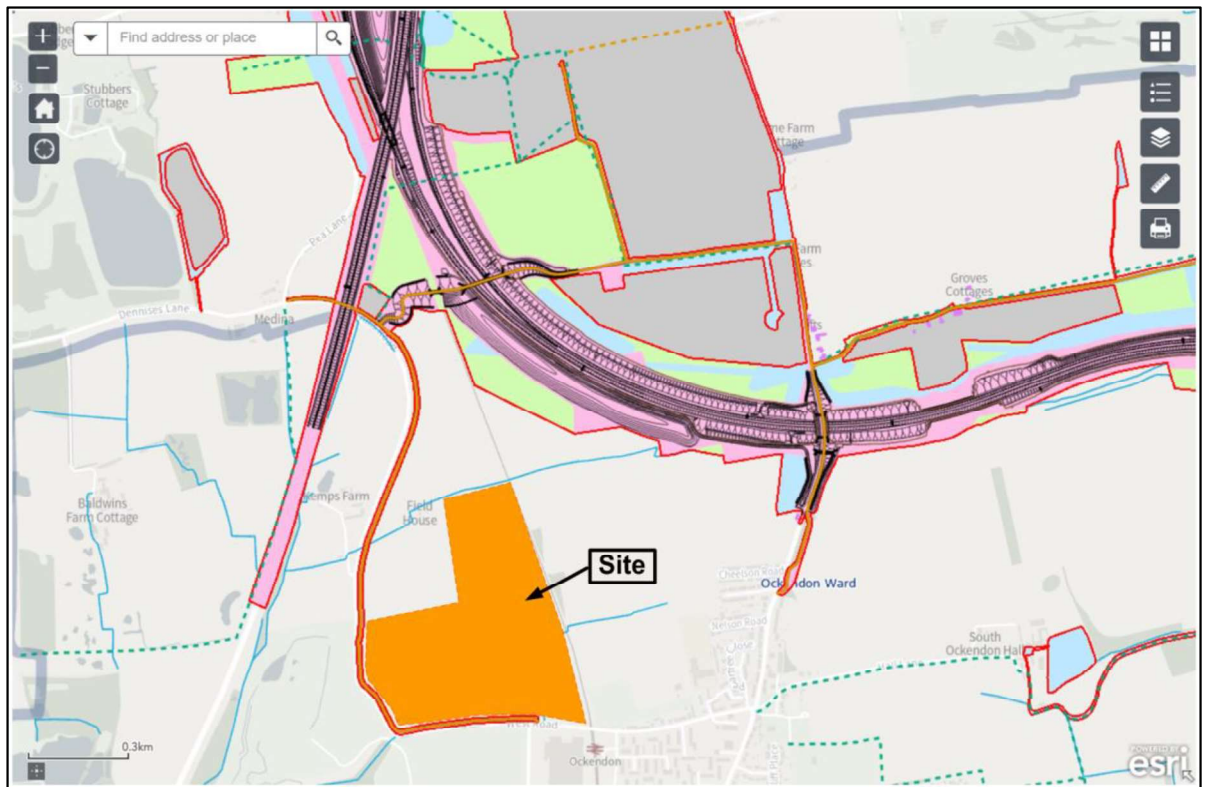
2.45 Discussions with TC will highlight the potential need for any assessments (or Sensitivity Tests) to take the emerging proposals into account. It is anticipated that they will reduce the demand over the Dartford crossing and relieve some of the congestion currently experienced at peak times along the M25 between junction 30 and junction 2.

**Figure 2.9 Lower Thames Crossing Proposals (wider network)**



Source: National Highways

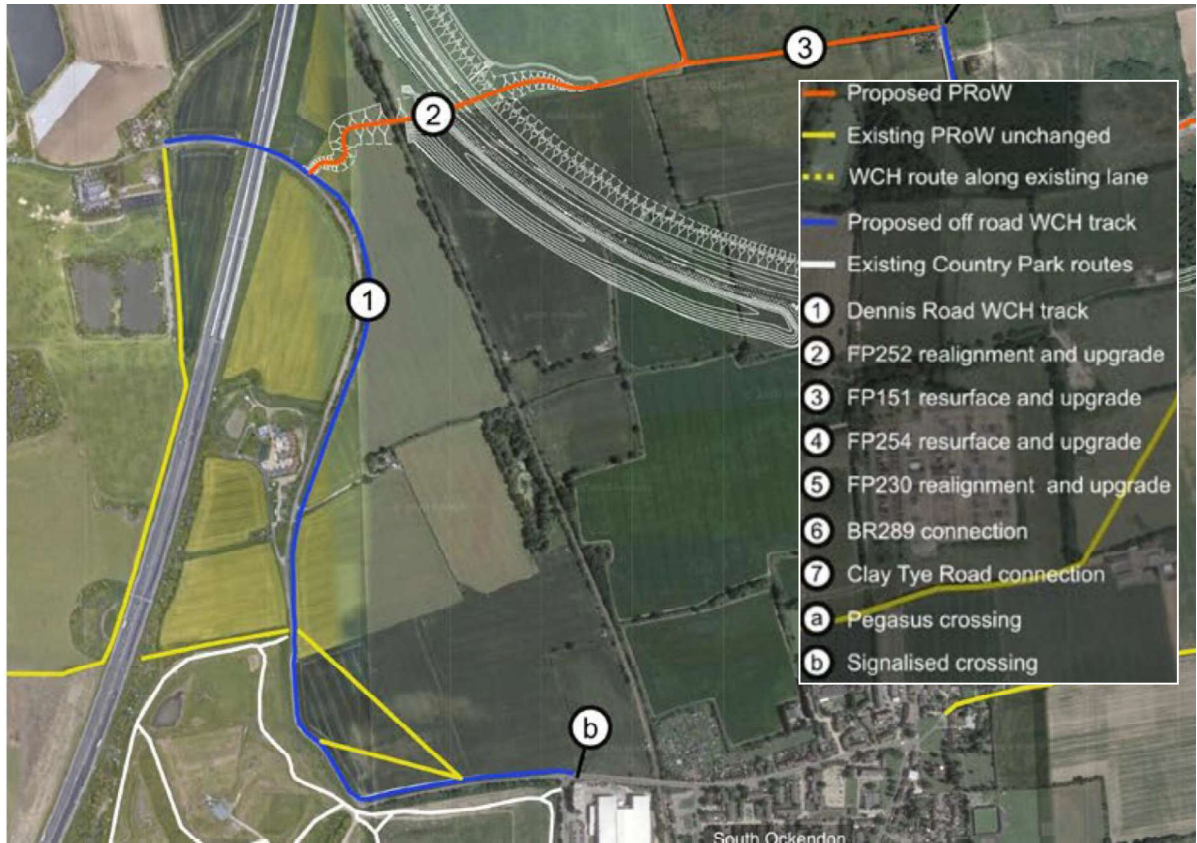
**Figure 2.10 Lower Thames Crossing Proposals near the site**



Source: National Highways

2.46 We note that as part of the proposals, a signalised crossing is envisaged on West Road, approximately at the junction with Arisdale Avenue. It is the location 'b' illustrated in one of the proposed plans. This provision will be of great benefit to future residents of the site in respect of promoting active travel.

**Figure 2.10 WCH proposals part of the Lower Thames Crossing Proposals near the site**



Source: National Highways



### 3 Development Proposals

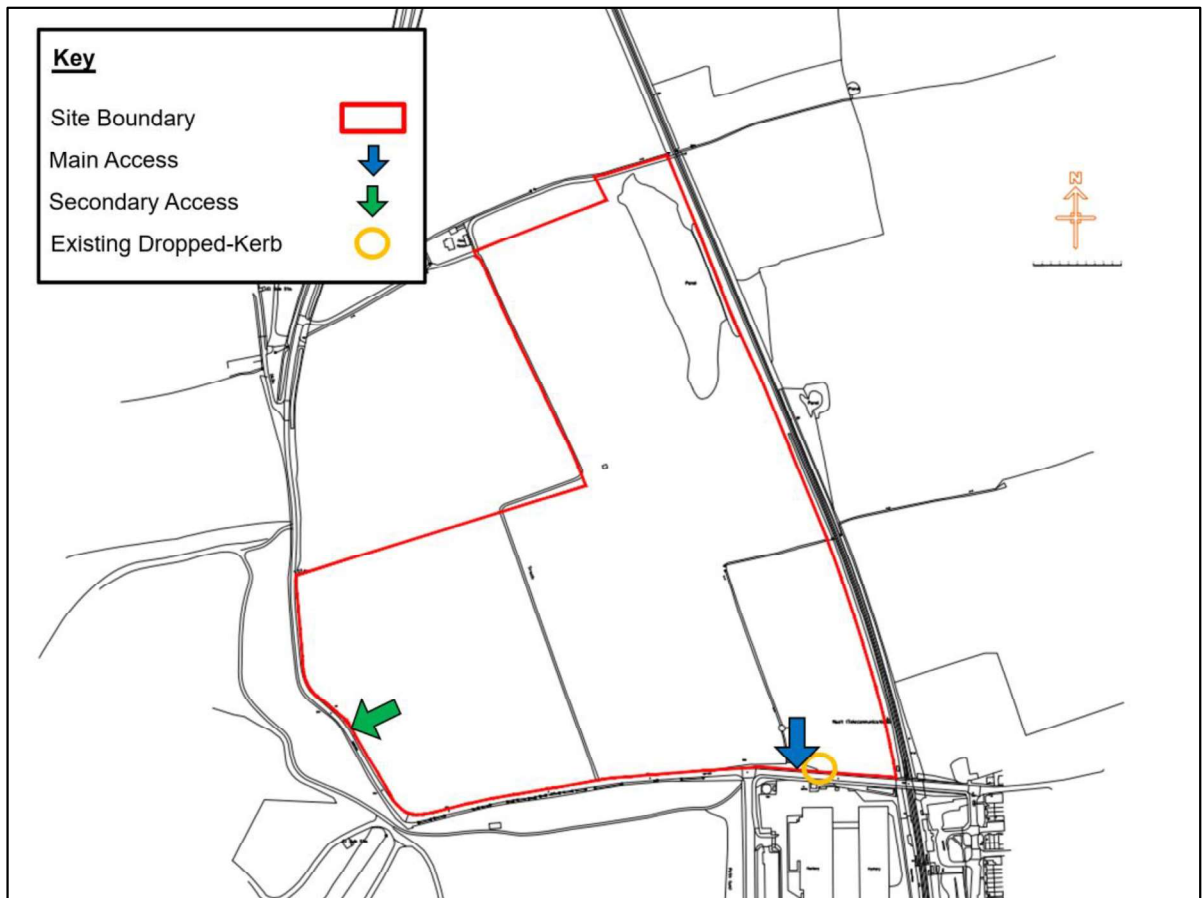
#### The Emerging Proposals

3.1 As noted, proposals at the site are only at their infancy and are being developed. To provide an indicative potential mix that may comprise of the proposed development, a mixed-use scheme, providing circa 750 dwellings (indicative figure, subject to change) and other potential commercial and community uses. Commercial uses may include a supermarket or convenience store. The site boundary plan is presented in **Appendix C**.

#### Site Access Strategy

3.2 As noted, the location is highly accessible by all modes of transport and the masterplan will be guided by 'people-led' principles. Accessibility by active travel modes will be key to its success. The potential access locations to the site are illustrated within **Figure 3.1**.

**Figure 3.1 Potential Site Access Locations**



Note - preliminary

### *Pedestrian Accessibility*

- 3.3 Within the red line, the masterplan will be developed with the intention to create a spine road off the new access point and, around it, network of walkable streets and squares, a mix of shared surfaces (now also called 'Pedestrian Prioritised Streets' in the recent CIHT guidelines), vehicle designated routes and potentially a town square, in addition to a network of footways.
- 3.4 As illustrated in **Figure 3.1**, an access will be provided on West Road (which would also benefit from a pedestrian crossing, at an appropriate location) to connect the site to South Ockendon, which is expected to generate nearly all pedestrian footfall to and from the site.

### *Cyclist Accessibility*

- 3.5 In order to encourage future residents to cycle when commuting to/from work or carrying out day-to-day trips, adequate cycle infrastructure needs to be in place from the outset and be designed to LTN1/20 standards<sup>8</sup>.

### *Vehicular Accessibility*

- 3.6 As shown in **Figure 3.1**, a vehicular access junction will be formed with West Road, along the southern boundary, in the form of a simple priority junction – which some preliminary modelling revealed being adequate in capacity terms (Table 6.11 later in this report). While its position is not currently fixed, it is anticipated to be east of Arisdale Avenue. A preliminary design is provided in drawing **SK01 (Appendix D)**, which also shows a potential location for the aforementioned signalised crossing envisaged as part of the LTC's proposals (**Figure 2.10**).
- 3.7 A section of footway/ cycleway will be provided along the eastern side of Dennis Lane / Road, along the site boundary, and connect to the existing provision on West Road.
- 3.8 A secondary vehicular access point, also a simple priority junction, will be provided along the western boundary and also act as emergency access. Local widening along the site boundary will be considered, together with any implications on visibility splays and speed limits.
- 3.9 In the absence of any specific guidance from TC, a cross-section drawing of the potential access road design is provided below and is based upon standards set out in the Essex Design Guide (EDG)<sup>9</sup> for a 'Type D Feeder Road'. Some of the design recommendations are set out below:

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<sup>8</sup> 3m wide in accordance with table 5-2 of LTN 1/20 – 2-way direction with up to 300 cycle movements per hour

<sup>9</sup> Essex Design Guide (2018)

- a. 3.5 m Footway/cycle route
- b. Carriageway of 6.0m or 6.75m (with a bus route)
- c. Footway 2 m
- d. Traffic calmed to 20mph (30 kph)
- e. Bus route

**Figure 3.2 Illustrative Cross Section for the Spine Road**



Source: ECC

### Public Transport Accessibility

3.10 As set out in **Chapter 2**, the site is located within walking distance of Ockendon rail station and a number of bus services. Thus, the accessible location of the site should reduce the reliance on travelling to and from the development by car. Should enhancements to the local bus network (local diversions and/or increased frequencies) be required, these will be discussed at the relevant time and form part of future stakeholder engagement with TC and bus operators.

### Parking Provision

3.11 It is the ambition of the development that car, cycle, disabled parking and EV charging will be provided in accordance with TC’s policy standards set out in **Chapter 4**.

### Car Clubs

3.12 It is also considered that car club vehicles would be an important part of the transport strategy for this site and contribute to a car free (or car light) lifestyle. At present, there are no vehicles situated in the local vicinity of the site.

- 3.13 Car Clubs operate by giving members access to a car on short-term rentals, paid for by the hour or day, often depending on the subscription. Car Clubs can provide a great alternative to car ownership as the user gets all the convenience of a car without the hassle and cost of owning a car. Membership includes fuel, servicing, and MOTs and more, so that the users only ever pay for a vehicle when they need it.
- 3.14 Car clubs provide a range of benefits for businesses, residents, and visitors, including:
- Reduction in car ownership;
  - Promote a shift to sustainable transport modes;
  - Provide business and residents with high quality, efficient vehicles;
  - Cost savings compared to car ownership; and
  - Help generate a shift to electric and hybrid vehicles.
- 3.15 Recent research undertaken by CoMoUk<sup>10</sup> suggests that, in UK, every car club membership takes approximately 20 private cars off the road. The reduction has a significant benefit to the environment, air quality, carbon footprint, congestion and parking.
- 3.16 In our experience, car club operators suggest the creation of 1 car club space every 100 new dwellings. In consideration of the quantum of anticipated development, the demand for 7 or 8 car club spaces would be justified. Given that there are no other car club vehicles in the local area, these vehicles could also be of benefit to local residents.

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<sup>10</sup> CoMoUK Car Club Reports for United Kingdom (2021)



## 4 Policy Context

4.1 A future TA would demonstrate the compliance of the proposals with the following set of policies, or newer equivalents at the time of submission should an allocation be given:

- National Planning Policy Framework (2021); and
- TCs Local Development Framework: Cores Strategy (2011).

4.2 For the purpose of this SN the key policies that the emerging masterplan and the TA will address are summarised as follows.

### TCs Local Development Framework: Core Strategy

4.3 TCs Core Strategy provides the framework for all development in the district until 2026. The Core Strategy was adopted in January 2011 and amended following a partial review in 2015, setting out the key strategic elements of the planning framework for Thurrock until 2026.

4.4 Some of the key policies are summarised as follows.

#### *Policy PMD8 – Parking Standards*

4.5 The first part of TCs transport policy refers to the parking policy requirements set out by TC:

*“All development will be required to comply with the car parking standards set out in the Layout and Standards SPD. For residential developments the standards comprise of ranges within maximum and minimum levels of provision dependant on defined circumstances. For non-residential uses maximum standards apply.*

*1. In those parts of Thurrock which have good levels of car parking enforcement available, coupled with high levels of accessibility, reduced standards for residential and non-residential car parking will be applied.*

*2. Additionally, in other parts of the Thurrock Urban Area where the Council considers the potential substantial modal shift is clearly demonstrated by the Transport Assessment/Statement and Travel Plans, the reduced maximum standard for non-residential car parking and reduced minimum standards for residential car parking will be applied. Where the reduced standards are applied, the Council will require developer contributions to support the development of controlled parking zones, the enforcement of parking restrictions and car-free living, and other measures to reduce inappropriate on-street parking.*

3. *The Council will require developers to use the relevant residential carparking standard in conjunction with suitable physical design to reduce the risk of inappropriate on-street parking, thereby avoiding a street scene dominated by cars while maintaining access for service and emergency vehicles.*

4. *Development will be required to facilitate more equitable access and sustainable transport modes through the provision of at least the minimum levels of parking, as specified in the Thurrock Parking Standards Guidance, for:*

- i. Cycles*
- ii. Powered two-wheelers*
- iii. Disabled car users*
- iv. Electric and other low emission vehicles*

5. *Subject to the above framework, vehicle parking provision will only be permitted where it is safe and of a high design quality, including where it is either:*

- i. Overlooked from within dwellings*
- ii. Managed and monitored from commercial premises*
- iii. Openly visible from the public highway, or*
- iv. Planned on-street provision*

- 4.6 As stated in Policy PMD8, parking for all development must have regard to the Council's minimum/maximum car parking and minimum cycle parking standards which are set out in TCs Parking Design and Development Standards (2020) Supplementary Planning Document (SPD). As the development evolves, the masterplan will be compliant with the latest parking policy set out by TC.

### *PMD9 – Road Network Hierarchy*

- 4.7 Policy PMD9 of the Core Strategy sets out a number of conditions development proposals are required to follow to ensure no adverse impact to the local highway network occurs:

*"The Council will only permit the development of new accesses or increased use of existing accesses where:*

- i. There is no possibility of safe access taken from an existing or proposed lower category road.*
- ii. The design of the development minimises the number of accesses required.*
- iii. The development makes a positive contribution to road safety or road safety is not prejudiced.*
- iv. The development preserves or enhances the quality of the street scene.*
- v. The development avoids causing congestion as measured by link and junction capacities.*
- vi. Measures are taken to mitigate all adverse air quality impacts in or adjacent to Air Quality Management Areas.*
- vii. The development will minimise adverse impacts on the quality of life of local residents, such*

*as noise, air pollution, and the general street environment.*

*viii. The development will make a positive contribution to accessibility by sustainable transport”.*

- 4.8 During the ongoing development of the site’s masterplan, the design of the accesses will be in keeping with the above policies.

### *PMD10 – Transport Assessments and Travel Plans*

- 4.9 Policy PMD10 provides guidance for the preparation of Transport Assessments and Travel Plans in support of development proposals:

*“Transport Assessments, Transport Statements, and Travel Plans must accompany planning applications in accordance with the Department for Transport guidance in Guidance on Transport Assessments (March 2007).*

- i. Travel Plans must be consistent with Council policies. They will normally be secured through planning obligations, although planning conditions might suffice where this will clearly be the best option because the outcomes and measures required are simple and very clear, such as where the travel plan is for an existing use.*
- ii. All developments that fall below the thresholds for individual Travel Plans will be expected to support the Council’s Smarter Choices programme or Area Wide Travel Plans.*
- iii. Where schools add capacity through development or new schools are proposed, they will be required to develop a School Travel Plan or revise their existing Travel Plan.*
- iv. Proposals for residential developments of 25 units or more should be accompanied by a ‘Safe Routes to School’ assessment.*
- v. Development will only be permitted where the Travel Plans, Transport Assessments or Transport Statements are agreed by the Council and there is adequate provision for existing or planned transport infrastructure and other proposed measures*

*Proposed mitigation measures will either be implemented in their entirety by or on behalf of the developer or will be implemented as part of a wider pooling of resources. Developers will be required to make provision for the objectives of the agreed Travel Plans to be monitored. Agreed Travel Plans will include targets, coupled with penalties if outcomes are not being met.*

*Where adequate affordable mitigation is not secured or achievable and the residual cumulative impacts of development proposals are likely to be severe, such developments will be resisted”.*

- 4.10 Future assessments will demonstrate how the paragraphs above are met, especially paragraph v, which requires proposals to ensure that adequate transport infrastructure and travel measures are provided to mitigate potential adverse impacts to the surrounding area.

## Parking Standards

- 4.11 As previously noted, TC adopted a Parking Design and Development Standards SPD in March 2020, which will provide more detail on how parking standards are set out by the Borough.
- 4.12 The parking standards that are considered applicable for the range of anticipated uses are set out in Table 4.1.

Table 4.1 Car and Cycle Parking Standards

Use	Car Parking (Maximum)	Cycle Parking (Minimum)
<b>C3 Dwelling – Flats: High Accessibility</b>	0 to 1.0 spaces per dwelling	1 secure and covered space per dwelling (can be included in a garage space)
<b>C3 Dwelling – Houses: High Accessibility</b>	1.5 – 2.0 spaces per dwelling	1 secure and covered space per dwelling (can be included in a garage space)
<b>C3 Dwelling – Visitors and unallocated</b>	0.25 spaces per dwelling in addition to the above unallocated and designed on-street where appropriate	1 secure and covered space per dwelling, located in a communal area
<b>A1 Shops</b>	1 space per 20 sqm 1 space per 14 sqm for food stores	1 space per 400 sqm for staff 1 space per 400 sqm for customers

Source: Parking Design and Development Standards SPD, Chapter 4; Note: High accessibility is defined as within 1km walking distance of a rail station and within an existing or proposed controlled parking zone)

- 4.13 Particularly relevant to this site, is an extract from Chapter 3 of the SPD, which discusses mixed-use development. It states that:

*“Where a development incorporates two or more land uses to which different parking standards are applicable, the standards appropriate for each use should be applied in proportion to the extent of the respective use. For example, where a development incorporates B2 and B8 use, each use should be assessed separately according to the appropriate standard, and the aggregated number of resulting parking spaces reflecting the maximum number of spaces that should be provided. Any future change of use that requires planning permission may require a change in parking requirements in accordance with the standard.”*

- 4.14 Parking standards prescribed within the SPD for Electric Vehicle (EV) charging point, Blue Badge Holders and motorcycle spaces are set out in Table 4.2.

Table 4.2 EV, Blue Badge and Motorcycle Parking Standards

Use	EV Charging Points	Blue Badge Spaces*	Motorcycle
<b>C3 Dwelling – Flats: High Accessibility</b>	50 vehicle spaces or less = 1 space with charging point Over 50 vehicle spaces = 2% of total spaces, with charging points for each electric space	N/A if parking is provided within the curtilage, otherwise as visitor and unallocated	1 secure and covered space per dwelling (can be included in a garage space)
<b>C3 Dwelling – Houses: High Accessibility</b>	One charging point per house with garage or driveway	N/A if parking is provided within the curtilage, otherwise as visitor and unallocated	N/A
<b>C3 Dwelling – Visitors and unallocated</b>	50 vehicle spaces or less = 1 space with charging point Over 50 vehicle spaces = 2% of total spaces, with charging points for each electric space	200 vehicle spaces or less = 3 spaces or 6% of total capacity whichever is greater 200 vehicle spaces = 4 spaces plus 4% of total capacity	1 space + 1 per 20 car parking spaces (for 1 <sup>st</sup> 100 car spaces) then 1 space per 30 car spaces
<b>A1 Shops</b>	50 vehicle spaces or less = 1 space with charging point Over 50 vehicle spaces = 2% of total spaces, with charging points for each electric space	200 vehicle spaces or less = 3 spaces or 6% of total capacity whichever is greater 200 vehicle spaces = 4 spaces plus 4% of total capacity	7.0m x 3.0m

Source: *Parking Design and Development Standards SPD, Chapter 4*

\*included within maximum car parking standard

- 4.15 Based on the standards set out in Table 4.1 and the note on mixed used developments outlined in the policy itself, the car parking provision for the proposed development will be designed aiming to be compliant with these, and the ambition would be to have a lower provision than the maximum allowed, in a bid to encourage sustainable travel, as well to meet the requirements for mixed used developments.
- 4.16 As noted in **Chapter 3**, the provision of car clubs will also be considered as a sustainable transport measure at the site, which will contribute to a car light lifestyle.
- 4.17 Cycle parking, EV charging and disabled parking will also be provided in line with policy, and details will be provided as the design process evolves.



## 5 Travel Demand

5.1 This section of the SN sets out the proposed trip generation and distribution methodology.

### Existing Site and Development Proposals

5.2 As noted in the introduction, the site comprises an undeveloped parcel of land, of which its current predominant use is farm land. As such, all trips generated by the proposed development will be considered as new.

### Trip Generation

5.3 The proposed scheme is in early stages of development and consequently the number of dwellings and uses proposed should be considered as indicative at this point of time. A development of 750 mixed houses and flats, potential commercial and community uses is currently being considered. Commercial uses may include a supermarket or convenience store and other A1/A2/A3/A4/A5 uses, although, as noted, the proposals are subject to further feasibility and technical work and discussions with stakeholders.

5.4 To estimate the trip generation for the proposed uses, the TRICS database (version 7.9.1) was reviewed to select sites with similar characteristics with regards to location, in terms of access to public transport and amenities. The TRICS reports are reproduced within **Appendix E**. All selections were made using sites in suburban area / edge of town locations in England, excluding Greater London.

#### *Residential*

5.5 Six comparable sites were found in the TRICS database in terms of locational characteristics for the residential element of the scheme. The total person trip rates have been extracted and then the mode shares recorded from the 2011 Census for the local area for journeys to work (as set out later in this Chapter and shown in Table 5.7) have been applied.

5.6 We note that this mode share is now ten years old, and significant changes have occurred during this time, both in the travel habits (increased working from home, for example) and in the shift from a Predict and Provide approach to a Decide and Provide approach. They will all be described in greater detail at the end of this Chapter. We also note they do not allow for any Travel Plan measures that would form part of the transport strategy for this site, or the discussed local improvements included in the Lower Thames Crossing proposals.

5.7 With this in mind, the resulting trip rates are considered robust and a suitable basis for the impact assessment.

5.8 The resulting trip generation by all modes (including cars) is illustrated in Table 5.1.

Table 5.1 Trip Generation – Residential

		AM Peak (08:00-09:00)		PM Peak (17:00-18:00)	
		Arr	Dep	Arr	Dep
Person Trip Rates (all modes) – per Dwelling		0.145	0.518	0.413	0.214
<b>Person Trip Generation (all modes) – 750 Dwellings</b>		<b>109</b>	<b>389</b>	<b>310</b>	<b>161</b>
Walking	5.2%	6	20	16	8
Cycling	1.3%	1	5	4	2
Bus	4.9%	5	19	15	8
Train	21.1%	23	82	65	34
<b>Car driver</b>	<b>61.2%</b>	<b>67</b>	<b>238</b>	<b>189</b>	<b>98</b>
Car passenger	4.6%	5	18	14	7
Other	1.8%	2	7	6	3

Source: TRICS & Census

*Class E(a) – Discount Supermarket*

5.9 Sites in edge of town and suburban locations were identified to extract trip rates for the potential supermarket (Use Class: E(a)) component of the scheme. Four comparable discount food store sites were found in the TRICS database, and the average gross floor area from the four sites was taken for the purpose of this generation assessment (as the proposed GFA is currently unknown). The resulting trip generation is illustrated in Table 5.2.

Table 5.2 Vehicular Trip Generation – Class E

		AM Peak (08:00-09:00)		PM Peak (17:00-18:00)	
		Arr	Dep	Arr	Dep
<i>Discount Food Store</i>					
Trip Rate	100 m <sup>2</sup>	2.402	1.524	3.453	3.626
Trip Generation	2,195 m <sup>2</sup>	53	33	76	80

*Other commercial uses*

5.10 More details on the trip generation associated with other non-residential elements of the scheme will be provided once such details are known, but it is anticipated that similar TRICS searches will be carried out, before consideration is given to trip linking and internalisation (discussed below in greater detail).

*Total*

5.11 The total trip generation associated with the proposed development is illustrated in Table 5.3.

Table 5.3 Vehicular Trip Generation – Total (with no allowance for pass-by)

	AM Peak (08:00-09:00)		PM Peak (17:00-18:00)	
	Arr	Dep	Arr	Dep
Mixed Houses and Flats	67	238	189	98
Class E (Discount Supermarket), with no allowance for pass-by	53	33	76	80
Other Commercial / Community Uses (TBC)	TBC	TBC	TBC	TBC
<b>Total</b>	<b>119</b>	<b>271</b>	<b>265</b>	<b>178</b>

Source: TRICS & Census. Note: before any additional uses are allowed for

5.12 Table 5.3 shows that the proposed development (at this preliminary stage) is predicted to result in additional traffic of 390 two-way trips in the AM peak and 443 two-way vehicle trips in the PM peak period.

**Linked trip making, internalisation and pass by trips**

5.13 In consideration of the expected mixed-use nature of the proposed development, in combination with its close proximity to public transport and neighbouring residential areas, it is reasonable to expect that a degree of internalisation and trip linking will take place. Some trips will start and terminate within the site (internal) and some trips will form part of either trips that are already on the network (pass-by/diverted), or form part of a departure of a development trip from the retail as well as an arrival of the residential (linked).

*Food Retail element*

5.14 Paragraph 3.9 of the TRICS Research Report 95/2 – ‘Pass-by & Diverted Traffic – A Resume’ states that in most circumstances, 10% or less of the total trips associated with the surveyed new stores were completely new to the network and 90% of traffic was already on the highway network (“pass-by”).

- 5.15 Therefore, it is generally acknowledged that the proportion of trips already on the network is of 90%, and it is suggested to apply this percentage for the retail (food) trips associated with this scheme.

### *Leisure / Entertainment elements*

- 5.16 The presence of non-primary / linked trips must also be accounted for other potential ancillary uses within the development such as a doctor's surgery, dentist, gym and nursery. It is highly likely that a percentage of those travelling to / from these uses will travel as part of an existing trip, such as on their journey to / from work and as such a discount has been applied to account for the non-primary / linked trips.
- 5.17 It would be reasonable to assume that the majority of the leisure trips would be linked to other uses, and as such the percentage of non-primary / linked trips relating to these land uses, is outlined in Table 5.4.

### *Residential*

- 5.18 Our experience of large mixed used developments suggests that the proportion of residential trips starting and terminating at the development generally range between 10% and 40%, approximately, depending on the peak and arrival/departure pattern. Even though it could be expected that the majority of the 'internal' trips would be made either walking or cycling, some of them would instead be made by car, for example when linked with a shopping trip.
- 5.19 At this stage, as mentioned, the quantum, type or location of any employment uses within the site are not known. As such, it is difficult to predict how much internalisation would occur, but to present a worst-case assessment, all the internal trips are anticipated to be carried out walking or cycling.
- 5.20 That said, the presence of any commercial element of the scheme would support the concept of walking neighbourhood and inherently reduce the need to travel outside the site, especially by car.

### *Summary*

- 5.21 Based on the above, the percentage of non-primary / linked trips relating to each **potential** land uses at the development is outlined in the table below.

Table 5.4 Non-Primary / Trip Linking

Use	% of Non-Primary / Linked	% of Pass-by
Residential	0%	0%
Office	0%	0%
Dentist	<b>50%</b>	0%
GP	<b>50%</b>	0%
Community Centre	0%	0%
Nursery	<b>50%</b>	0%
Gym	<b>75%</b>	0%
Food/Beverage	<b>75%</b>	0%
Retail - Food Store	0%	<b>90%</b>
Retail - Non-Food Store	<b>50%</b>	0%

5.22 In the interim, the total ‘new’ trip generation associated with the proposed development (only including the 10% new trips for the discount food store) is illustrated in Table 5.5.

Table 5.5 Vehicular Trip Generation – New Trips only

	AM Peak (08:00-09:00)		PM Peak (17:00-18:00)	
	Arr	Dep	Arr	Dep
Mixed Houses and Flats	67	238	189	98
Class E (Discount Supermarket), <b>new trips</b> only	5	3	8	8
Other Commercial / Community Uses (TBC)	<i>TBC</i>	<i>TBC</i>	<i>TBC</i>	<i>TBC</i>
<b>Total</b>	<b>72</b>	<b>241</b>	<b>197</b>	<b>106</b>

Source: TRICS & Census Note: before any additional uses are allowed for

### Trip Distribution

5.23 Destinations of the trips associated with the residential element of the scheme have been calculated using the most recent journey to work data from the Office for National Statistics (ONS) for MSOA Thurrock 006, presented in Table 5.4.

**Table 5.6 Vehicular Trip Distribution – Residential**

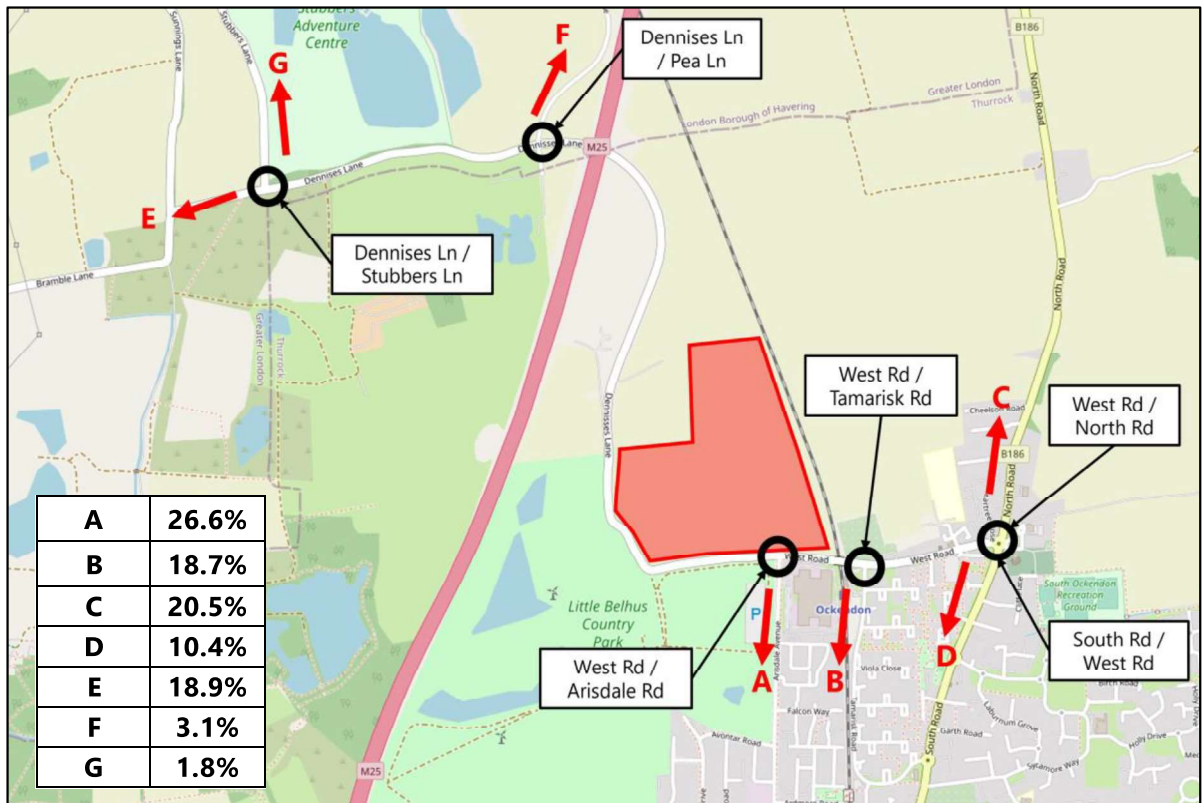
<b>Destination</b>	<b>Share</b>
Thurrock	39.0%
Havering	14.9%
Basildon	7.5%
Barking and Dagenham	7.2%
Newham	4.4%
Brentwood	3.2%
Tower Hamlets	2.8%
Redbridge	2.0%
Other destinations in London and East of England	14.4%
Other destinations in the rest of the UK	4.7%

*Source: NOMIS – WU03EW - Location of usual residence and place of work by method of travel to work*

- 5.24 The route assignment of the vehicle trips to each of the destination points was established based on travel time and distance information extracted from Google Maps; this is considered to be robust as it can account for some destinations being accessible by a number of routes, which would be a more realistic scenario as it can account for congestion.
  
- 5.25 For each route, percentage distributions have been applied to the expected nearby road junctions those travelling to and from the site will use. In the calculations, destinations with less than a 1.0% distribution share of vehicle trips have then been removed and re-distributed to other destinations within the dataset. All the calculations are appended to this SN as **Appendix F**.
  
- 5.26 The anticipated local distribution of the predicted traffic flows generated by the proposed development are illustrated in **Figure 5.1**. Impacts of the proposed site access junctions onto West Road and Dennis Road / Lane will also need to be considered. The traffic flow diagrams illustrating the potential distribution at nearby junctions are reproduced at **Appendix G**, including an allowance for pass-by/ diverted trips.



**Figure 5.1 Trip Distribution – Route Assignment**



Source: ©OpenStreetMap contributors

**Mode Share**

5.27 As noted, mode share data for the residential element of the scheme has been obtained from the most recent journey to work data from the Office for National Statistics (ONS) for the area where the site is located (Thurrock 006). The existing mode share at the site is outlined in Table 5.7.

Table 5.7 Residential Mode Share

<b>Mode</b>	<b>Mode Split</b>
Walking	5.2%
Cycling	1.3%
Bus	4.9%
Train	21.1%
Car driver	61.2%
Car passenger	4.6%
Other	1.8%

Source: NOMIS – WU03EW - Location of usual residence and place of work by method of travel to work

5.28 The data from ONS shows that at present around 32.5% of trips are made by sustainable modes of transport, including walking, cycling, bus and rail; that is 37.1% when car passengers are added. This proportion is expected to increase as a result of the sustainable location of the development and transport measures that will be proposed as part of a future Travel Plan. A future application for the development would commit to an increased mode share of sustainable modes, or an overall reduced need to travel.

### Current Travel Trends

5.29 Noting that the census was carried out over 10 years ago, there has since been a shift in the government policy and industry focus from private car towards more sustainable modes of travel. This has been twinned with a shift from *“predict and provide”, which “traditionally focused on predicting future demand to provide capacity”<sup>11</sup>*, towards *“Vision and Validate”* or *“Decide and Provide”*.

5.30 This shift has effectively inverted the traditional mode hierarchy, placing walking and cycling at the top, with travel by private car at the bottom. The priority of sustainable modes of travel is echoed in research undertaken by the Government Office for Science in 2019 which found that:

*“Several significant trends indicate a shift away from car use in the UK. The overall time spent in cars, the number of car trips and the distance travelled by car per person have all decreased since 2002”<sup>12</sup>*

5.31 Additional research undertaken by Future Travel shows a similar reduction in car trips. This research is summarised in All Change (2018), which states:

*“There is now evidence stretching back 25 years which shows that we are travelling less today than we used to. On average we:*

- *Make 16% fewer trips than we did in 1996;*
- *Use motorised transport for almost 100 (14%) fewer trips per year than in 2002;*
- *Travel 10% fewer miles than we did in 2002 (now 6,396 miles/person/year); and*
- *Spend 22 hours less travelling than in 2005 and less than at the start of the 1990s.<sup>13</sup>*

<sup>11</sup> Section 3.1 of the CIHT's Better Planning, Better Transport, Better Places (August 2019)

<sup>12</sup> Page 36 of Taylor, B. et al. (2019), A time of unprecedented change in the transport system, Government Office for Science.

<sup>13</sup> Section 4.2 of All Change (2018)

## Pandemic Impact

- 5.32 The Department for Transport also undertook research illustrating an overall reduction in car and total vehicle traffic following the reduction of COVID-19 restrictions. This research is summarised in the Provisional Road Traffic Estimates (2021), which states that:

*“All motor vehicle traffic in the year ending September 2021 was 16.1% lower than pre-pandemic levels (the year ending December 2019).*

*Car and taxi traffic decreased by 1.7%, to 222.3 billion vehicle miles, when compared to the year ending September 2020. Car traffic rolling annual estimates remain considerably lower than those for before the pandemic (-20.1% when compared to the year ending December 2019).”<sup>14</sup>*

- 5.33 The three sets of research included above show a pattern of reducing travel by all modes, including private car, prior to and following the Covid-19 Pandemic. The long-term impact of the reducing trip quantities is unknown; however, it is reasonable to assume that the trip rates associated with new developments could reduce, thereby reducing the impact of schemes on the local highway network.
- 5.34 Whilst the long-term impact of the Covid-19 Pandemic on travel patterns is not currently known, it is noted that many employers have had to embrace working from home and other flexible approaches to work patterns. It is expected that the long-term impact of the pandemic on travel patterns will drive further reductions in trips than those seen before the pandemic as individuals and companies seek to continue working flexibly, to save money and time. The flexibility of working patterns introduced will lead to increased peak spreading in both traditional peak periods as people seek to travel off-peak, thereby maximising the use of existing infrastructure and providing an opportunity for growth.

## Decide & Provide

- 5.35 Three parameters have been identified by the TRICS consortium in their Guidance Note on the Practical Implementation of the Decide & Provide Approach as key considerations when identifying the potential transport impact and need for scenario planning of developments:

*“Scale – The need for scenario planning will increase with the project size. All major planning applications relating to 500+ homes or 5,000m<sup>2</sup> employment/retail floorspace should be supported by scenario planning.*

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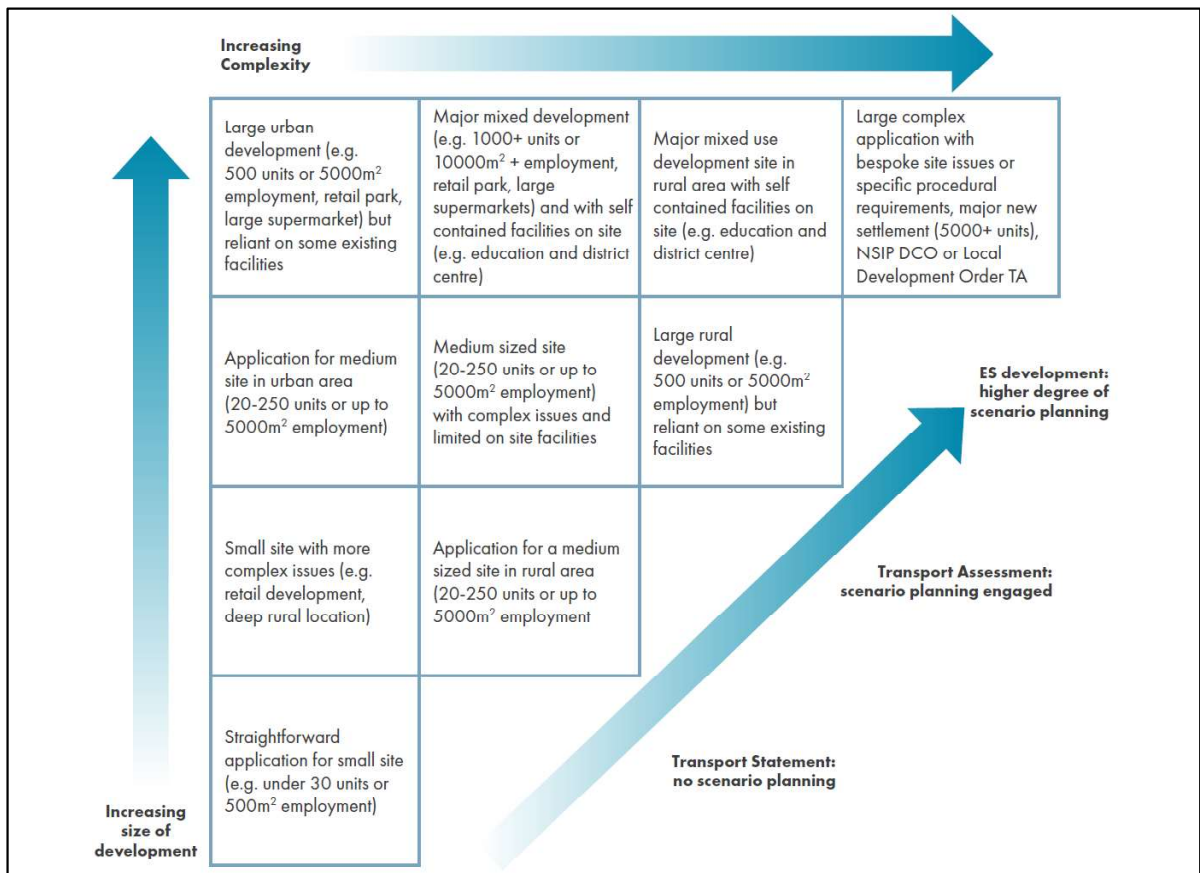
<sup>14</sup> <https://www.gov.uk/government/statistics/provisional-road-traffic-estimates-great-britain-october-2020-to-september-2021/provisional-road-traffic-estimates-great-britain-october-2020-to-september-2021>

*Sensitivity – The need for scenario planning will also increase with increased project sensitivity, for example in less accessible rural areas or, conversely, highly congested, dense urban environments.*

*Complexity – The need for scenario planning will also increase with project complexity.*<sup>15</sup>

5.36 The guidance note continues to set out a matrix which identifies the relationship between the scale of a development proposal and the complexity of assessing its potential impact. This matrix is replicated in **Figure 5.2**

**Figure 5.2 TRICS Scalability Guide Matrix**



Source: Figure 9.1 Scalability Guide Matrix of the TRICS Guidance Note on the Practical Implementation of the Decide and Provide Approach (2021)

5.37 In the context of the above, it is considered the *Decide and Provide* approach for this site is imperative to its success and in line with the latest guidance related to transport planning and the prevailing climate emergency. It will enable a range of outcomes being presented, creating a fan of influence, and enable the future development to be subject to a monitor and management regime resulting in the minimum highway infrastructure to be provided.

<sup>15</sup> Paragraph 9.5 of the TRICS Guidance Note on the Practical Implementation of the Decide and Provide Approach (2021)

## 6 Junction Capacity Assessment

### Baseline

- 6.1 Baseline capacity assessment (junction modelling) was carried out at the four junctions where MCCs were undertaken, using industry standard software Junctions 10. Modelling was carried out of the peak hours, using the respective peak for each junction, and the 'One Hour' (former 'ODTAB') profiles.
- 6.2 The outputs of the software are appended to this report within **Appendix H**, together with our drawings illustrating the modelling parameters and how they were calculated. The results are described in greater detail in this Chapter.

#### *Junction A – West Road / Arisdale Avenue Priority Junction*

- 6.3 The results of the modelling are illustrated within Table 6.2. An intercept adjustment factor was used as a calibration tool, to make the predicted queues comparable with the observed ones (particularly with the 85<sup>th</sup> percentile values). The comparison of observed and modelled queues, with and without the adjustment, is illustrated as follows.

Table 6.1 Baseline Modelling – Junction A – Comparison with queues

	AM Peak Hour					PM Peak Hour				
	Observed			Modelled		Observed			Modelled	
	Ave	85 <sup>th</sup>	Max	W/o adj.	With adj.	Ave	85 <sup>th</sup>	Max	W/o adj.	With adj.
Arisdale Avenue	1.1	4.1	6.0	35	4	0.7	2.1	4.0	5	2
West Road	0.0	0.0	0.0	0	0	0.1	0.0	2.0	0	0

*Junctions 10*

Table 6.2 Baseline Modelling – Junction A – West Road / Arisdale Avenue Priority Junction

	AM Peak Hour			PM Peak Hour		
	Queue (PCU)	Delay (sec.)	RFC	Queue (PCU)	Delay (sec.)	RFC
<b>Baseline 2022</b>						
Arisdale Avenue	4	29	0.81	2	15	0.64
West Road	0	7	0.12	0	6	0.15

*Junctions 10*

6.4 The results revealed that, in the Baseline 2022 scenario, the junction operates within theoretical capacity. At the AM peak hour it reaches an RFC of 0.81, while queuing and delay are less pronounced during the PM peak.

*Junction B – West Road / Tamarisk Road Priority Junction*

6.5 The results of the modelling are illustrated within Table 6.3.

Table 6.3 Baseline Modelling – Junction B – West Road / Tamarisk Road Priority Junction

	AM Peak Hour			PM Peak Hour		
	Queue (PCU)	Delay (sec.)	RFC	Queue (PCU)	Delay (sec.)	RFC
<b>Baseline 2022</b>						
Tamarisk Road	1	16	0.57	1	12	0.40
West Road	1	8	0.40	1	8	0.37

*Junctions 10*

6.6 The results revealed that, in the Baseline 2022 scenario, the junction operates with minimal queuing and delay in all arms and both peaks, which is as also confirmed by the queue surveys undertaken by A-T-R.

*Junction C – North Road / South Road / West Road Mini-Roundabout*

6.7 The results of the modelling are illustrated within Table 6.4.

Table 6.4 Baseline Modelling – Junction C – North Road / South Road / West Road Mini-Roundabout

	AM Peak Hour			PM Peak Hour		
	Queue (PCU)	Delay (sec.)	RFC	Queue (PCU)	Delay (sec.)	RFC
<b>Baseline 2022</b>						
South Road (South)	1	6	0.41	1	8	0.57
West Road (West)	2	12	0.62	1	9	0.49
North Road (North)	1	8	0.46	1	7	0.41

*Junctions 10*



6.8 The results revealed that, in the Baseline 2022 scenario, the junction operates with minimal queueing and delay in all arms and both peaks, which is as also confirmed by the queue surveys.

*Junction D – Dennises Lane / Stubbers Lane Priority Junction*

6.9 The results of the modelling are illustrated within Table 6.5.

Table 6.5 Baseline Modelling – Junction D – Dennises Lane / Stubbers Lane Priority Junction

	AM Peak Hour			PM Peak Hour		
	Queue (PCU)	Delay (sec.)	RFC	Queue (PCU)	Delay (sec.)	RFC
<b>Baseline 2022</b>						
Stubbers Lane	1	11	0.36	1	10	0.34
Dennises Lane	0	7	0.26	0	7	0.15

*Junctions 10*

6.10 The results revealed that, in the Baseline 2022 scenario, the junction operates with minimal queueing and delay in all arms and both peaks, which is as also confirmed by the queue surveys.

**Forecast Modelling**

6.11 Forecast modelling was carried out using the validated baseline models above, to confirm the impact of our proposals, thereby getting a better understanding of whether any, and where, off-site mitigation schemes may be required.

*Junction A – West Road / Arisdale Avenue Priority Junction*

6.12 The results of the modelling are illustrated within Table 6.6.

Table 6.6 Forecast Modelling – Junction A – West Road / Arisdale Avenue Priority Junction

	AM Peak Hour			PM Peak Hour		
	Queue (PCU)	Delay (sec.)	RFC	Queue (PCU)	Delay (sec.)	RFC
<b>Future Base 2027</b>						
Arisdale Avenue	11	71	0.95	3	22	0.74
West Road	0	7	0.14	0	7	0.18
<b>Forecast 2027 with Development</b>						
Arisdale Avenue	31	165	1.07	8	53	0.91
West Road	0	7	0.15	0	7	0.20
<b>Forecast 2027 with Development – with an allowance for a secondary access on Dennis Lane</b>						
Arisdale Avenue	22	124	1.02	7	47	0.89
West Road	0	7	0.14	0	7	0.19

Junctions 10

- 6.13 The capacity assessment has revealed that, with the additional background traffic due to unmitigated growth, the junction would reach an RFC of 0.95 in the future base scenario in the AM peak hour period. It would then be predicted to exceed the theoretical capacity (RFC of 1.07) with the additional traffic resulting from the proposed development.
- 6.14 With an allowance for a secondary access on Dennis Lane, assuming that traffic associated with the development heading west would use that access point to reach their destinations (as it would naturally happen as it would be a shorter route), the RFC would reduce to 1.02.
- 6.15 It should be stressed that the above makes no allowance for any mitigation associated with the background growth, which may instead be included as part of other developments in the local area.
- 6.16 Possible mitigation measures that our development could **contribute** towards to improve the operation of the junction include:
  - a minor widening of the Arisdale Road approach to allow the formalisation of a short (one vehicle) two-lane section of traffic at the give way line; an indicative sketch is illustrated in drawing **SK02**);
  - the change in priority at the junction – with the western arm becoming the minor arm giving way; an indicative sketch is illustrated in drawing **SK03**); or
  - provision for active and sustainable travel (such as improvements to footways and cycleways, car clubs, and enhances bus services) to encourage mode shift.

6.17 Modelling was carried out for the mitigation shown in drawing **SK03**, which demonstrates that the junction would operate satisfactorily with minimal levels of queuing and delay (**Appendix I**).

Table 6.7 Forecast Modelling – Junction A – West Road / Arisdale Avenue Priority Junction (Mitigation)

	AM Peak Hour			PM Peak Hour		
	Queue (PCU)	Delay (sec.)	RFC	Queue (PCU)	Delay (sec.)	RFC
<b>Forecast 2027 with Development – with an allowance for a secondary access on Dennis Lane</b>						
West Road (West)	1	15	0.42	1	16	0.51
West Road (East)	2	9	0.55	1	5	0.21

*Junctions 10*

*Junction B – West Road / Tamarisk Road Priority Junction*

6.18 The results of the modelling are illustrated within Table 6.8.

Table 6.8 Forecast Modelling – Junction B – West Road / Tamarisk Road Priority Junction

	AM Peak Hour			PM Peak Hour		
	Queue (PCU)	Delay (sec.)	RFC	Queue (PCU)	Delay (sec.)	RFC
<b>Future Base 2027</b>						
Tamarisk Road	2	22	0.67	1	14	0.47
West Road	1	9	0.49	1	9	0.44
<b>Forecast with Development</b>						
Tamarisk Road	3	28	0.73	1	17	0.57
West Road	3	13	0.65	2	10	0.52

*Junctions 10*

6.19 The results revealed that, in both scenarios, the junction would continue to operate with minimal queuing and delay in all arms and both peaks, with negligible changes resulting from the addition of the development’s traffic. No mitigation is therefore anticipated at this junction – but clearly any wider mitigation strategy involving improvements to the active and sustainable travel in the local area (contributing to mode shift) would indirectly contribute to an improved operation of this junction too.

*Junction C – North Road / South Road / West Road Mini-Roundabout*

6.20 The results of the assessment are illustrated within Table 6.9.

Table 6.9 Forecast Modelling – Junction C – North Road / South Road / West Road Mini-Roundabout

	AM Peak Hour			PM Peak Hour		
	Queue (PCU)	Delay (sec.)	RFC	Queue (PCU)	Delay (sec.)	RFC
<b>Future Base 2027</b>						
South Road (South)	1	7	0.48	2	11	0.66
West Road (West)	3	16	0.72	1	11	0.58
North Road (North)	1	10	0.54	1	9	0.48
<b>Forecast 2027 with Development</b>						
South Road (South)	1	8	0.50	2	13	0.71
West Road (West)	3	17	0.74	2	13	0.63
North Road (North)	2	13	0.61	1	9	0.53

*Junctions 10*

6.21 Also in this case, the results revealed that, in both scenarios, the junction would continue to operate with minimal queuing and delay in all arms and both peaks, with negligible changes resulting from the addition of the development’s traffic. No mitigation is therefore anticipated at this junction – but clearly any wider mitigation strategy involving improvements to the active and sustainable travel in the local area (contributing to mode shift) would indirectly contribute to an improved operation of this junction too.

*Junction D – Dennises Lane / Stubbers Lane Priority Junction*

6.22 The results of the assessment are illustrated within Table 6.10.

Table 6.10 Forecast Modelling – Junction D – Dennises Lane / Stubbers Lane Priority Junction

	AM Peak Hour			PM Peak Hour		
	Queue (PCU)	Delay (sec.)	RFC	Queue (PCU)	Delay (sec.)	RFC
<b>Future Base 2027</b>						
Stubbers Lane	1	13	0.42	1	12	0.40
Dennises Lane	1	8	0.34	0	7	0.17
<b>Forecast 2027 with Development</b>						
Stubbers Lane	1	13	0.43	1	12	0.42
Dennises Lane	1	8	0.36	0	7	0.18

*Junctions 10*

6.23 Also in this case, the results revealed that, in both scenarios, the junction would continue to operate with minimal queueing and delay in all arms and both peaks, with negligible changes resulting from the addition of the development’s traffic. No mitigation is therefore anticipated at this junction – but clearly any wider mitigation strategy involving improvements to the active and sustainable travel in the local area (contributing to mode shift) would indirectly contribute to an improved operation of this junction too.

*Site Access*

6.24 Although geometries and position are not fixed, a preliminary exercise of the feasibility of the operation of a site access as a simple priority junction on West Road was carried out. The outcome is presented as follows, which reveals that the junction would operate satisfactorily without significant (or noticeable) queuing and delay during both peaks, with a maximum of one vehicle queuing.

Table 6.11 Forecast Modelling – Site Access

	AM Peak Hour			PM Peak Hour		
	Queue (PCU)	Delay (sec.)	RFC	Queue (PCU)	Delay (sec.)	RFC
<b>Forecast 2027with Development</b>						
Site Access	1	22	0.48	1	18	0.31
West Road	1	5	0.21	1	7	0.43

*Junctions 10*

6.25 The above demonstrates the feasibility of the access as currently drawn, as a simple priority junction, which would also be appropriate in the context of the current 20mph environment and the future

'urban' nature of the future streetscape. It should be noted that a 6.0m wide access was assumed in the modelling, while in practice a wider access may be required to allow for buses (which would increase capacity).

## Conclusion

- 6.26 Based on this preliminary modelling, it would appear that, with one exception, the local highway network operates smoothly with minimal levels of queueing and delays, suggesting that it should be able to accommodate additional traffic before reaching theoretical capacity.
- 6.27 The exception is the junction of West Road with Arisdale Avenue, which currently operates with a maximum RFC of 0.81 in one peak (AM), and where the background growth and the additional traffic arising from the development would make the junction reach and exceed its theoretical capacity.
- 6.28 At this location, we have identified a number of potential measures which the proposed development may contribute towards (noting that this development would not be the only one contributing to those increases), and we welcome any discussions with TC's officers on this matter to agree a way forward to support a future application.



## 7 Conclusion

7.1 To conclude, the matters we seek to agree with TC are summarised as follows:

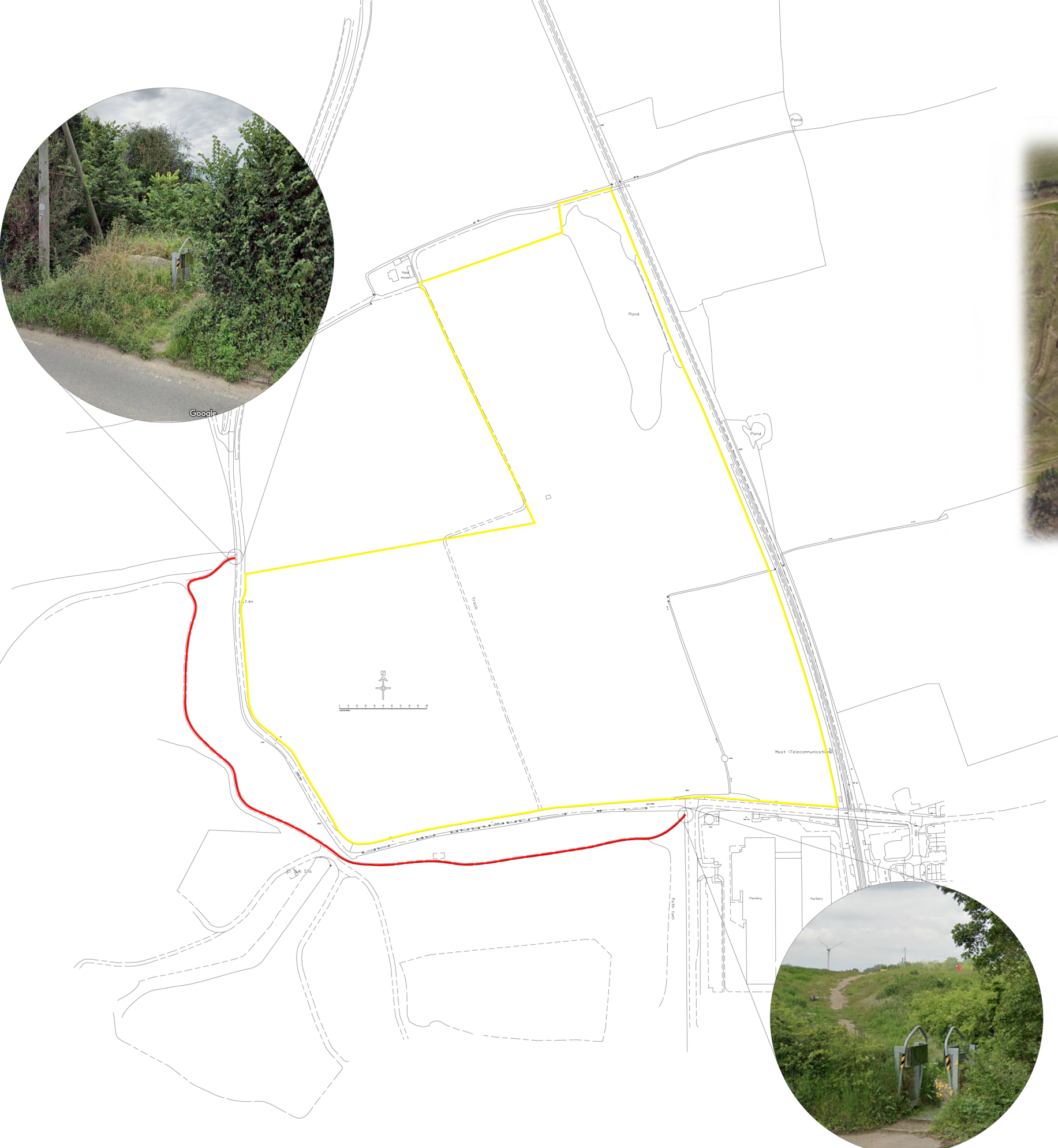
- The baseline position: existing transport connections (Chapter 2 of this SN);
- The extent of the PIC review;
- The principle of development at this location;
- The access strategy proposed for the development (number, location, form of the access points);
- The parking standard expected to support the different elements of the scheme, and principles in general, including car clubs;
- The baseline modelling;
- Committed development and infrastructure, particularly the Lower Thames Crossing; any known committed improvements in the local area;
- The methodology behind the predicted traffic generation and attraction associated with the proposed uses;
- Whether there are any specific matters or constraints that should be taken into consideration when assessing the impact; and
- The forecast modelling, including principle of mitigation at one junction only, as illustrated in this report.

## Appendix 3



## Appendix 4





**KEY:**  
— Alternative WCH route



Client:  
Hill Residential Limited  
The Courtyard, Abbey Barns,  
Ickleton, CB101SX

Project:  
Kemps Farm  
South Ockendon  
Essex

Drawing:  
Lower Thames Crossing  
South Ockendon WCH Track - Alternative Route

Scale: 1:5000@A3	Date: May 2021
Drawn By: BW	Checked By: AP
Drawing No: PLAN-02	Rev. No: B
CAD Ref:	

THIS DRAWING IS A COPYRIGHT  
All dimensions to be checked on site or in the workshop before work commences.  
Only figured dimensions to be worked to. Any discrepancies to be reported to the Architect.