Crews Hill, Enfield Transport Baseline Analysis Prepared for Enfield Council October 2023



1.0 Introduction

Alan Baxter (ABA) has been commissioned to provide transport advice in relation to the preparation of a Spatial Framework for Crews Hill in the London Borough of Enfield, which is a strategic site (PL9) allocated in the emerging new Enfield Local Plan. This is located at the northern end of the borough, adjacent to the GLA boundary and to Hertfordshire. The site has been identified by the Council as potentially suitable for an allocation of 3,000 homes, rising to 7,500 homes at a future date.

This report provides a summary of the baseline transport at and in the vicinity of the site.



2.0 Context Plans

A range of plans are provided in this section, in order to place the site within context.

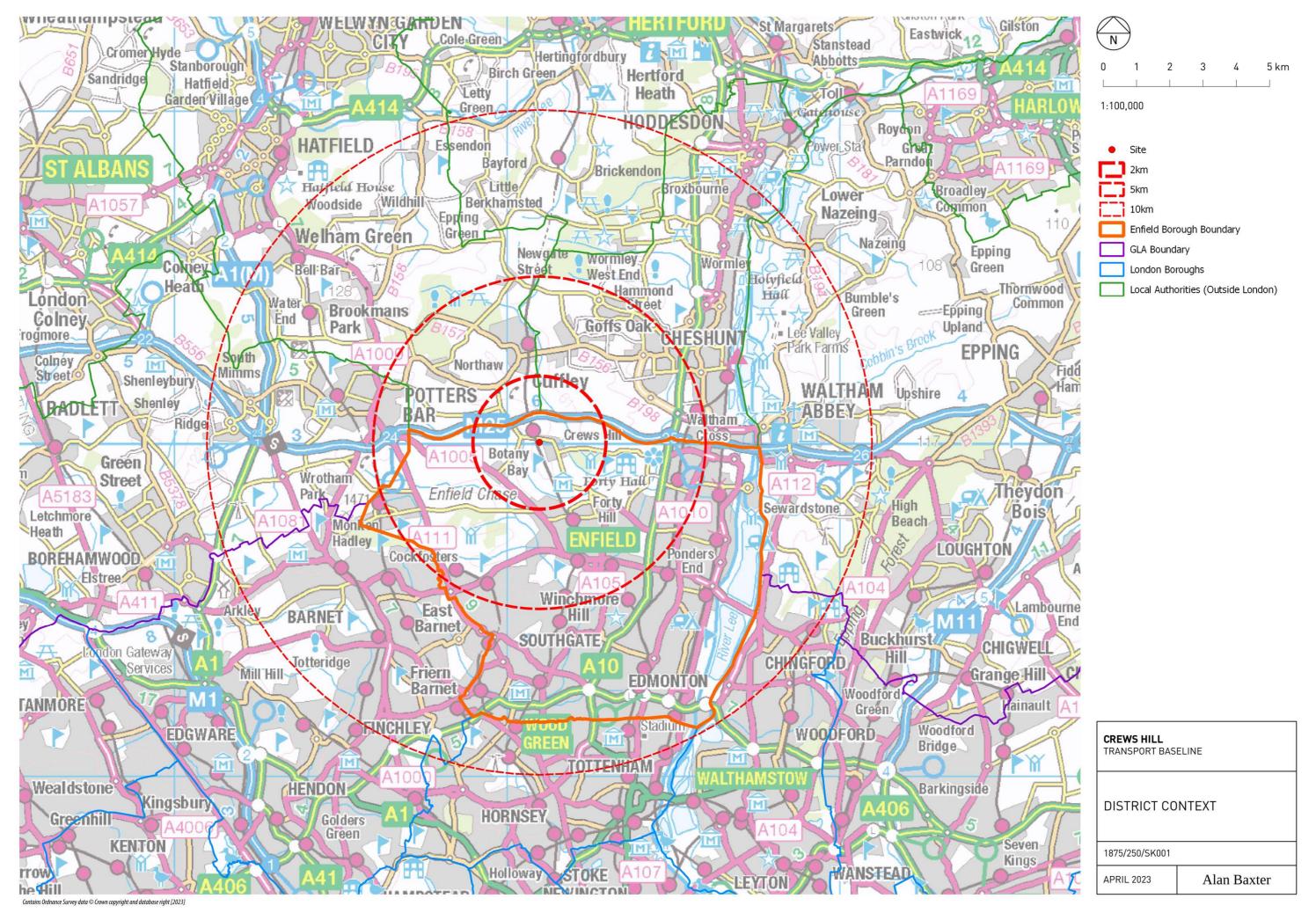
Drawing 1875/250/SK001 demonstrates the district context, showing the 10km radius in which Crews Hill sits. Whilst it is in the vicinity of other notable parts of North London, including Tottenham, Barnet, Finchley, and the Lea Valley, the site is also in proximity to settlements in Hertfordshire. These include Cheshunt, Cuffley and Potters Bar, with Hertford, St Albans, Harlow, and Welwyn Garden City beyond. As demonstrated in subsequent sections, the site is also well connected via rail to Central London.

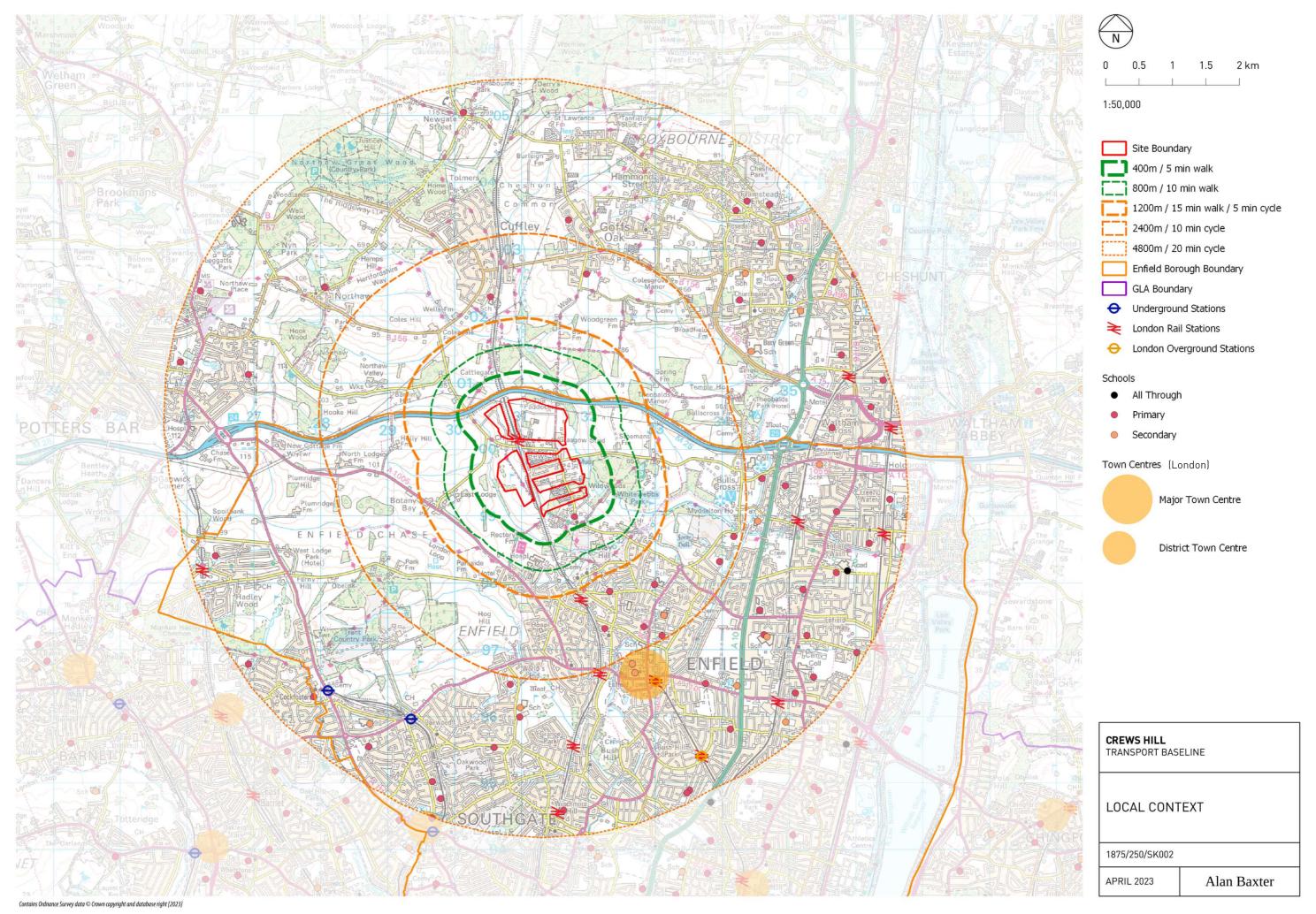
Drawing 1875/250/SK002 shows the local context. With isochrones of up to 4800m, or a 20 minute cycle, this is a similar scale to Transport for London's "Active Travel Zone". This drawing shows that a large number of local schools can potentially be accessed via cycle, as well as the major town centre of Enfield Town.

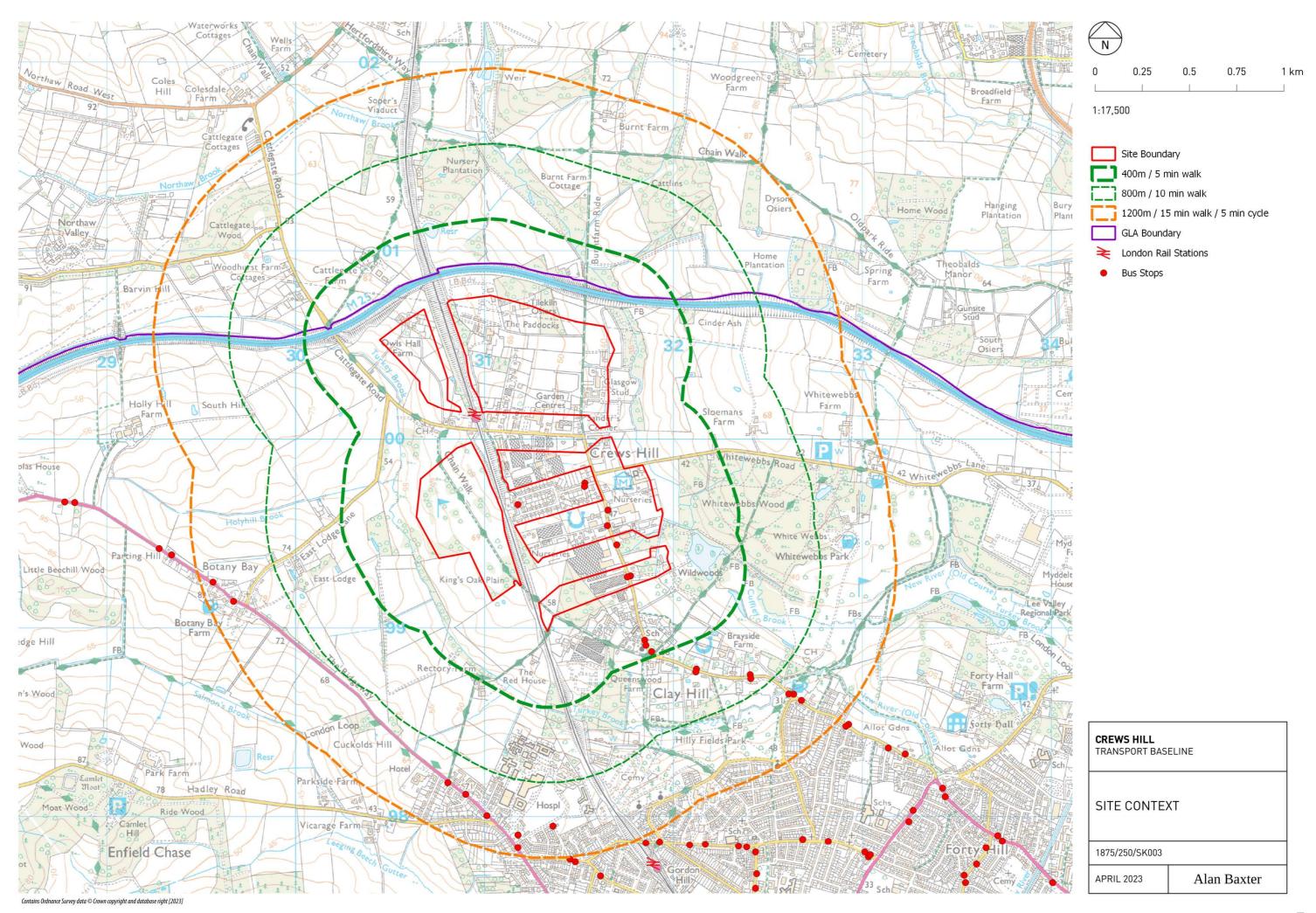
1875/250/SK003 shows the site context. This include the site boundary and isochrones for 400m, 800m, and 1200m (i.e. 5-15 min walk, and up to a 15 minute cycle), overlaid on an OS base, with public transport nodes shown. Most of the areas of the site boundary are within a 5-10 minute walk of Crews Hill railway station, although this is also dependent on local access provisions. Hence the isochrones demonstrate site potential should the walking/cycling infrastructure be there to support it. As can also be seen, there are a limited number of bus stops in the area.

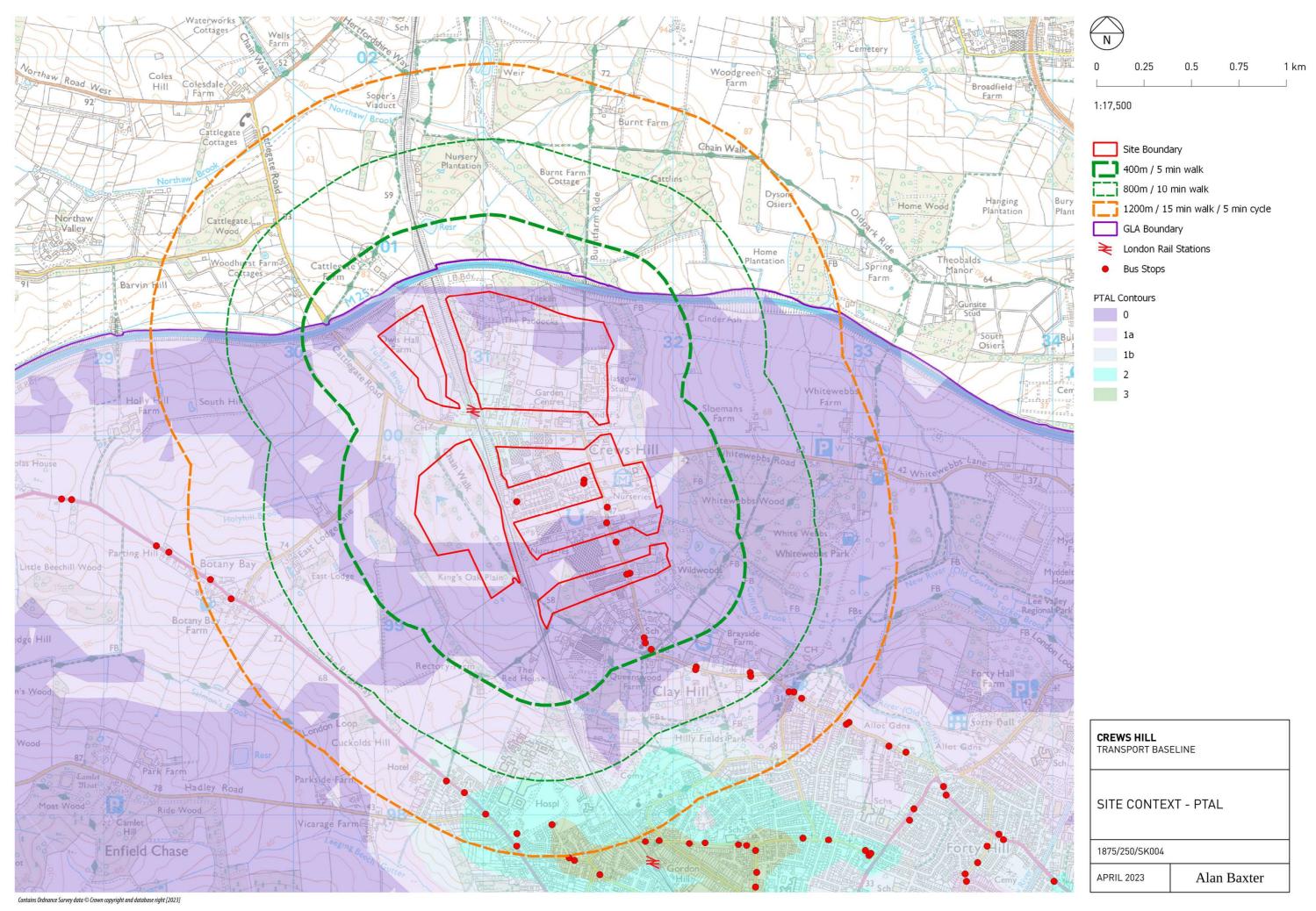
Drawing 1875/250/SK004 is a variant of the site context drawing, using Transport for London's PTAL (Public Transport Accessibility Level) contours as an overlay. PTAL ranges from 0 to 6b, and TfL calculate using a range of metrics including proximity to transport nodes and frequency of services. As can be seen, the site currently suffers from low PTAL values, probably due to the lack of rail frequency and lack of bus coverage (see subsequent sections).











3.0 Rail Network

Crews Hill station is in Fare Zone 6, and is on the Great Northern service (see Figure 3-1). As shown in Table 3-1 overleaf, the patronage of the station is low. Frequencies during peaks are 4 trains per hour which is generally considered the frequency for "turn up and go" service. However they are lower in off peak periods with two trains per hour. Crews Hill is quite a useful station, and key destinations can be reached, including Moorgate within 40 minutes. Furthermore, through transfers other areas can be reached.

At Finsbury Park (26min from Crews Hill), a transfer is available to the Victoria Line and Piccadilly Line. This means that numerous areas of Central London can be reached, including Kings Cross/St Pancras, the West End, and South Kensington. Additionally, the Piccadilly Line can be used to reach Heathrow Airport. At Highbury & Islington (32min from Crews Hill), a transfer is available to the London Overground, including both the North London Line and the East London Line. Destinations that can be reached include Stratford, Shoreditch, Canada Water, Camden, and Old Oak Common. Time mapping is shown in Figure 3-3, using TfL's "TIM" tool. This shows the potential for convenient commuting to areas of Central London.

The Local Plan Strategic Assessment (2021) by WSP report included baseline analysis on rail, and some key figures have been extracted from this. Figures 3-3 and 3-4 show flows in the AM and PM peak. This demonstrates the north-south radial nature of rail corridors, with Thameslink and Greater Anglia being the heaviest used services that pass through the borough. Furthermore, boarding and alighting is shown in Figures 3-5 through 3-8. These show larger numbers of passengers boarding in the AM, and alighting in the PM, demonstrating the commuting nature of these rail corridors. These figures also show the relative low usage of Crews Hill station compared to surrounding rail stations.

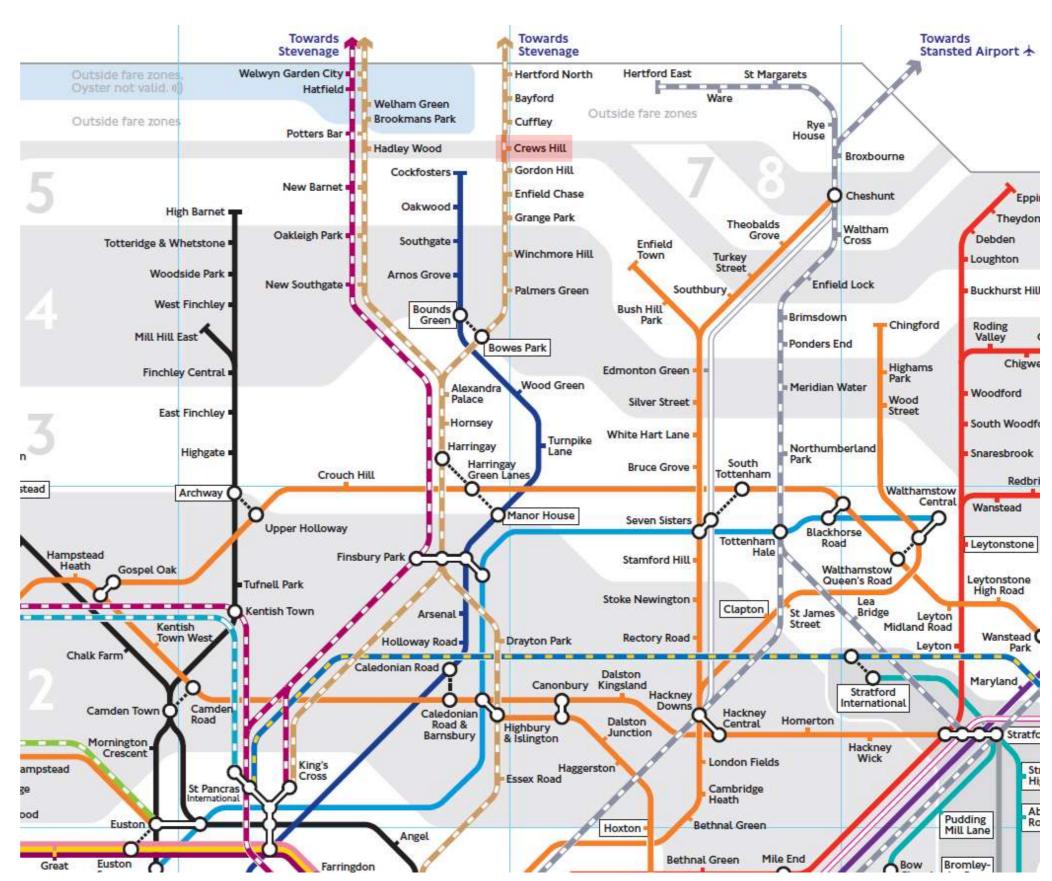


Figure 3-1 London Tube and Rail Map - Extract

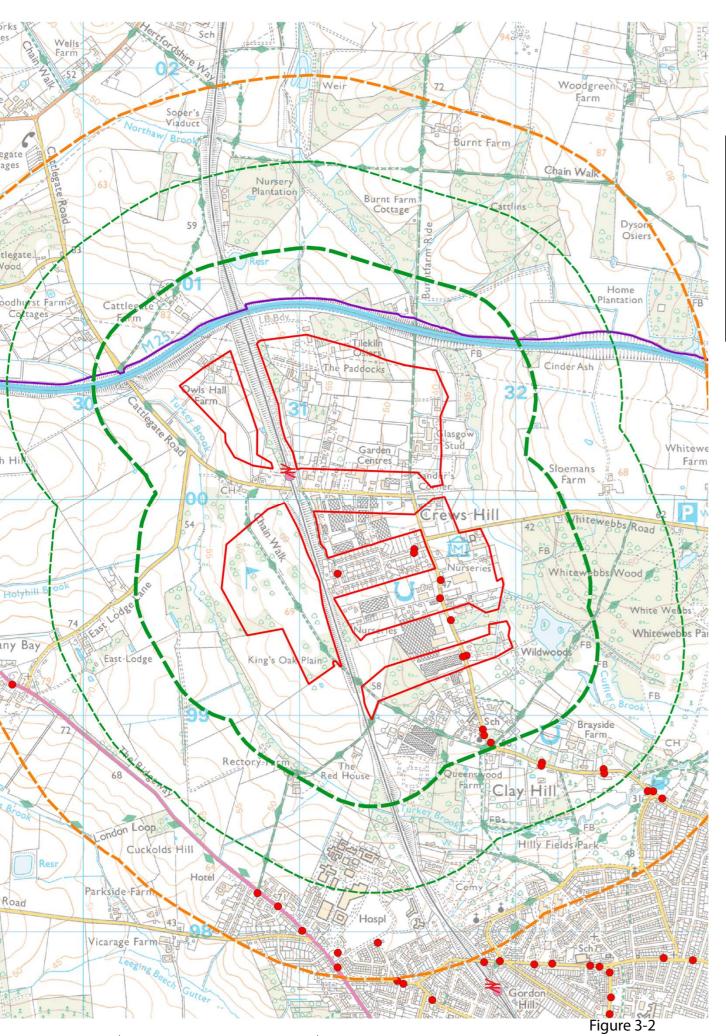
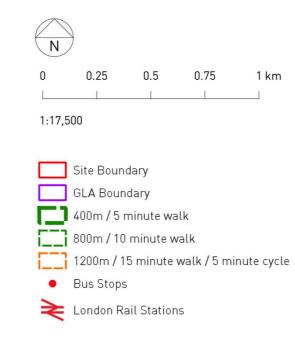


Table 3-1 Rail Services

Station	Managed By	Fara	Entries + Exits	Frequency				Step-
		l		IMF peak I	MF off-	Time to Key Destinations		free
		Zone			peak			access
Crews Hill	Great	6	0.14	4tph	2tph	• Finsbury Park: 26min	• Transfer available at Finsbury	No
	Northern		million			• Highbury & Islington: 32min	Park to Victoria Line,	
			(2018-19)			Moorgate: 40min	Thameslink	
						• Stevenage: 28min	• Transfer available at Highbury	
							& Islington to London	
							Overground (North London	
							Line & East London Line)	



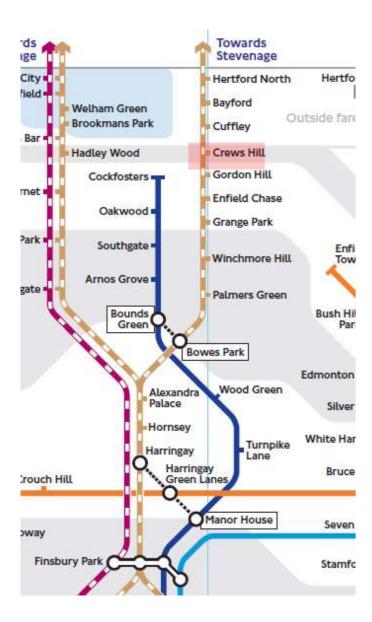


Figure 3-3 Time mapping (public transport)

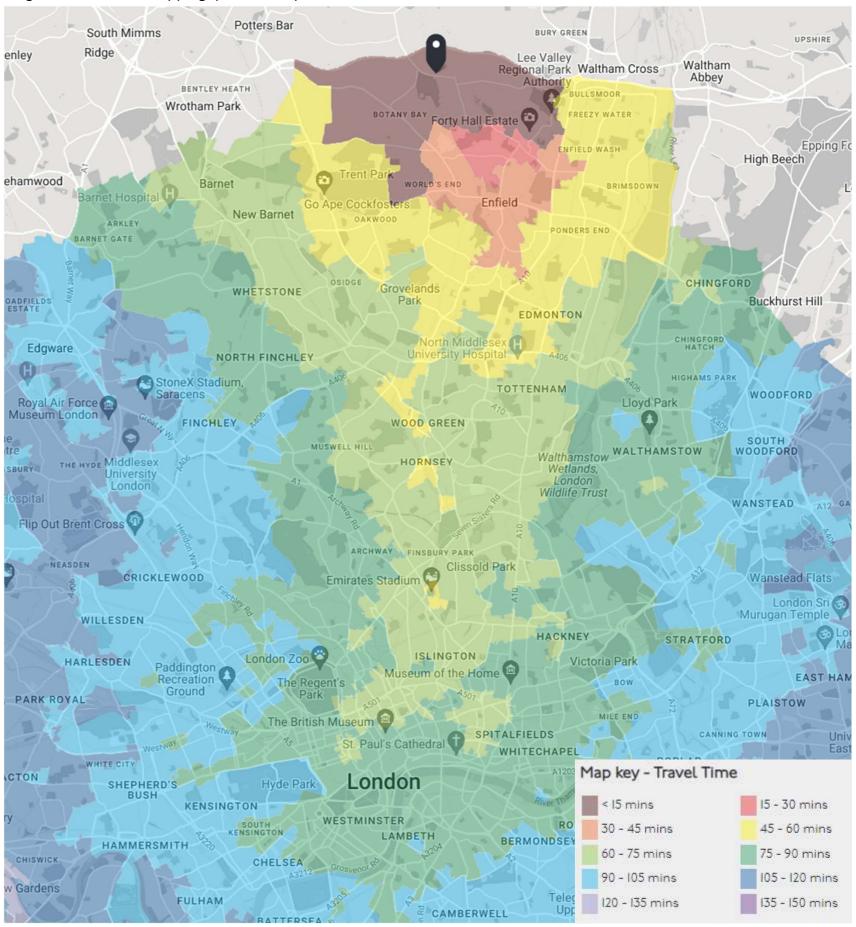


Figure 3-3 Rail Usage – Passenger Flows AM Peak

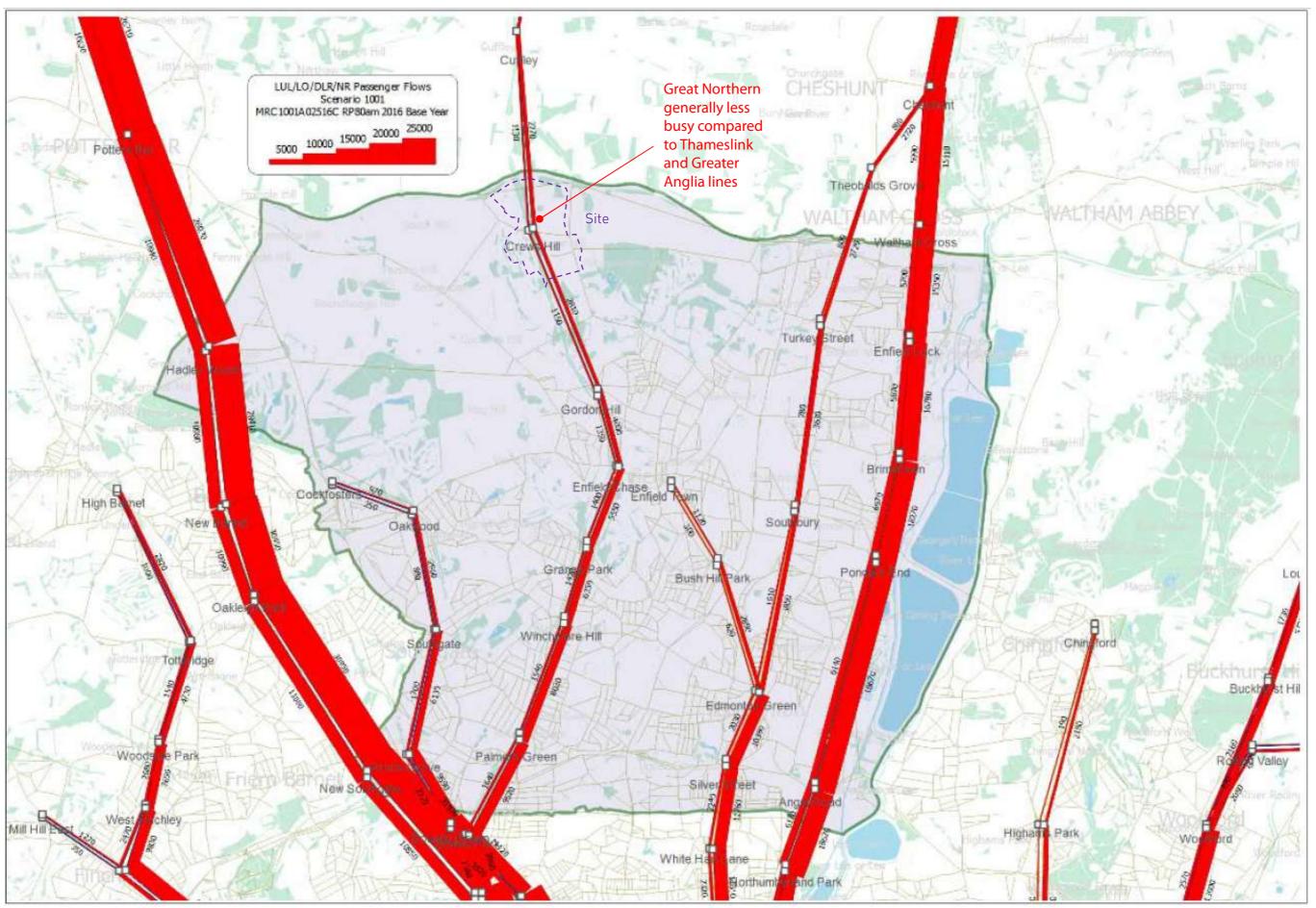


Figure 3-4 Rail Usage – Passenger Flows PM Peak

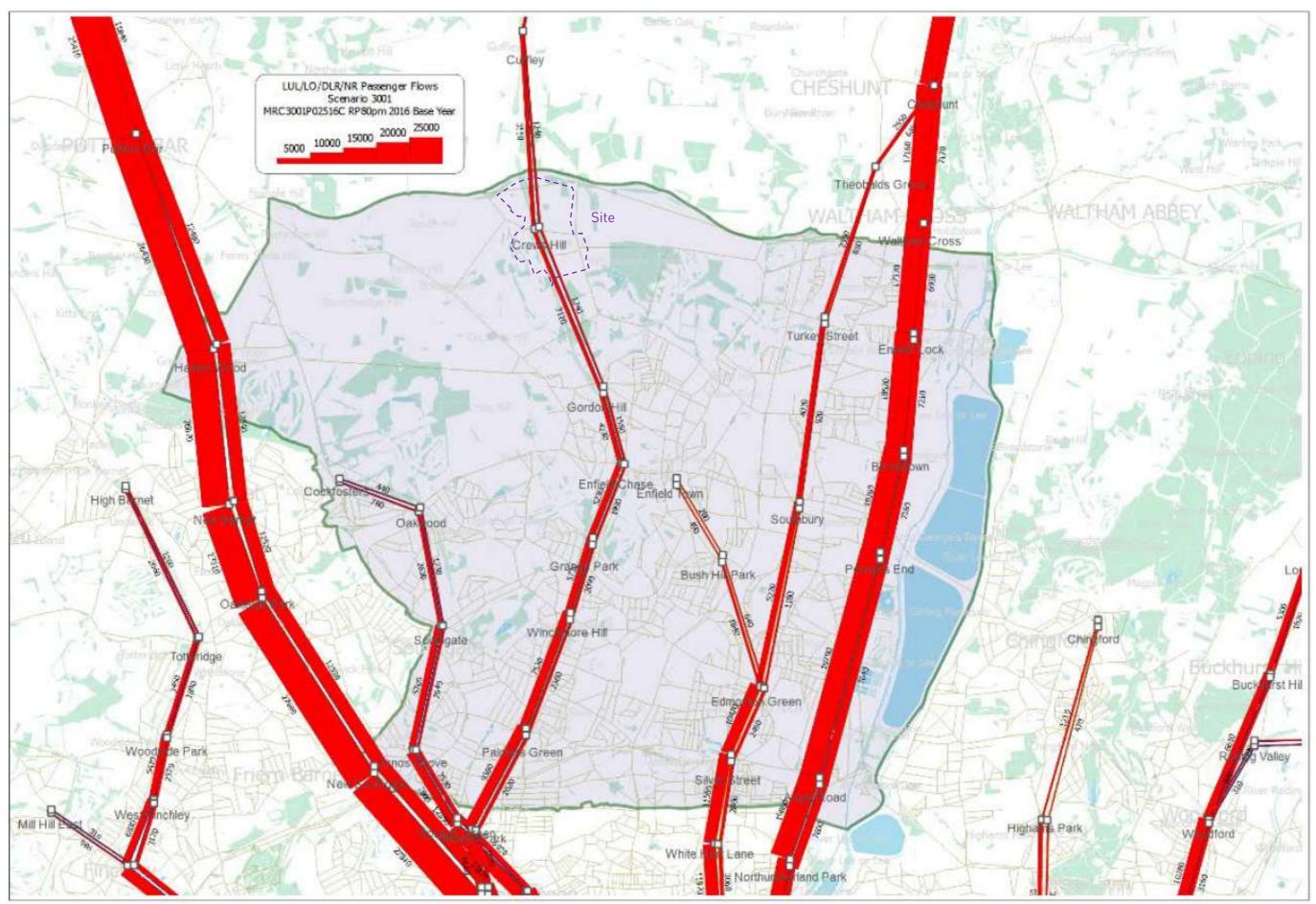


Figure 3-5 Rail Usage – Passengers Boarding AM Peak

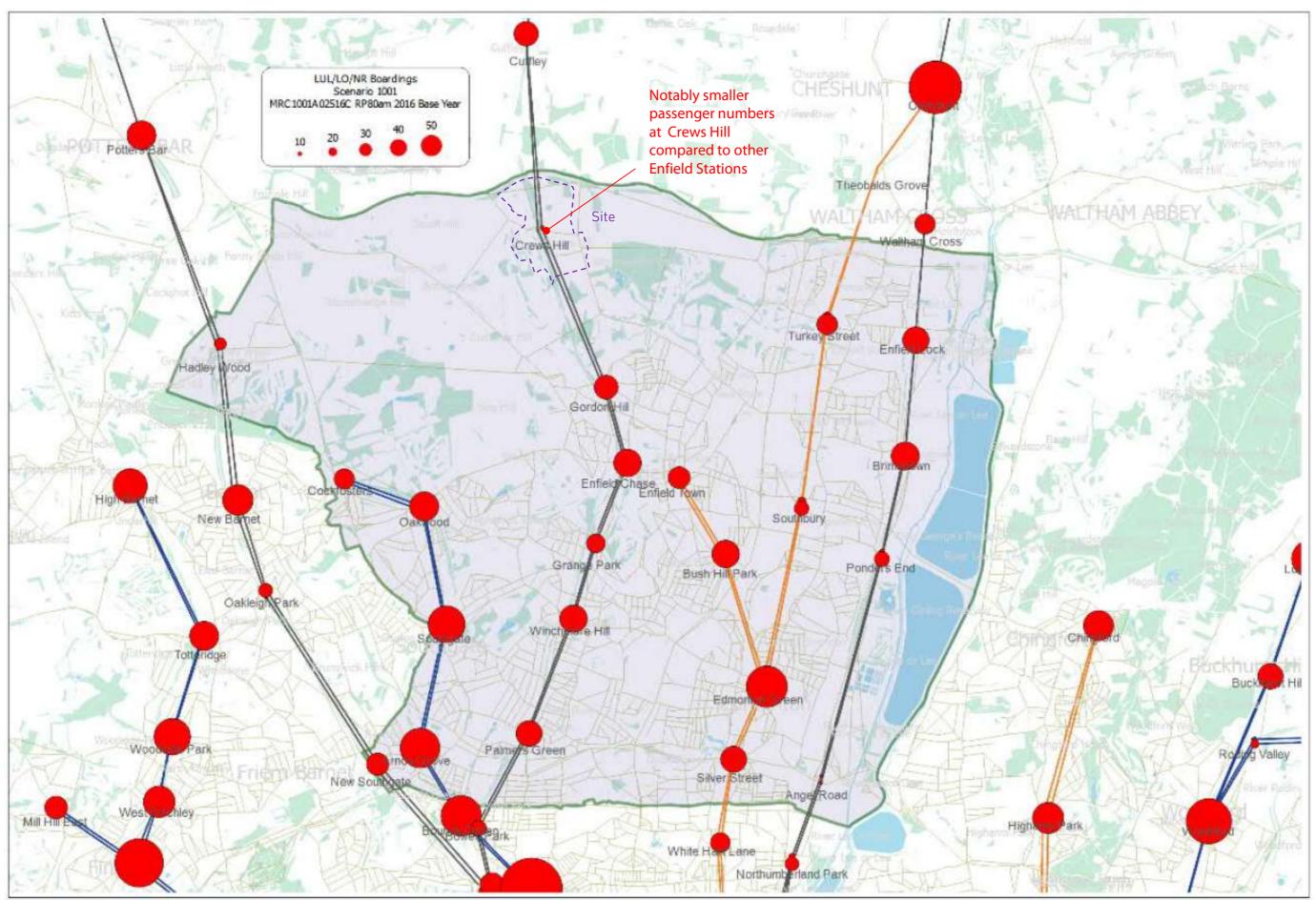


Figure 3-6 Rail Usage – Passengers Alighting AM Peak

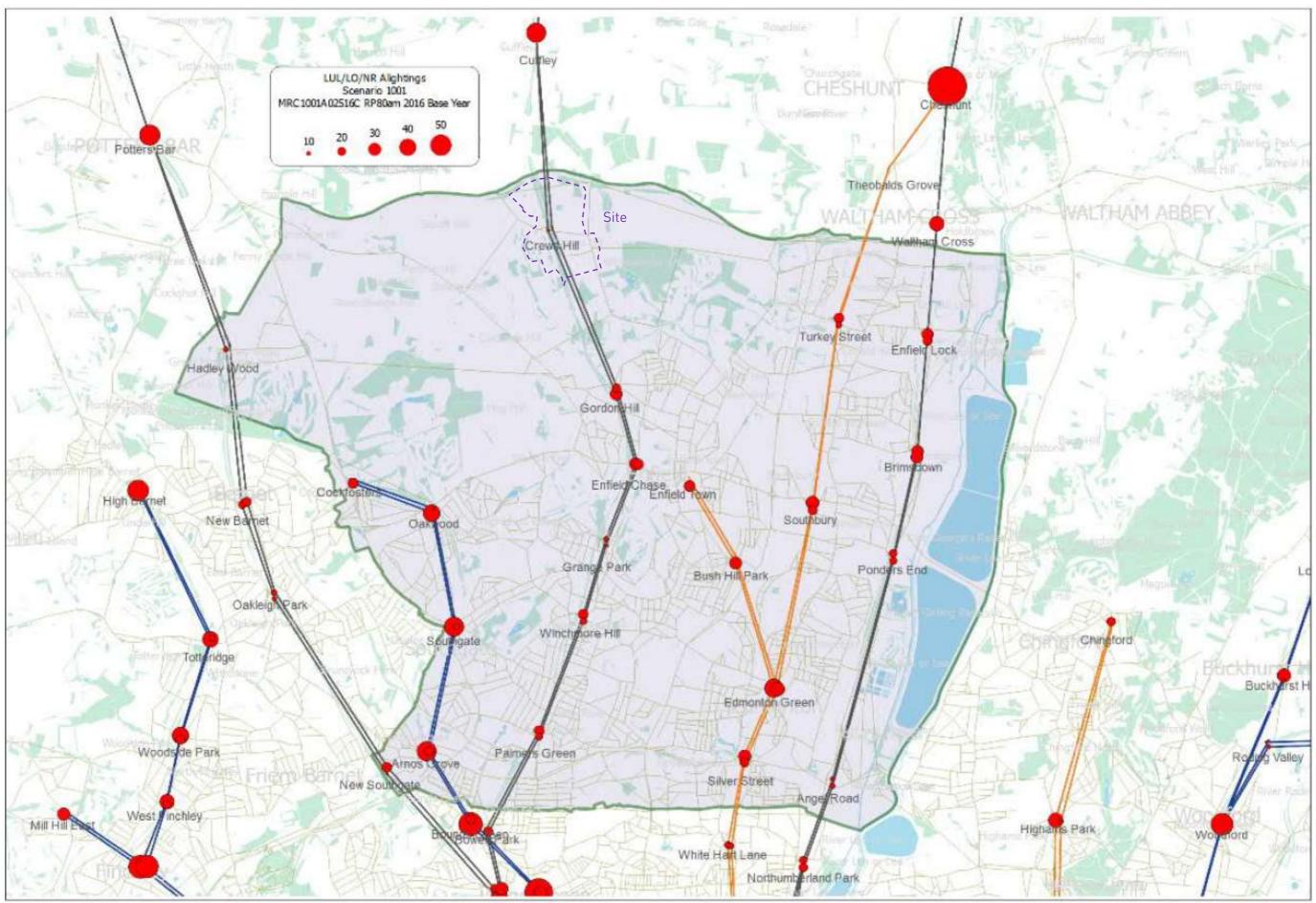


Figure 3-7 Rail Usage – Passengers Boarding PM Peak

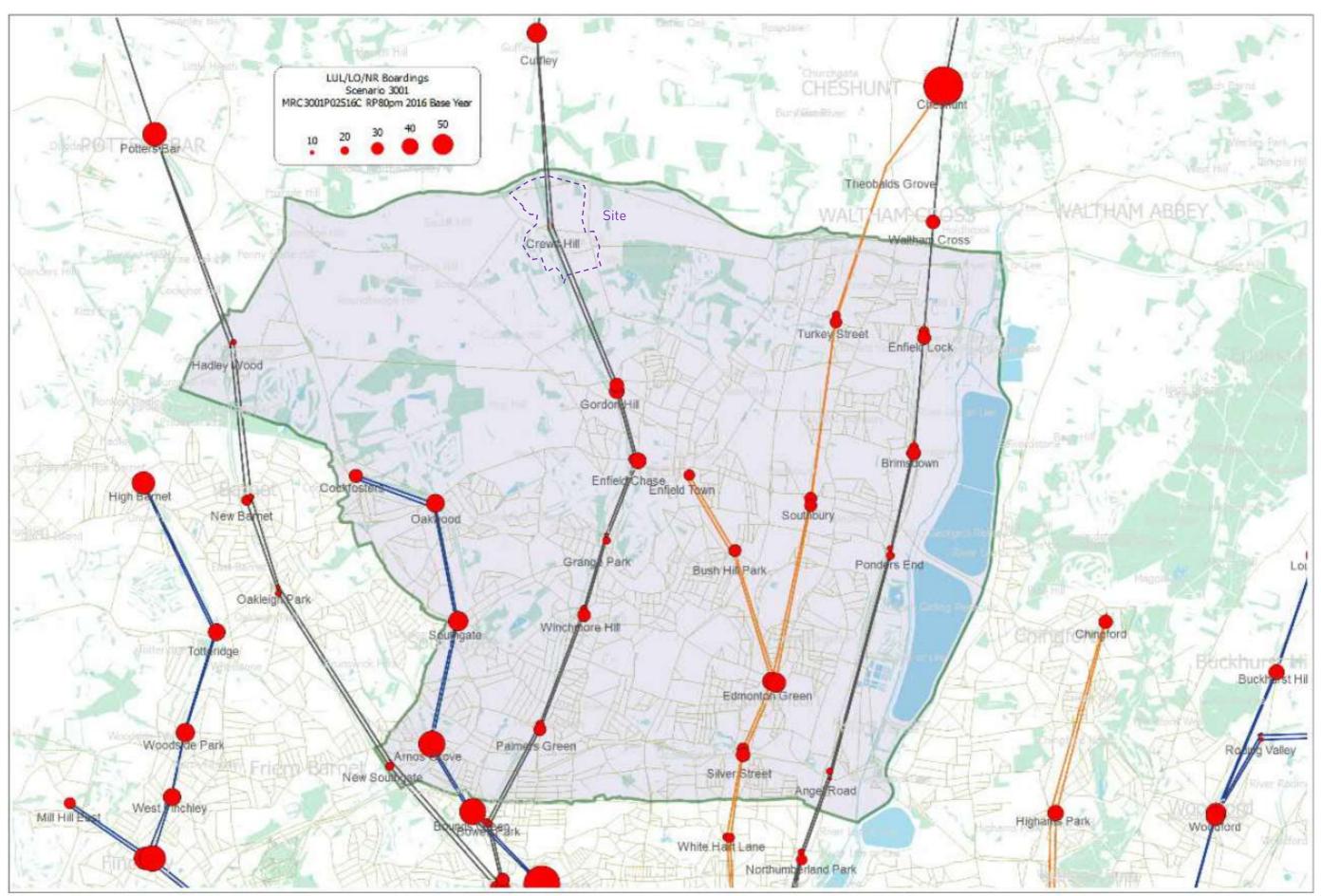
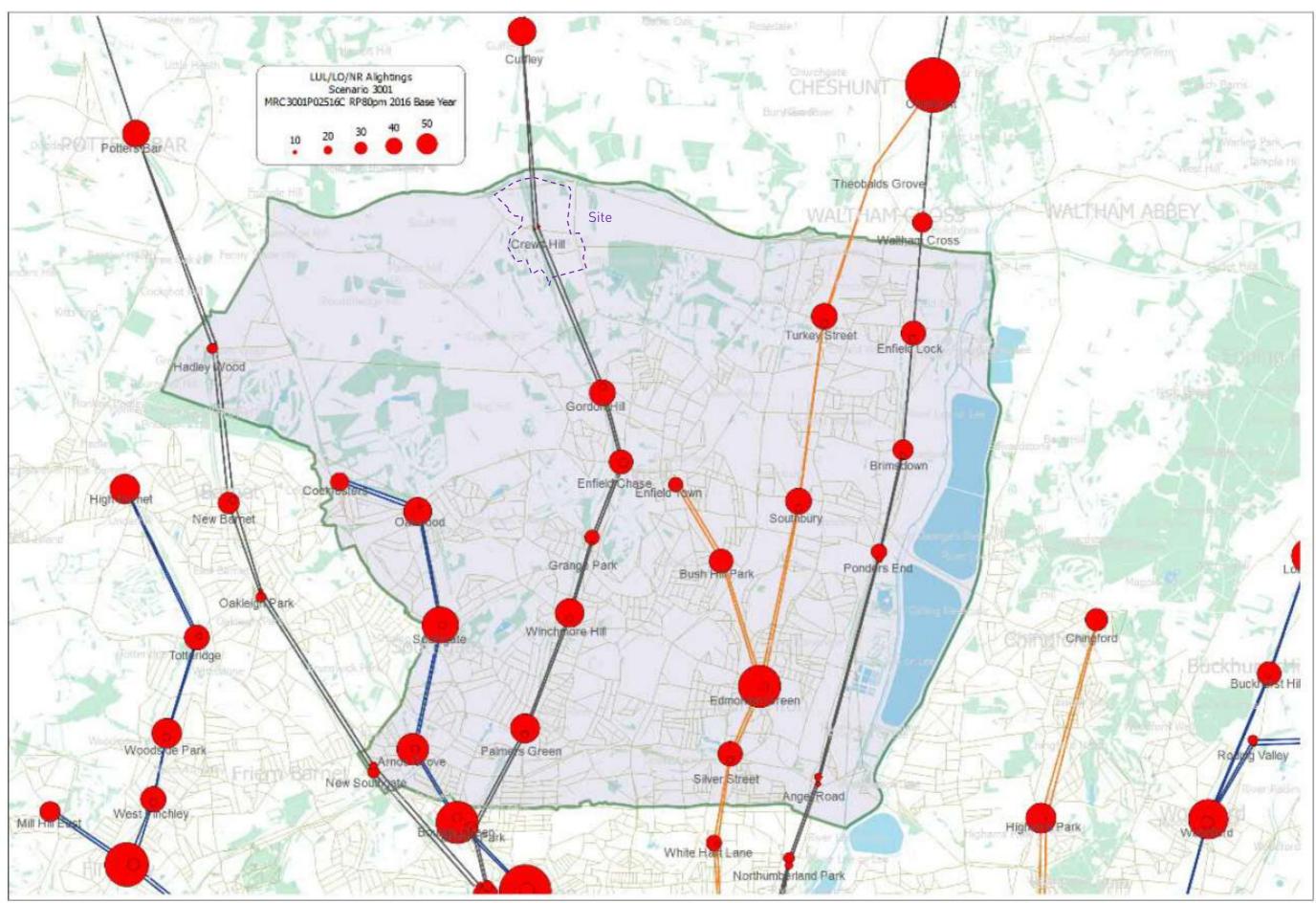


Figure 3-8 Rail Usage – Passengers Alighting PM Peak



4.0 Bus Provision

There is only one bus service serving the Crews Hill area, which is the 456. This terminates at the residential community within the area (Rosewood Avenue). As such, it does not currently provide a rail to bus interchange at Crews Hill railway station. Services are infrequent, being every half hour, with services finishing by 20:05 (see Table 4-1).

However, several key destinations can be reached, including Enfield Town, Enfield Chase, and North Middlesex Hospital. Moreover, connections are available to other bus services within the local area, particularly when connecting via Enfield Town. The TfL bus spider diagram for Enfield Town is shown in Figure 4-2 overleaf.

Furthermore, 2021 WSP report included wider baseline analysis on bus usage within the Borough, and some key figures have been extracted from this. Figures 4-3 and 4-4 show flows in the AM and PM peak, and Figures 4-5 to 4-8 show boarding and alighting (note that the data precedes the introduction of the 456 in 2021). This shows that bus usage is more evenly distributed across the borough, compared to the rail network with its peaked commuting nature. This suggest that buses serve a multitude of local destinations within the Borough, likely for different purposes, throughout the course of a typical weekday.

Table 4-1 Bus Services

		Freq	uency (per hour)		
Route	Route Description &				Time to Key
No.	Key Destinations	Weekday	Sat	Sun	Destinations
456	Crews Hill - St Johns	2 (during	2 (during	1 (during	From Crews Hill:
	Primary School -	0610-	0615-	0615-	 St Johns Primary
	Enfield Town -	2005)	2005)	2005)	School: 4min
	Enfield Chase				• Enfield Town:
	Station -				18min
	Winchmore Hill -				• Enfield Chase
	North Middlesex				Station: 22min
	Hospital				North Middlesex
					Hospital: 56min

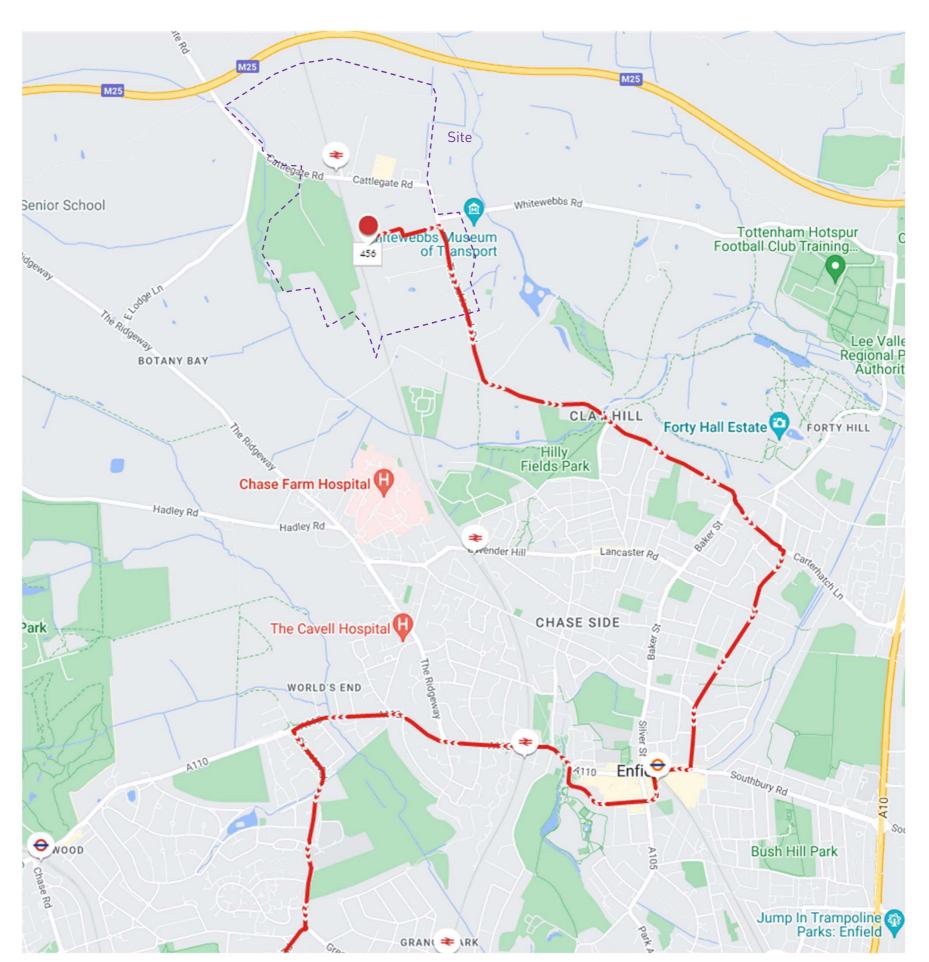
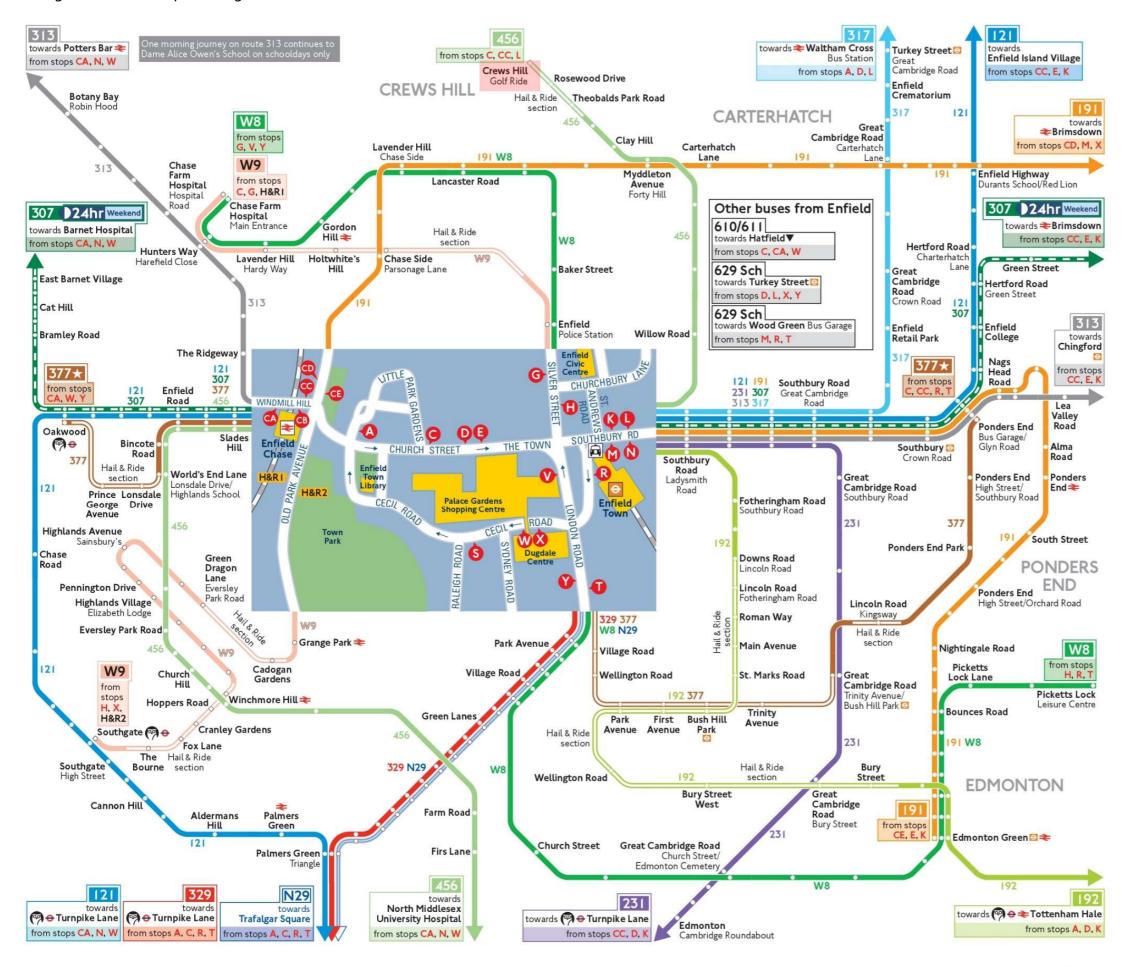


Figure 4-1 456 Bus Routes

Figure 4-2 TfL Spider Diagram: Buses from Enfield



17

Figure 4-3 Bus Usage – Passenger Flow AM Peak

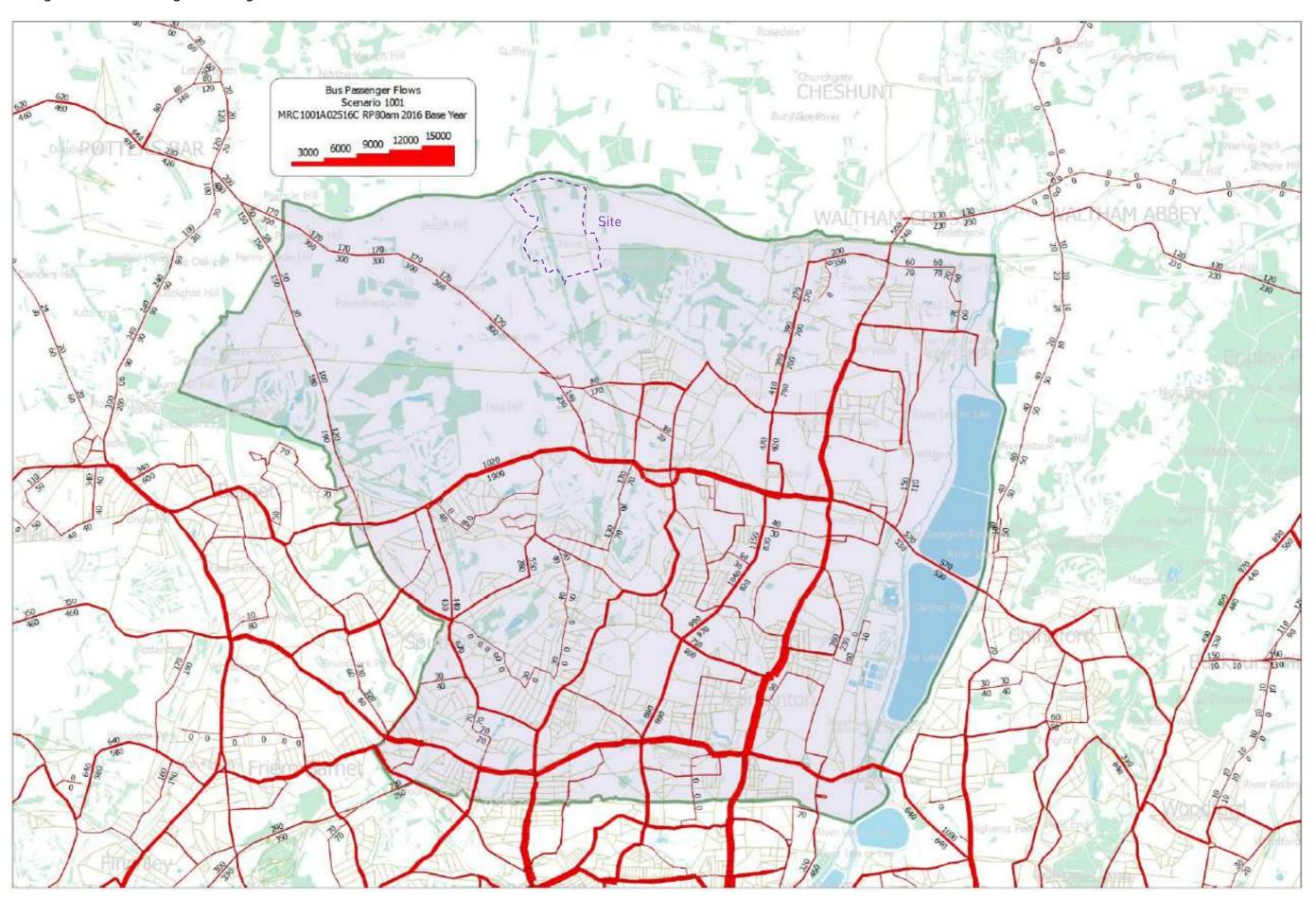


Figure 4-4 Bus Usage – Passenger Flow PM Peak

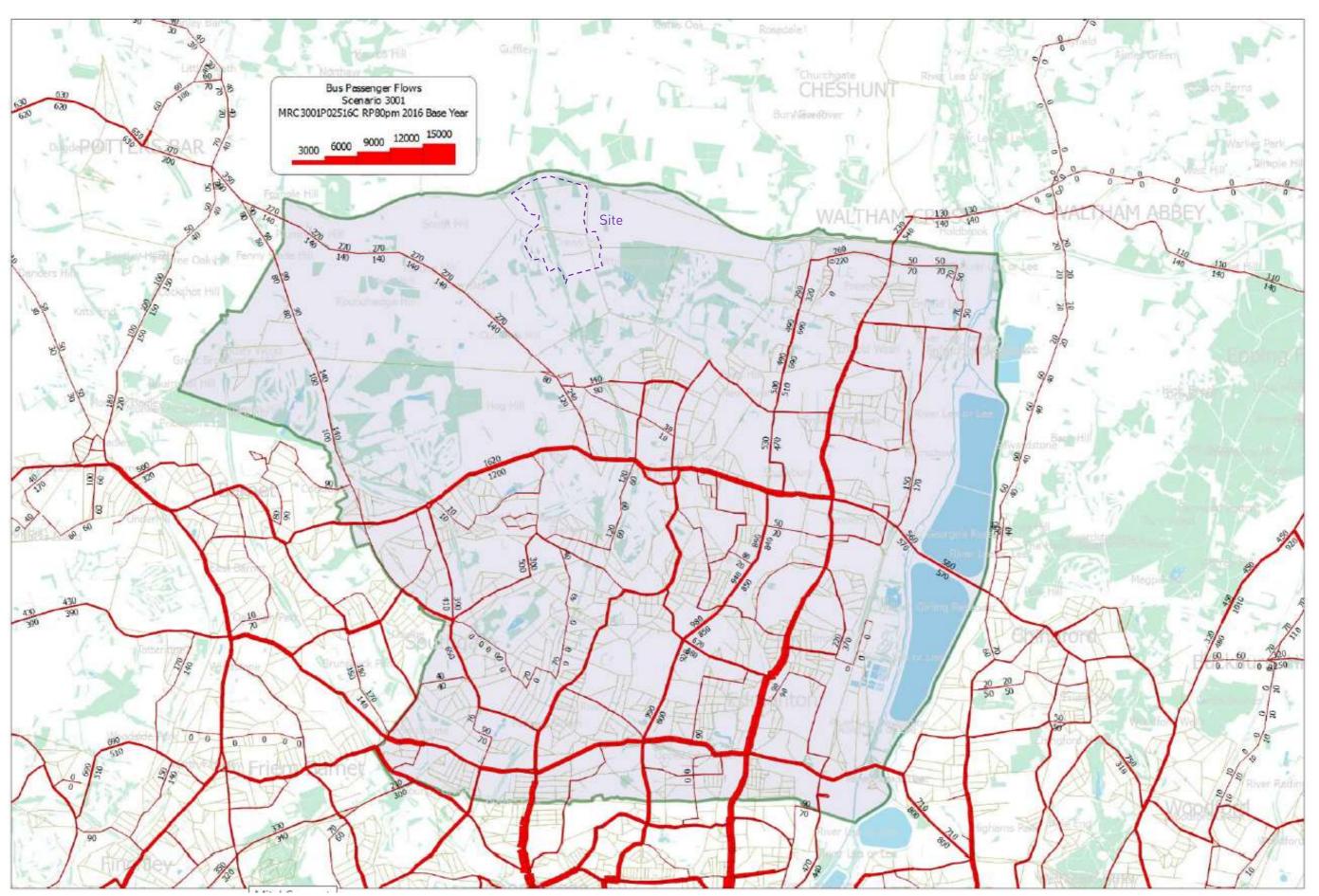


Figure 4-5 Bus Usage – Passengers Boarding AM Peak

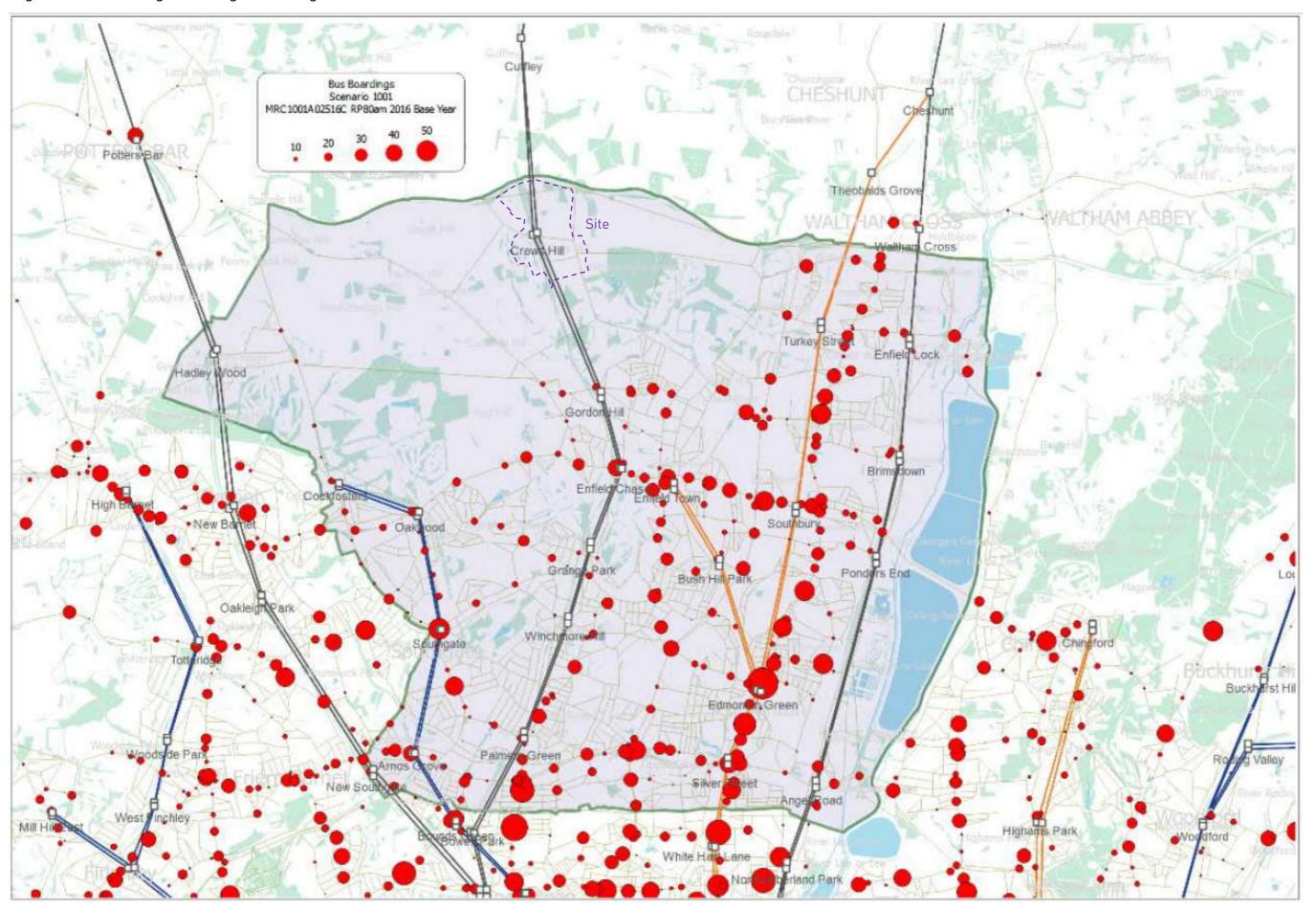


Figure 4-6 Bus Usage – Passengers Alighting AM Peak

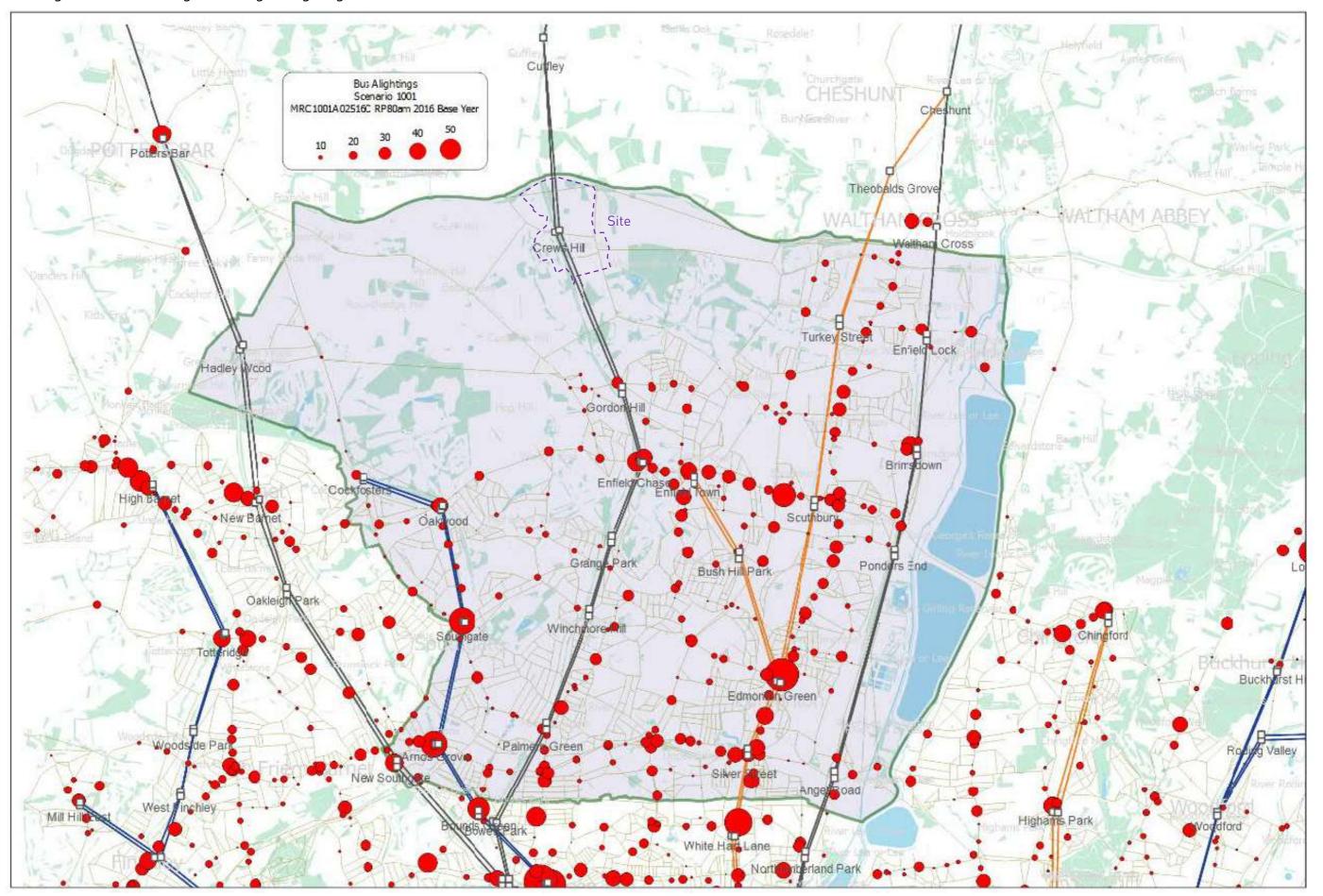


Figure 4-7 Bus Usage – Passengers Boarding PM Peak

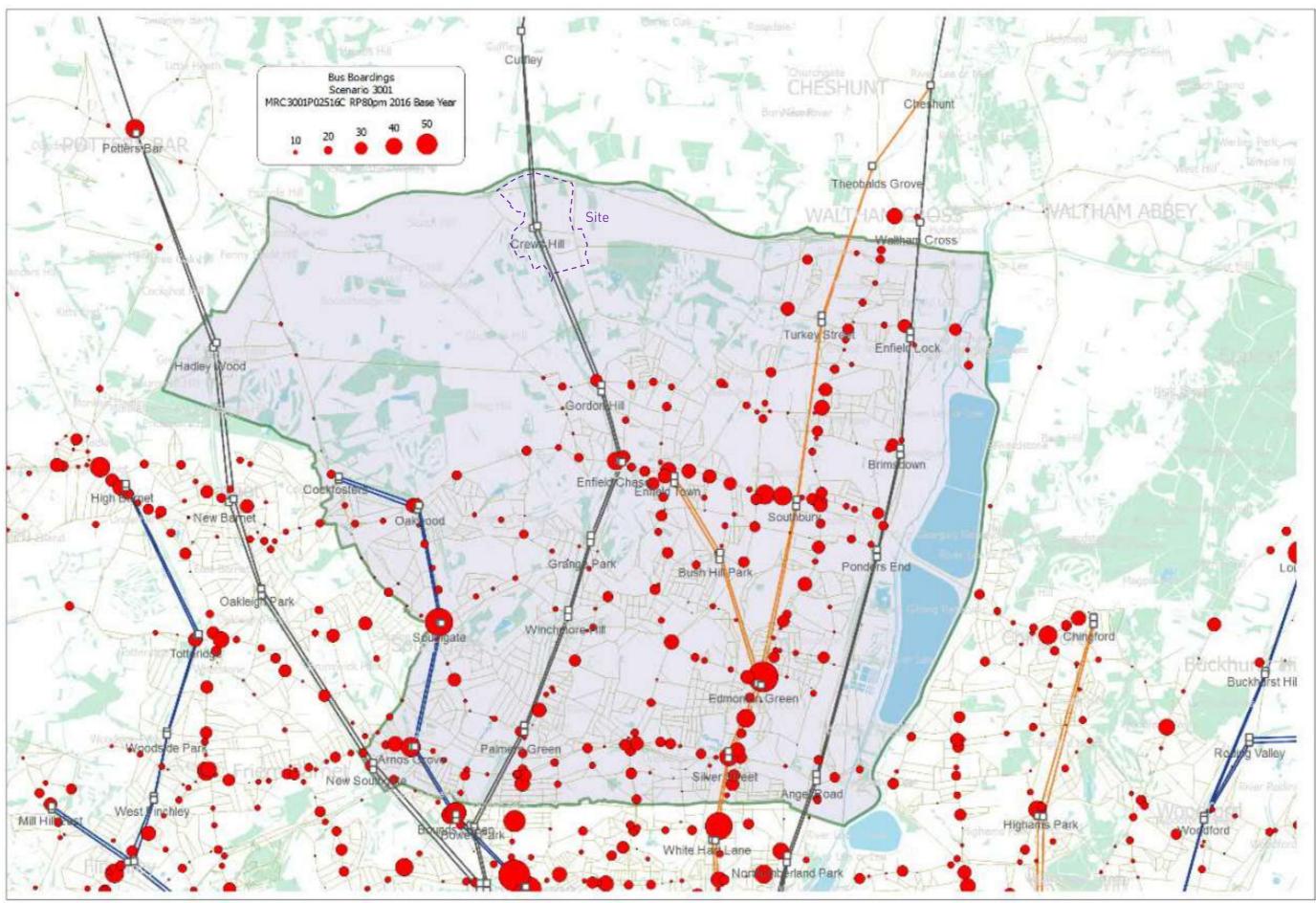
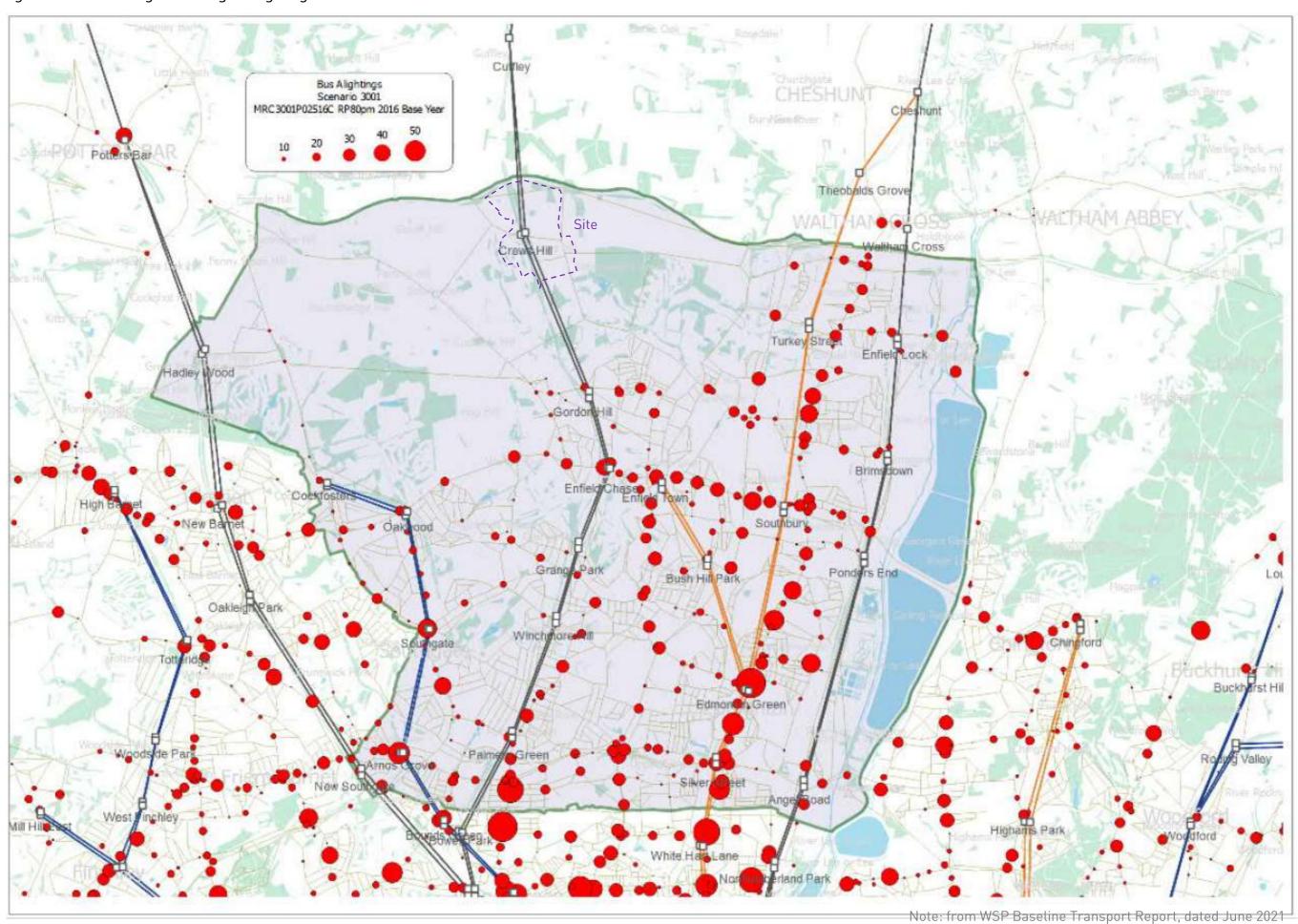


Figure 4-8 Bus Usage – Passengers Alighting PM Peak



5.0 Highway Network

In terms of strategic highways, the site is bordered by the M25 to the north. However, access to this is at some distance, with junctions being 4km to the east and west (see drawing 1875/250/SK005). The main highways through the site are Cattlegate Road, which runs east-west past Crews Hill station and links to areas of Hertfordshire to the north; Theobalds Park Road, which runs north-south and links to destinations to the south including Clay Hill and Enfield Town; and Whitewebbs Road, which connects eastwards to destinations in the Lea Valley. Vehicular access to destinations to the west is less direct, but E Lodge Lane via Cattlegate Road can be used. The highway context, including road classifications is shown in drawing 1875/250/SK005.

The only TfL red route in the vicinity is the A10, which is located to the west of the site, and roads on the Strategic Road Network are also not within the immediate vicinity (see Figure 5-1). In terms of speed limits, the local highways through the site are generally 30mph, although Whitewebbs Road is 40mph (see Figure 5-2). Regarding vehicle emission restrictions, the Ultra Low Emission Zone (ULEZ) is due to be expanded from August 2023. This will encompass the majority of the GLA area, including the site (see Figure 5-3). In terms of parking restrictions, there are no Enfield Controlled Parking Zones (CPZs) within the site, although there are CPZs to the south in the vicinity of Gordon Hill Station and Chase Farm Hospital (see Figure 5-4). Adoptable highway boundaries within the vicinity of the site are shown in drawing 1875/250/SK006 (note: within the Borough only).

Furthermore, the 2021 WSP report has been sourced for highway information. The highway model formed part of this study, and base year traffic flows for the AM and PM peak are shown in Figures 5-5 and 5-6, with delay in Figure 5-7 and 5-8, and volume-to-capacity ratios in Figure 5-9 and 5-10. It is important to note that this is a higher level, wider area model, and therefore there is some simplification to the highway links in these diagrams. In relation to the site, the model shows that between 500 and 1000 vehicle PCUs use Cattlegate Road during peak hour periods. In terms of delay, the model shows delays present on Cattlegate Road and E Lodge Lane in the AM and PM peak, but not on Whitewebbs Road. In terms of volume/capacity, no particular network issues are shown in the vicinity of the site.

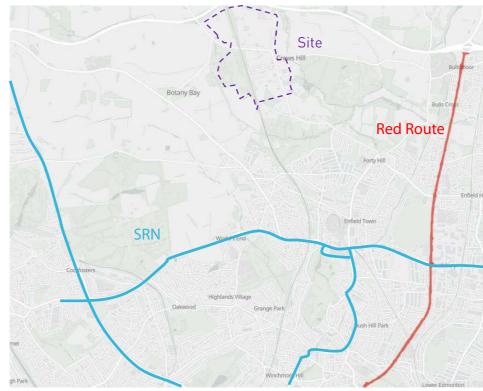


Figure 5-1 London Red Routes & Strategic Road Network

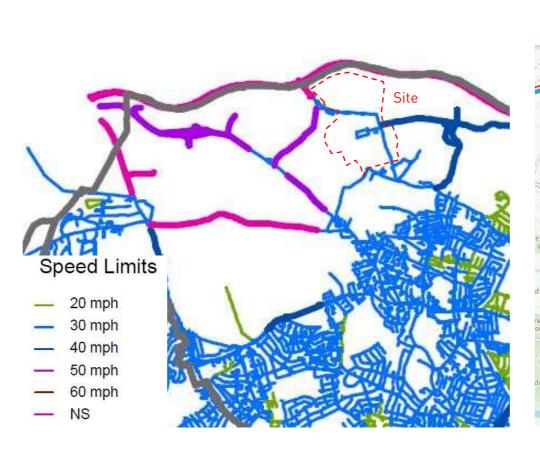


Figure 5-2 Speed Limits

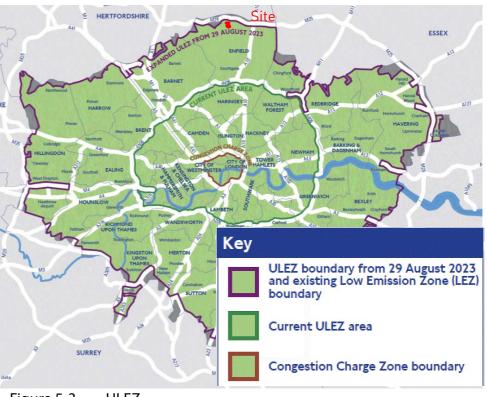


Figure 5-3 ULEZ

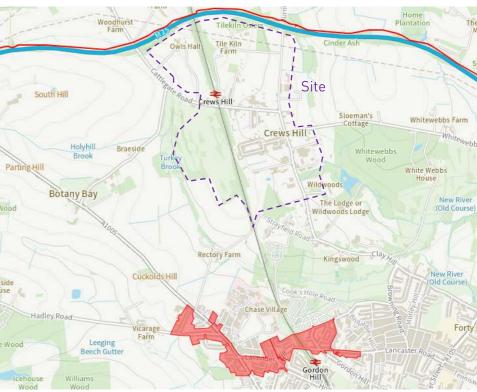
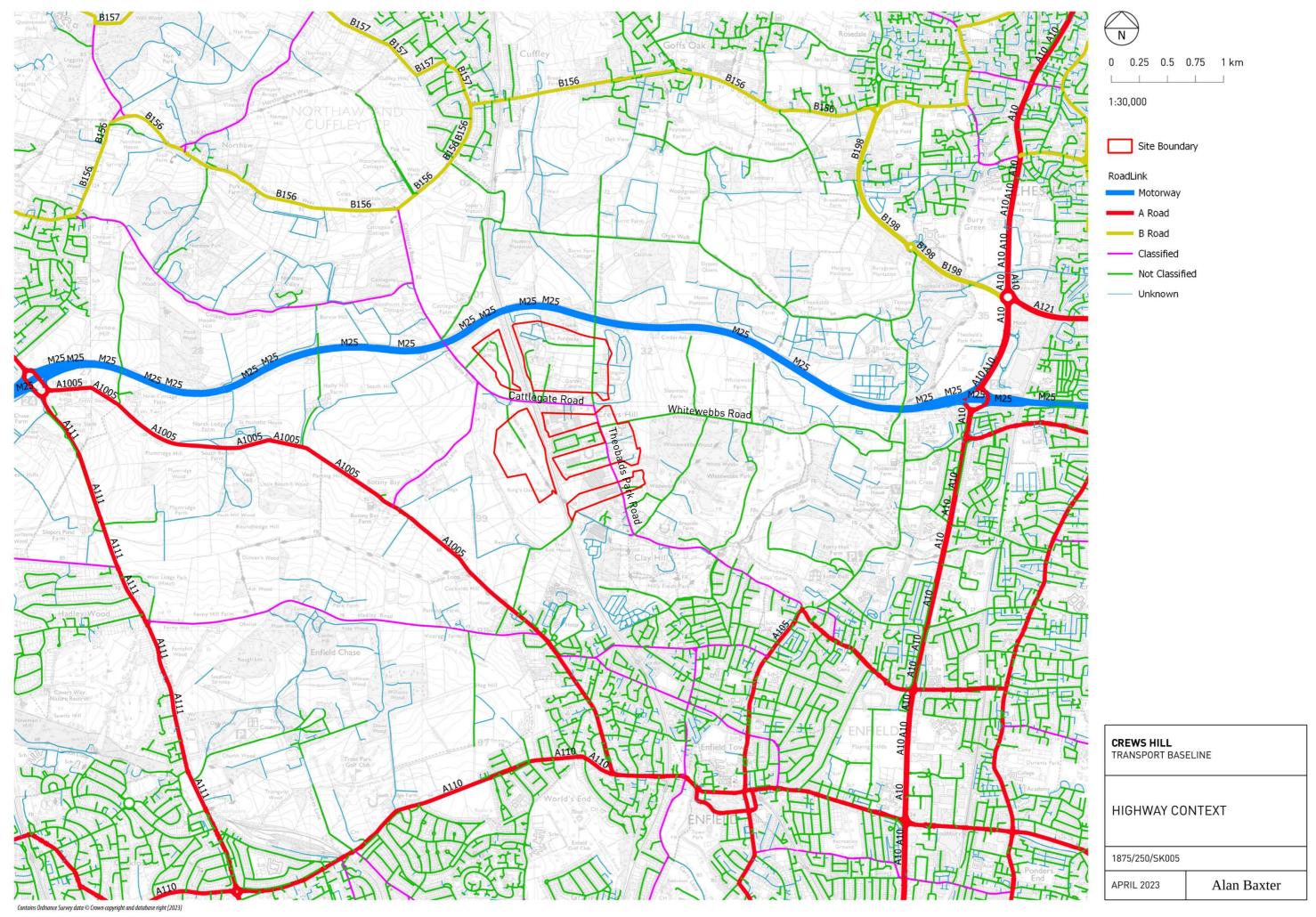


Figure 5-4 Local CPZs



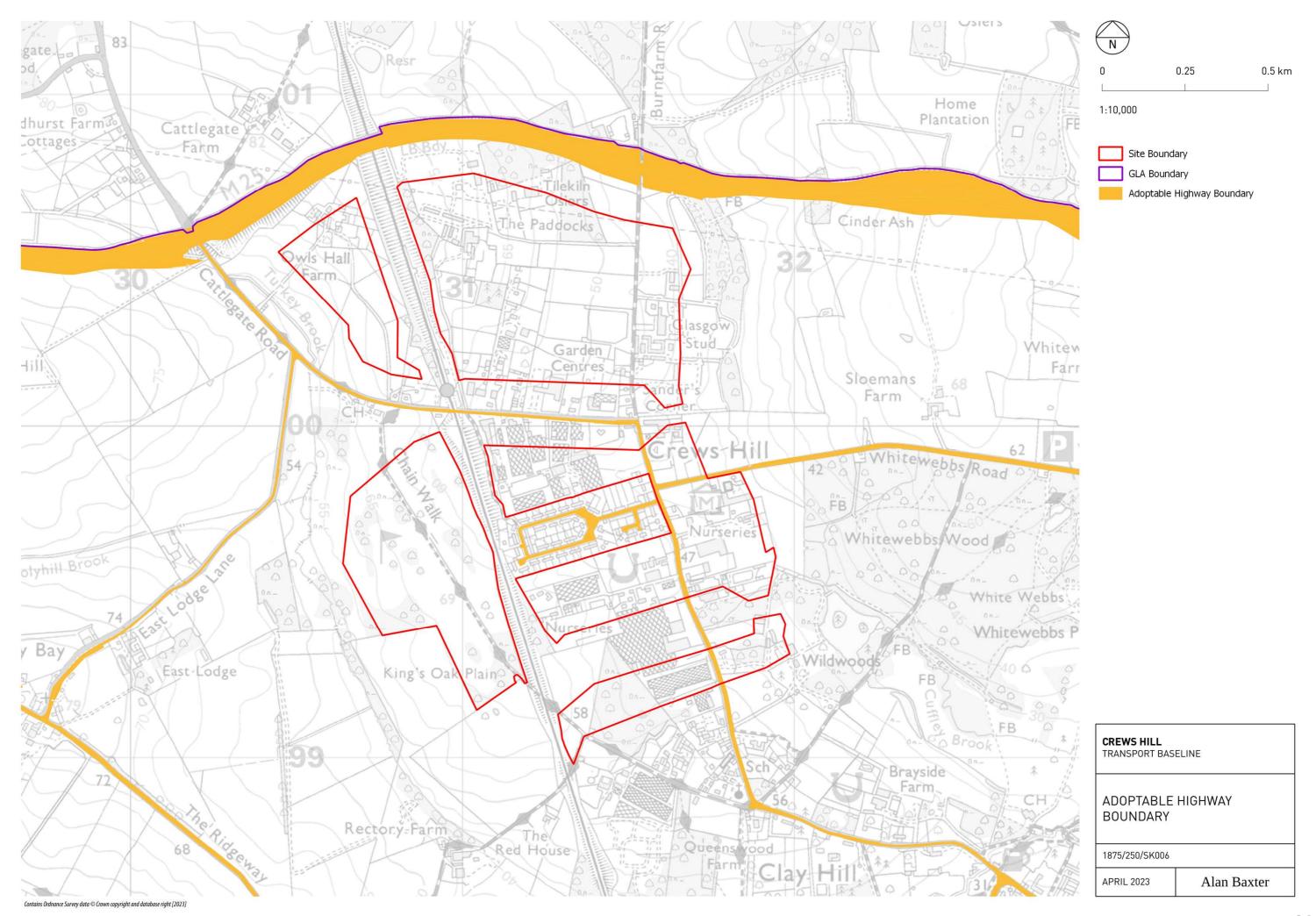


Figure 5-5 2016 Traffic Flows, AM Peak



Figure 5-6 2016 Traffic Flows, PM Peak



Figure 5-7 2016 Delay, AM Peak



Figure 5-8 2016 Delay, PM Peak



Figure 5-9 2016 Volume/Capacity, AM Peak



Figure 5-10 2016 Volume/Capacity, PM Peak



6.0 Cycle Network

Although there are different sources for cycle maps (e.g. TfL, Sustrans), Enfield Council's online cycle map is the most comprehensive and relevant. This has reproduced and annotated (see Fig 6-1). This shows a mix of completed schemes and planned routes, as well as older legacy routes which are planned to be updated, bike hangers and school streets. Additionally, drawing 1875/250/SK002 in Section 2 shows the local context and the potential of the range of local destinations available within a 20 minute cycle (infrastructure permitting).

Cycle provision in the vicinity of the site is relatively scarce. However, there are some key routes in the vicinity. National Cycle Route 12 runs from Enfield Lock to Peterborough. This passes by the south of the site, and shares routes with the London Loop/Enfield Loop (see section 7). NCN Route 12 also includes on street sections along quiet roads, such as on Strayfield Road to the south of the site.

More widely within Enfield, Cycleway 20 runs from Enfield Town to Palmer's Green to the south, and is a key radial into Central London.

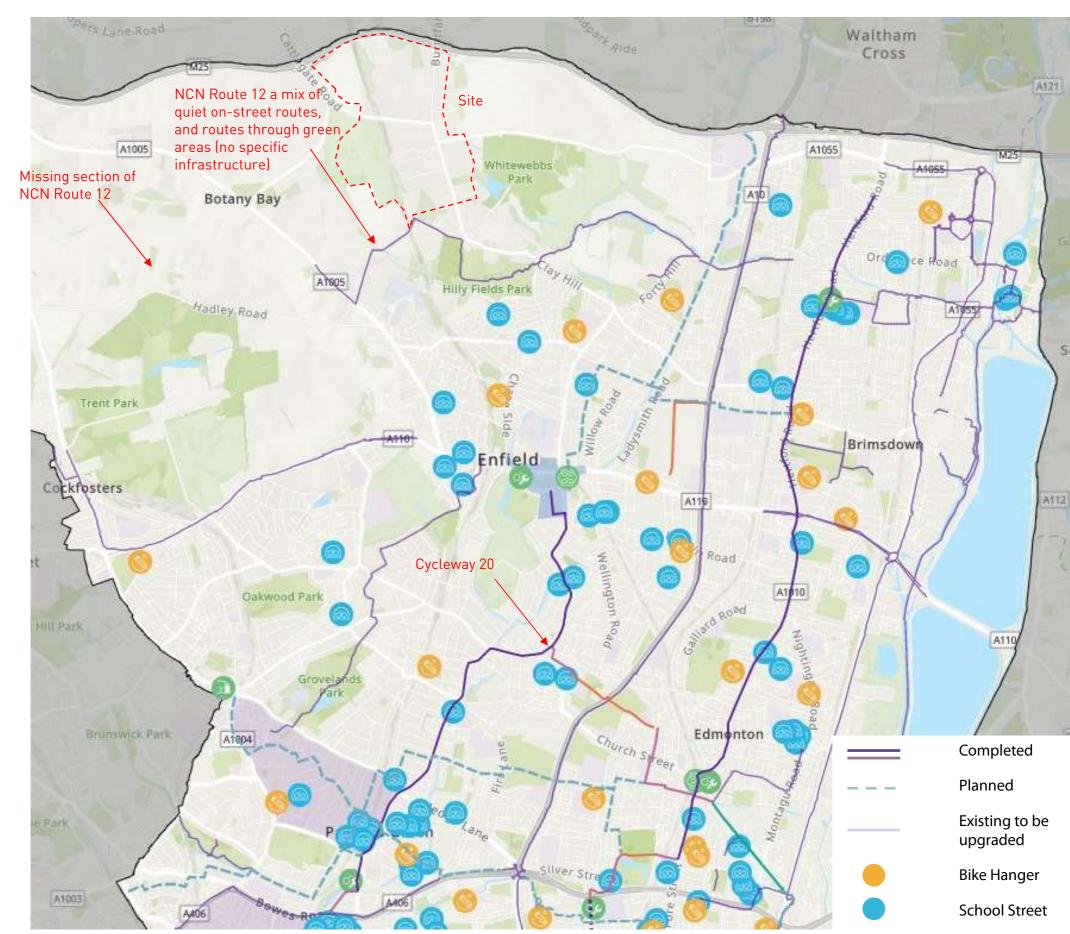


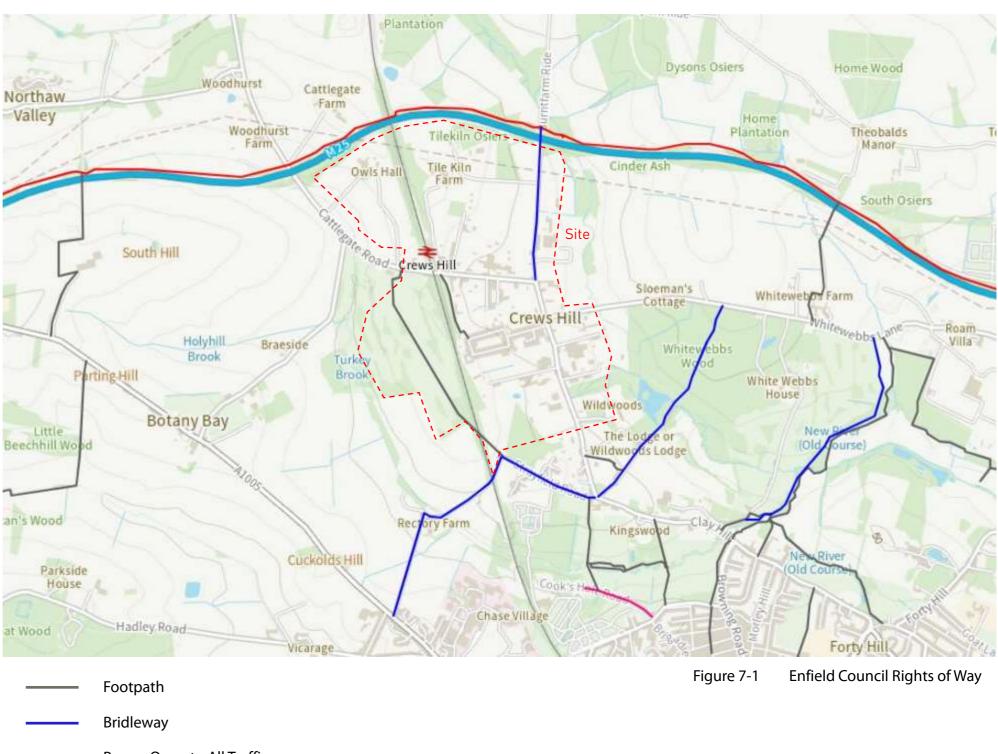
Figure 6-1 Enfield Council Cycle Map

7.0 Walking

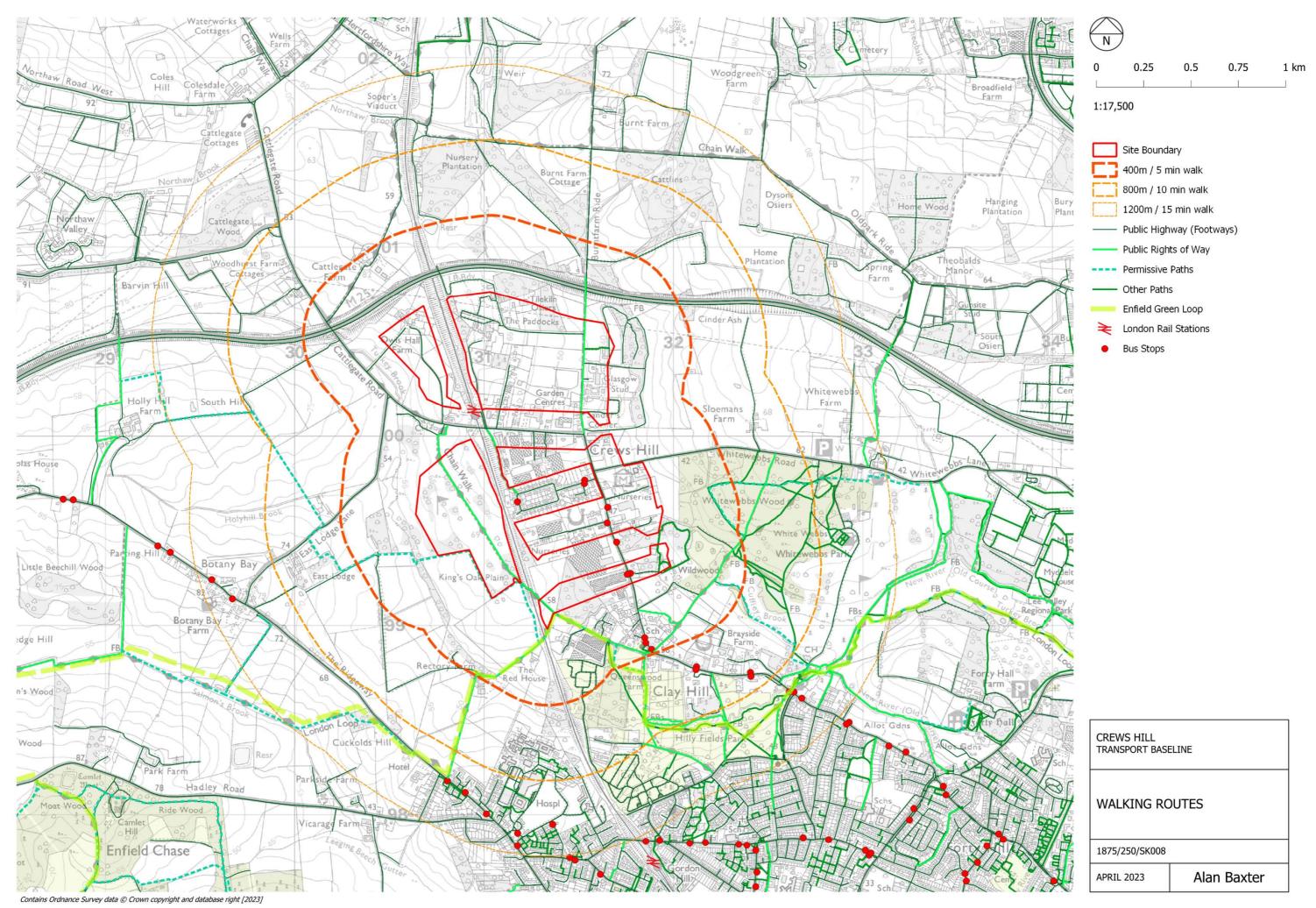
Despite being relatively isolated compared to other parts of Enfield, many existing destinations are within walkable distance. This includes local garden centres, a local school and church, and Chase Farm Hospital. Conditions of these walking routes Drawing 1870/250/SK008 shows a 1200m/15 min walk isochrone from the site, overlaid on paths and footways. This shows the general walkable potential of the site. There are also many leisure routes. As much of the site includes and is surrounded by green areas, there are walking routes through green areas such as through Whitewebbs Wood, and Hilly Fields Park.

Within the vicinity of the site, there are several public rights of way, including footpaths and bridleways. These are available on Enfield's website (https://www.enfield.gov.uk/services/roads-and-transport/public-rights-of-way) and are shown in Figure 7-1

Additionally, the Council have an ambition of a Green Loop around the borough, which is a leisure route and mostly in place. This passes by the southern end of the site (see drawing 1870/250/SK008).



Byway Open to All Traffic

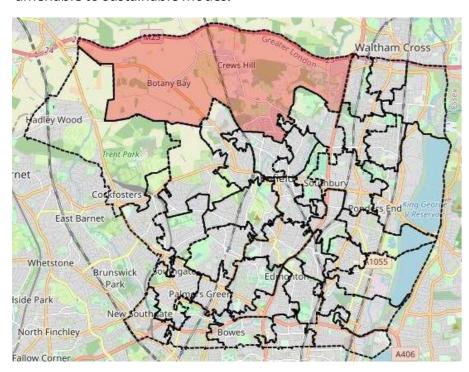


8.0 Existing Movement Profile

In order to understand the existing movement profile at the site, census data can be analysed. Both the 2011 and 2021 census are available. Although 2021 is more recent, and could in theory accord with trends towards more sustainable transport usage in London, it was also of course undertaken during the Covid 19 pandemic when movement profiles were atypical. Thus studying both is helpful.

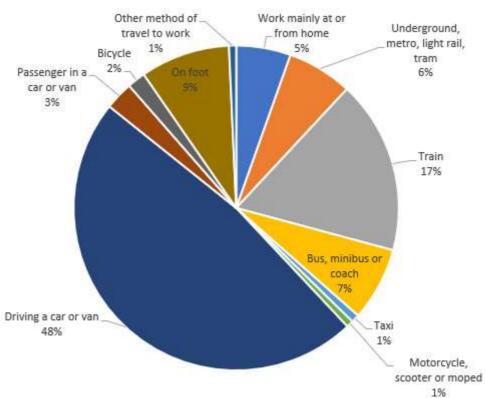
The dataset for 2011 is "QS701EW - Method of travel to work", and for 2021 is "TS061 - Method used to travel to work". This is selected for Super Output Area - Mid Layer: Enfield 004 (see Figure 8-1). This includes the residential community in the vicinity of Crews Hill, and also communities north of Gordon Hill station. This cross section therefore indicates general trends and potential.

As can be seen in Figure 8-2, Figure 8-3, and Table 8-1, a notable proportion of residents in the area travelled using sustainable modes (public transport, walking, cycling), with 42%. Whilst this decreased to 23% in 2021, this was of course influenced by the pandemic, with working from home increasing significantly, and vehicle-based travel also decreasing. The census data, particularly from 2011, suggests that the movement profile in the area is amenable to sustainable modes.

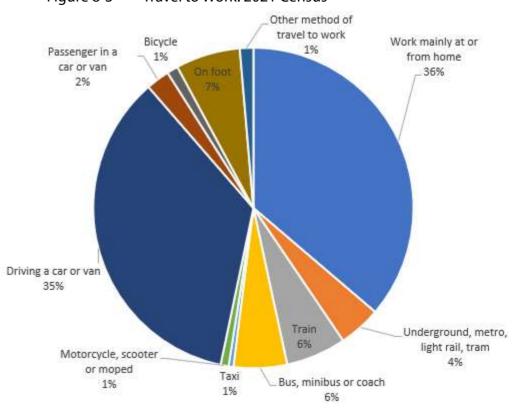


Super Output Area – Mid Layer: Enfield 004 Figure 8-1





Travel to Work: 2021 Census Figure 8-3



Travel to Work Summary Table 8-1

Mode:	2011 Census	2021 Census
Work mainly at or from home	5.4%	36.2%
Underground, metro, light rail, tram	6.5%	4.3%
Train	17.3%	6.1%
Bus, minibus or coach	7.3%	5.4%
Taxi	0.8%	0.5%
Motorcycle, scooter or moped	0.7%	0.8%
Driving a car or van	47.7%	35.3%
Passenger in a car or van	2.8%	2.4%
Bicycle	1.8%	1.1%
On foot	8.9%	6.5%
Other method of travel to work	0.7%	1.4%
Summary:		
Work mainly at or from home	5.4%	36.2%
Sustainable Travel Modes	41.8%	23.4%
Vehicle-Based	52.7%	40.4%

9.0 Existing/Ongoing Transport Studies

Two notable transport studies being undertaken at present are briefly summarised as follows:

London Borough Enfield Local Plan Strategic Transport Assessment (WSP, 2021-Ongoing)

This borough-wide study includes a quantitative review of of the potential impacts and associated mitigation effectiveness on the highways and public transport networks through the use of the Transport for London (TfL) strategic modelling suite including:

- MoTioN, a Multi-modal strategic transport 'mode of travel' in London model
- LoHAM, a strategic London-wide highway assignment model
- Railplan, a public transport strategic model

The model is to 2041, and assumes a population increase of 57k residents, or 17%; an increase in the number of cars by 14%; and an employment increase of 11k jobs, or 9%. A number of highway and public transport schemes are assumed in the model.

Additionally, the study includes a qualitative review of the transport networks, with a focus on:

- Alignment with National, London and Local policy frameworks, their underpinning evidence and emerging best practice in sustainable transport planning.
- Review of the site allocation Strategic Housing Land Availability Assessment (SHLAA) and Employment Land Availability Assessment and growth scenarios on the basis of their Public Transport Accessibility Levels (PTAL) and amenities access.
- Review of the committed, planned and 'aspirational' mitigation measures which could support the planned growth.

The study is extensive and spans several documents, with the modelling sitting behind this. The most recent version currently available is from 2021. Ultimately, the Executive Summary suggests preliminary mitigation schemes are upgrades to an M25 junction, an increase to 4tph on the West Anglia Mainline, a range of TfL/GLA plans for transport upgrades (tube, underground, bus, cycle), and other improvements. It is understood that the model is currently subject to further updates.

Draft Infrastructure Delivery Plan (LBE, 2021)

This is a delivery document to guide infrastructure across the borough to 2039. It contains sections on various areas (e.g. energy, education, healthcare), and projects are categorise as critical/essential/important/desirable. With regards to transport, there are the following key proposals suggestions which may be of benefit to the site:

- Rail services are proposed to be increase to 4tph at all times, including at Crews Hill. Step-free access is proposed to be Increased. Devolution of Great Northern services to TfL is also proposed.
- Regarding buses, there are a number of improvement projects. Whilst Crews Hill isn't specifically mentioned, the general plan is to improve east-west connectivity, and serve/facilitate development.
- In terms of walking and cycling, a general challenge is east-west barriers. General improvements such as increases to cycle parking are proposed. Overall it is proposed to increase cycling by 5x current levels.
- In terms of highways, improvement are proposed at the junction of the M25 and A10 (now delivered).

The IDF will be further developed during the next stage of the Local Plan (regulation 19) process, following further research and engagement, and based on the preferred growth scenario.

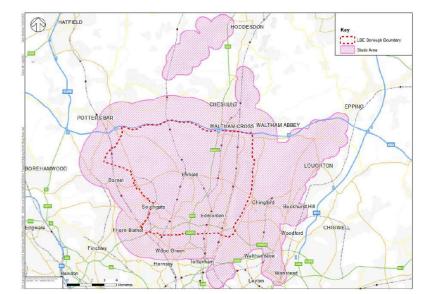


Figure 9-1 Strategic Transport Assessment Proposed Study Area – Highway Model

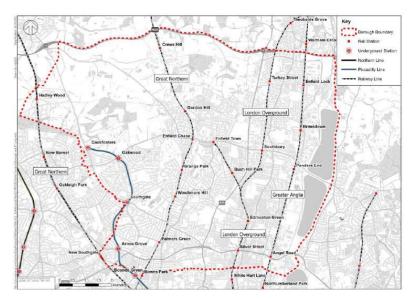


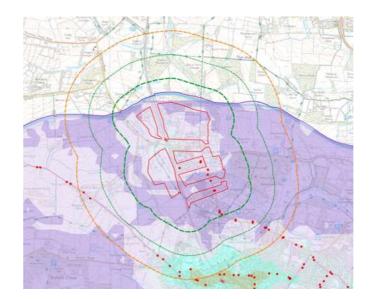
Figure 9-2 Strategic Transport Assessment Proposed Study Area – Public Transport Model

10.0 Conclusions

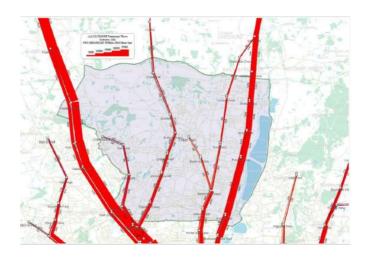
In reviewing the baseline transport conditions at Crews Hill, the following key points can be summarised:

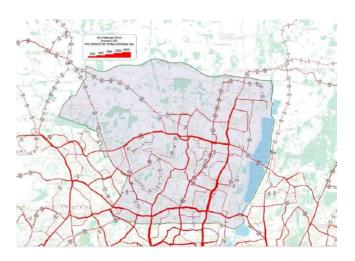
- Existing PTAL is low
- Crews Hill railway station is generally underutilised
- Generally, rail corridors are radial in nature, serving commuters to Central London. Travelling south from Crews Hill, transfers can be made in order to access other parts of Central London, making it quite a useful station.
- Bus provision to the site is poor, with only one service with a limited frequency.
- Generally, buses in Enfield serve a more local, borough-wide function, likely with many purposes.
- There has been a significant buildout of cycle infrastructure in Enfield in last 5-10 years. However, none are in the vicinity of the site.
- Many local destinations to the south are within a potentially reasonable 20min/4800m distance of the site e.g. local schools, town centres
- NCN Route 12 passes close to the site
- Many walking routes and rights of way in the vicinity of the site. The Enfield green loop/London Loop is also in the vicinity
- The M25 passes to the north of the site. However, junctions are some distance away (4km east and west)
- Key highways are Theobald Park Road (south and Enfield Town), Whitewebbs Road (east, M25 and Lea Valley), Cattlegate Road (north and Hertfordshire), and The Ridgeway/A1005 (east, south and M25)

In terms of the transport constraints and opportunities of the site, these are summarised in drawings 1870/250/SK009 and SK010 overleaf. These consider PTAL, vehicle connections, rights of way, cycle routes, sustainable transport corridors, topography, watercourses, and various local conditions. These transport constraints and opportunities may inform the proposals for the site moving forward.











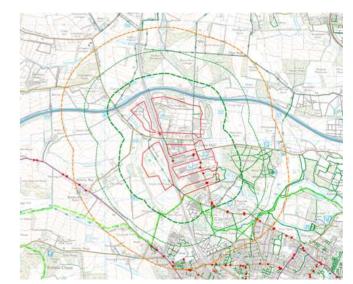
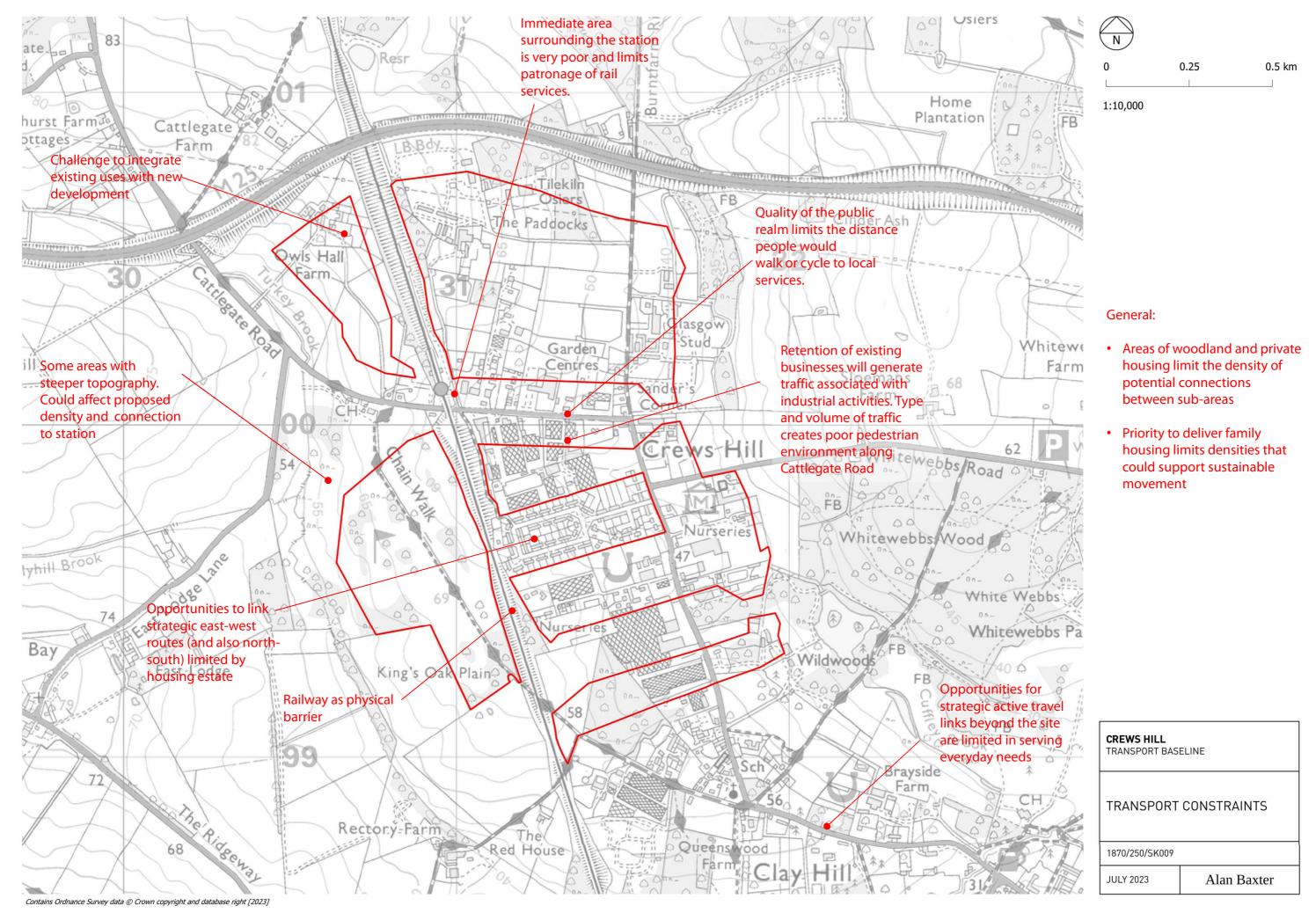
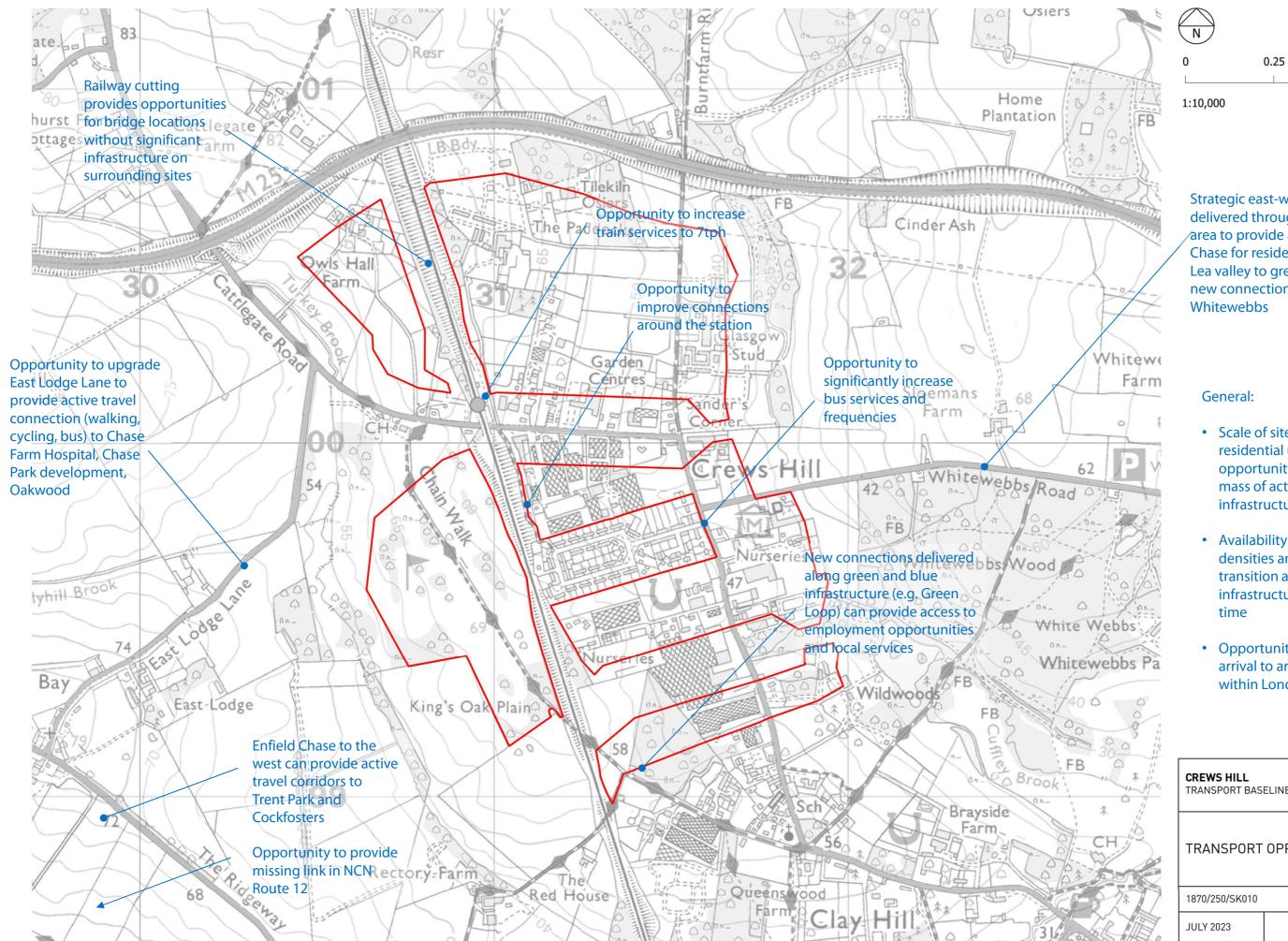


Figure 10-1





Strategic east-west links can be delivered through the study area to provide access to Enfield Chase for residents of the Lea valley to green spaces through new connections through

0.5 km

- Scale of sites and existing nonresidential uses presents opportunity to create critical mass of activity and associated infrastructure
- Availability of sites can enable densities and parking ratios to transition as supporting infrastructure is delivered over time
- Opportunity to create place of arrival to areas of greenery within London's boundaries

CREWS HILL TRANSPORT BASELINE				
TRANSPORT OPPORTUNITIES				
1870/250/SK010				
JULY 2023	Alan Baxter			

1875-250 / Transport Baseline Analysis / October 2023

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Alan Baxter

Prepared by MBr Reviewed by TWm

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75 Cowcross Street
London EC1M 6EL
tel 020 7250 1555
email aba@alanbaxter.co.uk
web alanbaxter.co.uk