

# HIGH SPEED RAIL (LONDON - WEST MIDLANDS)

## Supplementary Environmental Statement 2 and Additional Provision 3 Environmental Statement

Volume 5 | Technical appendices  
Transport Assessment  
TR-001-000 (Part 1 of 2)

September 2015

SES2 and AP3 ES 3.5.2.1



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## Department for Transport

High Speed Two (HS2) Limited has been tasked by the Department for Transport (DfT) with managing the delivery of a new national high speed rail network. It is a non-departmental public body wholly owned by the DfT.

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# 1 Introduction

## 1.1 Background

1.1.1 The Bill for High Speed Rail between London and the West Midlands was submitted to Parliament together with the main Environmental Statement (ES) in November 2013. The Additional Provision 1 Environmental Statement (AP1), which was submitted in September 2014, contained generally minor amendments to the design of the original scheme (i.e. the scheme submitted in November 2013) and included no changes in Community Forum Areas (CFA) in London (CFA1-6).

1.1.2 The Supplementary Environmental Statement (SES) and Additional Provision 2 Environmental Statement (AP2) was submitted in July 2015, containing route-wide amendments to the design of the original and AP1 scheme. This included changes in CFA4 and 5 but did not consider operations effect in either CFA in relation to Traffic and transport. The Bill and associated Additional Provisions to the Bill, if enacted by Parliament, will provide the powers to construct, operate and maintain Phase One of HS2.

1.1.3 Since the submission of the main ES, AP1 ES and AP2 ES, a number of changes or updates to environmental information and scheme design or assumptions have occurred.

1.1.4 In order to differentiate between the original proposals and subsequent changes, the following terms are used:

- 'the original scheme' - the Bill scheme submitted to Parliament in November 2013, which was assessed in the main ES;
- 'the AP1 revised scheme' - the original scheme as amended by AP1 submitted in September 2014;
- 'the SES scheme' - the original scheme with the design changes described in the SES submitted in July 2015;
- 'the AP2 revised scheme' - the SES scheme as amended by AP2 submitted in July 2015;
- 'the SES2 scheme' - the original scheme as updated by the SES scheme, with the design changes described in this SES2; and
- 'the AP3 revised scheme' - the SES2 scheme as amended by this AP.

1.1.5 This Transport Assessment (TA) addendum summarises primarily changes to the TA previously reported in the main ES and in the SES and AP2 ES (Volume 5 Appendix, Transport Assessment, TR-001-000) as a result of the SES2 and AP3 revised scheme. In CFA4 and CFA5, much of the construction sections together with updated baselines from the main TA were previously replaced. This TA addendum includes updates to:

- the regional assessment methodology;
- baseline and baseline surveys; and

- the assessment of impacts in each CFA between Euston Station and Approach (CFA<sub>1</sub>) and Northolt Corridor (CFA<sub>5</sub>) as a result of the AP2 revised scheme, and other changes and corrections.

1.1.6 Unless otherwise stated, where text, tables or figures are not discussed they are unchanged from the main TA.

1.1.7 Where not specifically stated all paragraph, table and figure references are references to the main TA in Volume 5 Appendix: Transport Assessment (TR-001-000) of the main ES.

## 2 Baseline

### 2.1 Introduction

2.1.1 The changes as a result of the revised scheme have required updated transport modelling. Since the main TA, Transport for London (TfL) has developed updated models (discussed in section 3) and these have been used in the assessment of the revised scheme. As a result, additional surveys have been undertaken in certain locations and revised model outputs have been provided.

2.1.2 Therefore section 2.2 replaces section 5.3 of the main TA (TR-001-000) in its entirety.

### 2.2 Euston Station and Approach (CFA1)

#### Study area

2.2.1 This section provides an overview of the baseline traffic and transport conditions for the section of the revised scheme that passes through CFA1.

2.2.2 It describes the transport infrastructure which will be affected either by the construction of the revised scheme, or by the operation of the revised scheme. For this area, the baseline conditions relate to the transport network affected by construction of the proposed extension to Euston station, the rail corridor and the operational impacts of the proposed station.

2.2.3 The scope of work and study area has been discussed with the transport authorities including London Borough of Camden (LBC) and TfL.

2.2.4 The immediately adjacent road network study area includes the A501 Euston Road, A4200 Eversholt Street, A400 Hampstead Road and A4200 Upper Woburn Place, among other local routes.

#### Local land uses

2.2.5 The proposed route alignment within the study area passes through an urban area. The proposed extension to Euston station is located on land that predominately comprises residential use classes. The existing approach to the station is land owned by Network Rail.

#### Surveys

2.2.6 Transport surveys were undertaken in June 2012, September 2012, October 2012 and June 2014. The survey locations are shown in the main TA Annex B(i) Euston baseline survey report, as well as the supplementary Euston baseline survey report in SES2 and AP3 TA Annex B(i).

#### *Traffic surveys*

2.2.7 The traffic surveys comprised the following:

- manual classified counts (MCC) at highway junctions – surveys were undertaken on a weekday between 07:00 to 10:00 and 16:00 to 19:00, as well as on a Saturday between 08:00 and 16:00.



- queue length surveys and degree of saturation measurements at signal controlled junctions – surveys were undertaken for the same time periods as the MCC.
- traffic signal surveys including staging, green times, intergreens and cycle times at signal controlled junctions. Surveys were undertaken for the same time periods as the MCCs.
- automatic traffic counts (ATC) on highway links across the study area. Wherever possible, ATC data was gathered for a continuous two week period to coincide with the date of the MCC;
- journey time surveys on key routes and sections of the highway network. Journey times were recorded from 07:00 to 10:00 and from 16:00 to 19:00 on a weekday, as well as between 08:00 and 16:00 on a Saturday.
- vehicle origin and destination (OD) survey. Surveys captured strategic flows entering and exiting the network study area. All lanes were surveyed at the origin and destination locations using automatic number plate recognition (ANPR) cameras.

2.2.8 The traffic survey data showed that for the study area, the weekday AM peak hour on the highway network was from 08:00 to 09:00 and the PM peak hour was from 17:00 to 18:00.

#### *Non-motorised user surveys*

2.2.9 Non-motorised user surveys were undertaken in August and September 2012 to establish the usage of roads and footways, assumed for this assessment to be Public Right of Way (PRoW), used by pedestrian and cyclists in the area of the route. The surveys included pedestrian counts at a number of locations in the vicinity of Euston station and its surrounds. The surveys were carried out on a weekday for a 12-hour period between 07:00 and 19:00.

2.2.10 The surveys captured the number of passengers entering or exiting the station with a bicycle and whether the bicycle was folded, capable of being folded or not capable of being folded.

2.2.11 Cycle parking accumulation surveys were conducted at the parking facilities provided at Euston station and at a number of Cycle Hire docking stations within the vicinity of the station. The station surveys included cycle parking accumulation data recorded at the following locations:

- cycle parking located at the west side of the Euston station plaza near the ticket office and 40 Melton Street;
- cycle parking located on the south side of the station forecourt in an 'L' shape around Nandos; and
- cycle parking located within the east side of the Euston station forecourt near Marks & Spencer and William Hill.

### *Station surveys*

- 2.2.12 Euston station surveys were carried out on a weekday between 07:00 to 10:00 and 16:00 to 19:00 and between 08:00 and 16:00 on a Saturday. The surveys included:
- parking accumulation surveys at the long stay station car park;
  - basement taxi facility survey, including:
    - taxi vehicle queue survey;
    - taxi passenger queue survey; and
    - taxi and private vehicle occupancy counts.
  - bus surveys at Euston bus station and surrounding streets. The data recorded included:
    - bus boarding and alighting surveys at Euston bus station;
    - the route number and the arrival and departure time of each bus at Euston bus station;
    - the approximate bus occupancy of each bus at Euston bus station; and
    - buses stopping on A4200 Eversholt Street, A501 Euston Road, A4200 Upper Woburn Place and A400 Hampstead Road.
  - pedestrian counts (both directions) inside and at the entrances to the station. The surveys were carried out on a weekday between 07:00 and 10:00. The following locations were surveyed:
    - station entrances from Euston Square, Melton Street, A4200 Eversholt Street and through retail (M&S);
    - London Underground (LU) entrance to the station;
    - entrance to the station from the taxi drop-off/car park area;
    - all platforms; and
    - the concourse, ticket offices and at retail units.
  - interview surveys carried out on a weekday between 07:00 to 10:00 and 16:00 to 19:00 and between 08:00 and 16:00 on a Saturday. The interview surveys were undertaken at the following locations:
    - all entrances to the station including the taxi drop-off/car park and the LU entrance ;
    - the concourse; and
    - the ticket office.
- 2.2.13 The interview surveys obtained the following journey information:
- journey origin (street name/postcode);
  - journey destination (street name/postcode);

- purpose of journey (home, work, education, shopping, leisure etc.);
- frequency of journey; and
- mode of transport to and from the station.

## Public transport

- 2.2.14 The area in the vicinity of Euston station is well served by public transport, with rail (via Euston station), LU services (via Euston and Euston Square LU stations) and many bus routes operating in the area.
- 2.2.15 The Public Transport Accessibility Level (PTAL) rating for Euston station has been calculated using TfL’s approved PTAL methodology. The PTAL calculation assumes a walk speed of 4.8kph and considers rail stations within a 12 minute walk (960m) of the site and bus stops within an eight minute walk (640m) accessible.
- 2.2.16 Using this methodology the PTAL is 6b or ‘excellent’ (1a is the lowest accessibility rating and 6b is the highest). The PTAL has been measured from the centre of the site.
- 2.2.17 The following sections describe the rail, LU and bus services in the area.

## Rail network

- 2.2.18 Euston station is the southern terminus of the West Coast Main Line (WCML) and the main rail gateway from London to the West Midlands, the North West, North Wales and parts of Scotland. The long-distance destinations with the most demand are Birmingham, Manchester, Liverpool and Glasgow. It also serves urban areas in the north-west of London out to Watford, as well as commuter destinations such as Tring, Milton Keynes and Hemel Hempstead.
- 2.2.19 Existing (2012) passenger demand for national rail services at Euston station shows that 24,680 passengers alight from national rail services in the AM peak period (07:00 to 10:00), with 11,580 of those in the peak hour (08:00 to 09:00). A similar number of passengers return to rail services in the PM peak period (16:00 to 19:00), although the PM peak hour (18:00 to 19:00) volume (9,030) is lower than the AM peak hour. This is due to passenger demand being more evenly spread across the PM peak period. The PM peak period total number of passengers is just under 24,000.
- 2.2.20 A description of the train services and frequencies at which they operate is provided in Table 1.

Table 1: Euston station train services and frequencies (as of 2014)

| TOC   | Route description   | Frequency (trains per hour) |
|---|---|-----------------------------|
| Virgin Trains (platforms 1 to 7 and 12 to 18) | Euston station to Birmingham New Street (with at least 1 tph extended to Wolverhampton) | 3 tph                       |
|   | Euston station to Manchester Piccadilly (2 tph via Stoke-on-Trent and 1 tph via Crewe)  | 3 tph                       |
|   | Euston station to Liverpool Lime Street via Stafford                                    | 1 tph                       |

| TOC   | Route description   | Frequency (trains per hour) |
|---|---|-----------------------------|
|   | Euston station to Chester, with some extended to the North Wales Coast Line to Bangor and Holyhead for the connecting ferries to Dún Laoghaire and Dublin Port, or Wrexham General, all via Crewe | 1 tph                       |
|   | Euston station to Glasgow Central   | 1 tph                       |
| London Midland (platforms 8 to 11, 12 to 15 and 17) | Euston station to Tring   | 3 tph                       |
|   | Euston station to Milton Keynes Central   | 4 tph                       |
|   | Euston station to Northampton   | 3 tph                       |
|   | Euston station to Birmingham New Street via Northampton   | 1 tph                       |
|   | Euston station to Crewe via Northampton   | 1 tph                       |
| First ScotRail                                      | Euston station to Aberdeen via Kirkcaldy and Dundee, Fort William via Dalmeir and Inverness via Stirling and Perth.   | 1 train per day             |
|   | Euston station to Lowland sleeper service to Glasgow Central and Edinburgh Waverley via Carlisle.   | 1 train per day             |
| London Overground (platform 9)                      | Euston station to Watford Junction via local stations in north-west London  | 3 tph                       |

2.2.21 The majority of Euston station is not currently equipped with automatic ticket gates; the exception to this are platforms eight to eleven, currently used by London Overground and London Midland services, which are gated. Revenue protection at the station is therefore provided by a combination of methods, including on-train checks and manual ticket checks on entry to the platform in addition to the gates on platforms 8 to 11.

2.2.22 Euston station currently experiences a range of congestion issues. Analysis of the PM peak identifies capacity in the rail concourse as being the area of weakest performance. This has been previously identified in NR's 'Network RUS – Stations' (August 2011). The RUS also identifies that the operation of this area requires management and control by station staff.

### *London underground*

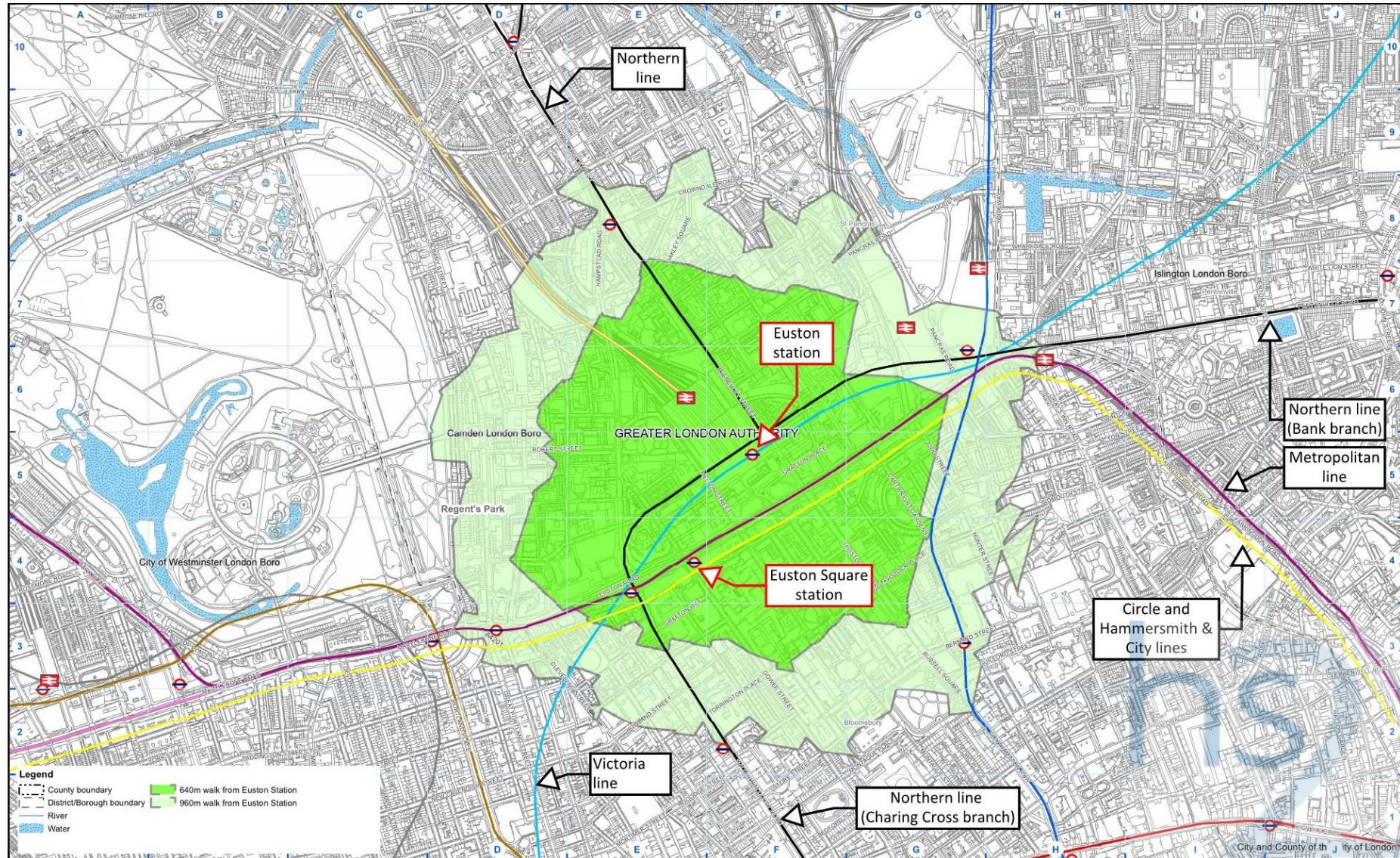
2.2.23 Euston LU station is served by the Victoria line and Northern lines (Bank and Charing Cross branches). The local rail network is shown in Figure 1.

2.2.24 The main entrance to the LU station is from within the National Rail concourse and there is secondary access via an underground footway from the mainline platforms eight to eleven. Euston underground station does not have access external to the National Rail station.

- 2.2.25 The surface-level pedestrian movements outside the station link with the Circle, Hammersmith & City and Metropolitan underground services at Euston Square LU station. These pedestrians have to cross-at-grade at a busy crossing at the signalised junction of Melton Street and A501 Euston Road.

# SES2 and AP3 ES Appendix TR-001-000 | Baseline conditions (CFA1)

Figure 1: LU services from Euston and walking distance (640m and 960m) from Euston station



2.2.26 LU services at Euston station are shown in Figure 1. There are services every two to three minutes in the AM peak period (i.e. 20 to 30 trains per hour) on the Victoria line and both branches of the Northern line. Details shown in Table 2.

Table 2: LU services and frequencies at Euston station (from 2014)

| Line/direction                     | Number of trains                |                               |
|------------------------------------|---------------------------------|-------------------------------|
|                                    | AM peak period (07:00 to 10:00) | AM peak hour (08:00 to 09:00) |
| Victoria SB                        | 100                             | 35                            |
| Victoria NB                        | 93                              | 33                            |
| Northern (Charing Cross branch) SB | 65                              | 24                            |
| Northern (Charing Cross branch) NB | 62                              | 21                            |
| Northern (Bank branch) SB          | 65                              | 23                            |
| Northern (Bank branch) NB          | 69                              | 24                            |

2.2.27 TfL’s 2011 Railplan model was used to identify crowding levels on LU. Analysis shows that some LU lines experience crowding levels above four passengers per square metre (PPSM) which is what TfL generally consider to be the limit of what is tolerable. The AM peak crowding levels in the baseline situation were identified at:

- approximately 4 PPSM on the southbound Northern line (Bank branch) between Euston and King's Cross St. Pancras increasing to over five PPSM between King's Cross St. Pancras and Old Street;
- over 5 PPSM on the southbound Victoria line between Highbury & Islington and Oxford Circus;
- just over 3 PPSM on the Northern line (Charing Cross branch) between Camden Town and Warren Street; and
- approximately 2 PPSM on the Circle, Hammersmith & City and Metropolitan lines between Great Portland Street and King's Cross St. Pancras.

2.2.28 Therefore, whilst the Northern line Bank branch and Victoria lines are very crowded and at levels that are above the limit that TfL consider tolerable, there is spare capacity on the Northern line Charing Cross branch and, in particular, on the Circle, Hammersmith & City and Metropolitan lines to and from Euston Square.

### *Local bus services*

2.2.29 The local bus network, as well as the bus stops which serve Euston station, are shown in Figure 2. Information on bus routes and frequencies was obtained from TfL in September 2013.

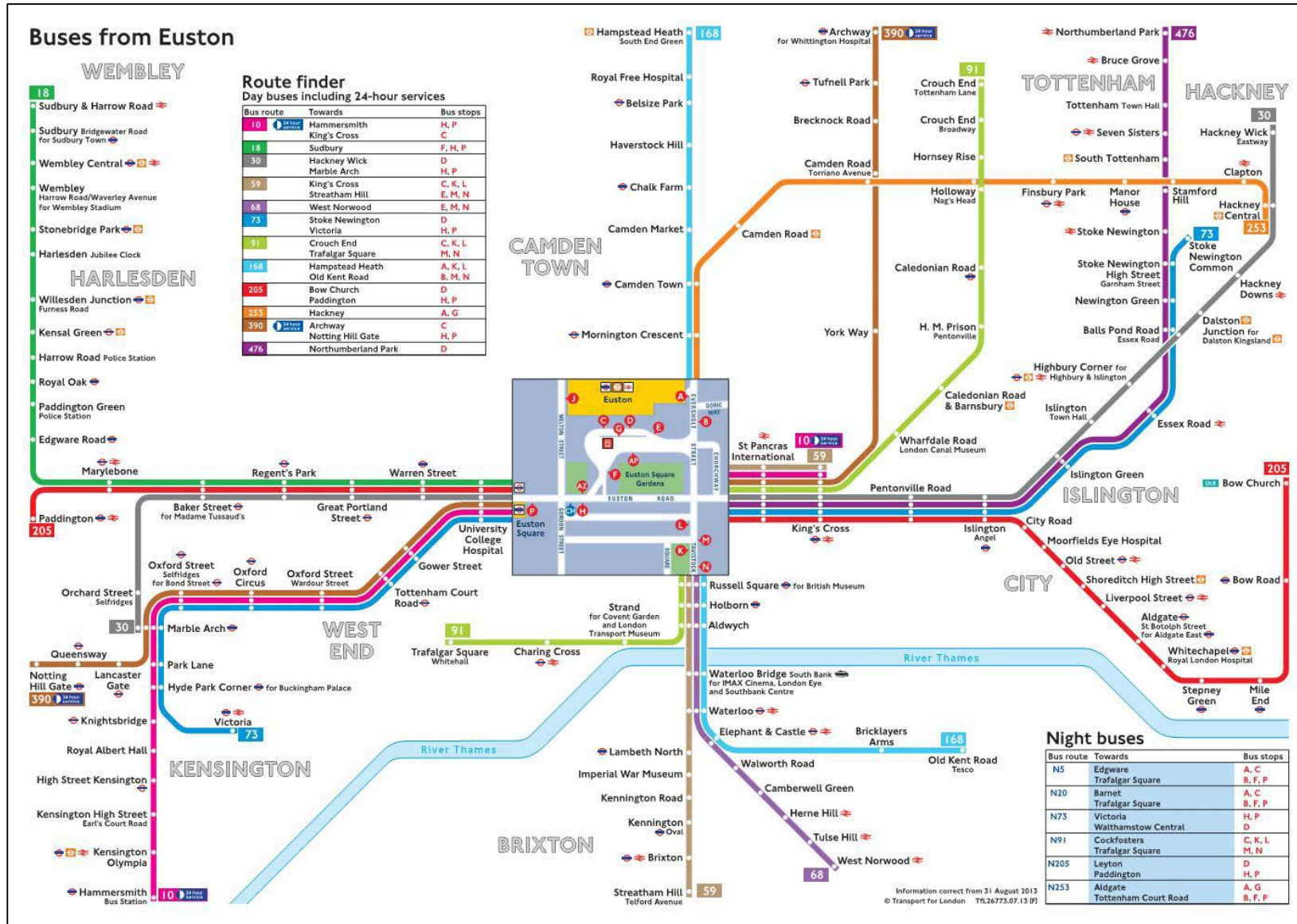
2.2.30 The bus routes which serve Euston station can be divided into four groups:

- five west to east through bus routes, which run along A501 Euston Road;

- one north to south through bus route, which runs along A4200 Eversholt Street/A4200 Upper Woburn Place;
- two south to east through bus routes, which run from A4200 Upper Woburn Place in the south to A501 Euston Road in the east and vice versa; and
- four terminating bus routes, which terminate at Euston bus station and follow the routing of the through bus routes but with the terminating bus stops located in Euston bus station.



Figure 2: Bus routes that serve Euston station and surrounds



Source: Transport for London

### North to south through bus route

2.2.31 Table 3 describes the north to south through bus route, which runs northbound and southbound along A4200 Eversholt Street. It is supplemented by two terminating bus routes (routes 68 and 253), as described in Table 5. The one north to south through bus route does not serve Euston bus station when running northbound or southbound and instead stops on A4200 Eversholt Street and A4200 Upper Woburn Place.

Table 3: Euston - north to south through bus route

| Bus route | Direction                           | Frequency in AM peak hour | Bus stops served   | Bus station served |
|-----------|-------------------------------------|---------------------------|--|--------------------|
| 168       | Northbound towards Hampstead Heath  | 9 bph                     | A4200 Upper Woburn Place stop L<br>A4200 Eversholt Street stop A | No                 |
| 168       | Southbound towards A2 Old Kent Road | 9 bph                     | A4200 Eversholt Street stop B<br>A4200 Upper Woburn Place stop M | No                 |

### South to east through bus routes

2.2.32 Table 4 describes the two south to east through bus routes, which run from A4200 Upper Woburn Place in the south to A501 Euston Road in the east and vice versa. The two south to east through bus routes both serve Euston bus station when running eastbound, but only one of the two routes serves Euston bus station when running southbound, while the other route stops on A4200 Upper Woburn Place only.

Table 4: Euston - south to east through routes

| Bus route | Direction                           | Frequency in AM peak hour | Bus stops served                                      | Bus station served |
|-----------|-------------------------------------|---------------------------|---|--------------------|
| 59        | Southbound towards Streatham Hill   | 9 bph                     | Bus station stop D<br>A4200 Upper Woburn Place stop M | Yes                |
| 91        | Southbound towards Trafalgar Square | 9 bph                     | Upper Woburn Place stop M                             | No                 |
| 59        | Eastbound towards King's Cross      | 9 bph                     | A4200 Upper Woburn Place stop L<br>Bus Station stop C | Yes                |
| 91        | Eastbound towards Crouch End        | 9 bph                     | A4200 Upper Woburn Place stop L<br>Bus Station stop C | Yes                |

### Terminating bus routes

2.2.33 Table 5 describes the four bus routes that terminate at Euston bus station.

Table 5: Euston station - terminating bus routes

| Bus route | Direction                             | Frequency in AM peak hour | Bus stops served                                       | Bus station served |
|-----------|---------------------------------------|---------------------------|--|--------------------|
| 18        | Westbound towards Sudbury Swan        | 20 bph                    | Bus Station stop F<br>A501 Euston Road stop H          | Yes                |
| 68        | Southbound towards West Norwood       | 9 bph                     | Bus Station stop E<br>A4200 Upper Woburn Place stop M  | Yes                |
| 253       | Northbound towards Hackney            | 12 bph                    | Bus Station stop AG<br>A4200 Eversholt Street stop A   | Yes                |
| 476       | Eastbound towards Northumberland Park | 7.5 bph                   | Bus Station stop D                                     | Yes                |
| 18        | Eastbound terminating at Euston       | 20 bph                    | A501 Euston Road stop AZ                               | Yes (pick-up only) |
| 68        | Northbound terminating at Euston      | 9 bph                     | A4200 Upper Woburn Place stop L<br>Bus Station stop AP | Yes                |
| 253       | Southbound terminating at Euston      | 12 bph                    | A4200 Eversholt Street stop B<br>Bus Station stop AP   | Yes                |
| 476       | Westbound terminating at Euston       | 7.5 bph                   | Bus Station stop AP                                    | Yes                |

### A400 Hampstead Road bus routes

2.2.34 The northwest corner of the existing Euston station is approximately 100m from A400 Hampstead Road. The existing concourse is at the southern end of the station, which is 300m east of A400 Hampstead Road. Table 6 describes the five through bus routes that run along A400 Hampstead Road, with a total frequency of 49 bph in each direction.

Table 6: Euston - A400 Hampstead Road through bus routes

| Bus route | Direction                          | Frequency in AM peak hour | Bus stops served      | Bus station served |
|-----------|------------------------------------|---------------------------|-----------------------|--------------------|
| 24        | Northbound towards Hampstead Heath | 10                        | Hampstead Road stop S | No                 |
| 27        | Northbound towards Chalk Farm      | 8                         | Hampstead Road stop T | No                 |
| 29        | Northbound towards Wood Green      | 12                        | Hampstead Road stop S | No                 |
| 88        | Northbound towards Camden Town     | 8                         | Hampstead Road stop T | No                 |
| 134       | Northbound towards North Finchley  | 12                        | Hampstead Road stop T | No                 |

| Bus route | Direction                               | Frequency in AM peak hour | Bus stops served      | Bus station served |
|-----------|---|---------------------------|-----------------------|--------------------|
| 24        | Southbound towards Pimlico              | 10                        | Hampstead Road stop R | No                 |
| 27        | Southbound towards Turnham Green        | 8                         | Hampstead Road stop U | No                 |
| 29        | Southbound towards Trafalgar Square     | 12                        | Hampstead Road stop R | No                 |
| 88        | Southbound towards Clapham Common       | 8                         | Hampstead Road stop U | No                 |
| 134       | Southbound towards Tottenham Court Road | 12                        | Hampstead Road stop R | No                 |

### Bus demand

2.2.35 Surveys of passengers boarding or alighting from buses in the Euston area were undertaken on Thursday 21 June 2012 and Saturday 23 June 2012. The number of bus boarders and alighters in the Euston station area and on bus routes in the A400 Hampstead Road area, as derived from the 2012 surveys, are described in Table 7. The Euston station area includes:

- all bus stops in Euston bus station;
- A501 Euston Road westbound stop H and eastbound terminating stop AZ;
- A4200 Eversholt Street northbound stop A and southbound stop B; and
- A4200 Upper Woburn Place northbound stop L and southbound stop M.

2.2.36 The A400 Hampstead Road area includes:

- A400 Hampstead Road 'Robert Street' northbound stop J and southbound stop K; and
- A400 Hampstead Road 'Silverdale' northbound stop B and southbound stop W.

2.2.37 The survey results for the Saturday were lower than the weekday, therefore the TA and design work has been based on weekday demand.

Table 7: Euston - 2012 baseline weekday bus boarding and alighting demand

| Location                 | AM peak period (07:00 to 10:00) |           |       | PM peak period (16:00 to 19:00) |           |       |
|--------------------------|---------------------------------|-----------|-------|---------------------------------|-----------|-------|
|                          | Boarders                        | Alighters | Total | Boarders                        | Alighters | Total |
| Euston station area      | 3,315                           | 2,330     | 5,645 | 4,060                           | 3,205     | 7,265 |
| A400 Hampstead Road area | 690                             | 540       | 1,230 | 685                             | 645       | 1,325 |

2.2.38 Survey data shows that buses are well used by passengers in the Euston area, particularly during the AM and PM peak periods. TfL London Buses are able to increase or decrease bus frequencies to match passenger demand. There are instances of buses operating with spare capacity, but this is often vehicles that are just starting or finishing their route and will have higher passenger loads elsewhere on their route. Bus routes 18, 68, 253 and 476 are examples of routes which start at

Euston and play an important role in providing bus capacity that is available to passengers exiting the station.

### *Coach services*

- 2.2.39 On A501 Euston Road, 'Euston station' westbound bus stop H also serves as coach stop CH and is marked by an additional flag and timetable. 'Euston station' eastbound bus stop AZ also serves as a coach stop. These coach stops are used by Green Line commuter coach 748 (one coach per day) and The Original Tour (three tour buses per day).
- 2.2.40 There is one existing coach bay on the west side of the railway station on Cardington Street, opposite the Hotel Ibis.
- 2.2.41 In addition, during disruption to train services, rail replacement coach services enter Euston station via a ramp from Barnby Street and stop in the wide space on platforms 2 and 3.

### **Pedestrians, cyclists and equestrians**

- 2.2.42 Euston station and the surrounding area is adequately served by pedestrian and cycle facilities, as is typical of an urban area. The following sections identify the pedestrian and cycle facilities within the study area.

### *Pedestrian flows.*

- 2.2.43 Table 8 lists the survey locations and routes captured through the footway surveys. The pedestrian flows are also shown. The results identify the full bi-directional pedestrian movements at each location.

Table 8: Summary of 12-hour footways flows entering junction / link (2012)

| Site Description   | North  | East  | South | West |
|--|--------|-------|-------|------|
| Granby Terrace/Stanhope Street/Park Village East             | 575    | 435   | 444   | n/a  |
| Granby Terrace/A400 Hampstead Road                           | 2,027  | n/a   | 1,483 | 647  |
| Harrington Street  | 355    | n/a   | 430   | n/a  |
| A400 Hampstead Road/A400 Hampstead Road                      | 1,142  | 117   | 849   | n/a  |
| Hampstead Gardens public footpath                            | 166    | 89    | 76    | 202  |
| St. James's Gardens public footpath (near Cardington Street) | 6      | 7     | 42    | 62   |
| Drummond Street/Cobourg Street                               | 270    | 1,080 | 261   | 852  |
| Stephenson Way   | 646    | n/a   | n/a   | 512  |
| Euston Square Gardens (near Melton Street)                   | 10,126 | n/a   | 8,970 | n/a  |
| Euston Square Gardens (near Eversholt Street)                | 971    | n/a   | 268   | n/a  |

| Site Description                               | North | East  | South | West  |
|--|-------|-------|-------|-------|
| Euston bus station/A501 Euston Road            | 1,538 | 1,189 | 407   | 1,328 |
| Euston station frontage/A4200 Eversholt Street | 1,277 | n/a   | 1,443 | n/a   |
| Varndell Street                                | n/a   | 330   | n/a   | 614   |
| Mornington Street/Park Village East            | 416   | 358   | 407   | n/a   |
| Park Village East                              | 225   | n/a   | 300   | n/a   |
| Starcross Street                               | 132   | n/a   | 435   | 288   |
| Mornington Street/Mornington Terrace           | 54    | 87    | 60    | 72    |

### *Pedestrian facilities*

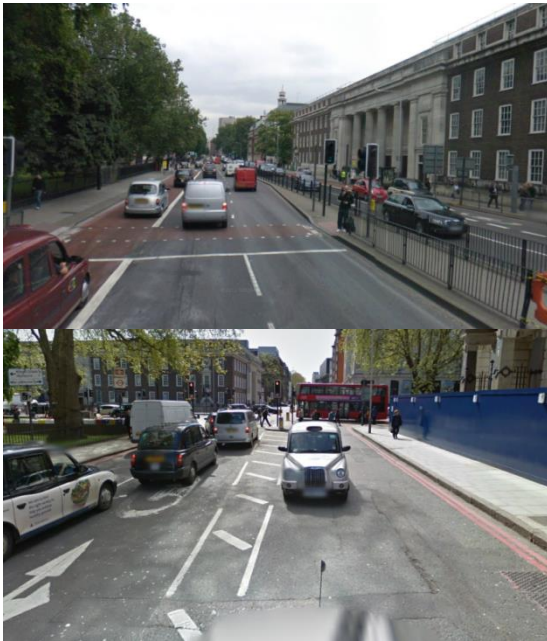
- 2.2.44 Euston station is a major terminus for commuters and travellers to and from central London. The major trip generators are located to the south, while smaller trip generators include local retailers, business uses and private housing to the east and west. St. Pancras International station, located approximately 500m to the east of Euston station along Phoenix Road, is also a trip generator for Euston.
- 2.2.45 Roads adjacent to the station include Euston Road (south), Melton Street (west) and Eversholt Street (east). Other access streets that connect Euston station to the peripheral pedestrian network include Euston Street and Drummond Street. These streets have an east-west road alignment and intersect with Euston station on its western face.
- 2.2.46 Figure 3 and Figure 4 show the existing road and pedestrian network in the vicinity of Euston station.

Figure 3: Existing road and pedestrian network in vicinity of Euston station



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Figure 4: Euston - photographs showing footways along some of the local streets



A501 Euston Road (looking east)

Six lane, major road with bus lanes on each side. Frequent bus stops are provided and, generally, the footways have a clear width of about 3m to 6m on both sides of the road.

Melton Street (looking south)

Two lane, two-way road with parallel parking. Generally, the footway has a clear width of about 3m on the eastern side and 2m on the western side.



A4200 Eversholt Street (looking south)

Four lane, major road south of Grafton Place and two lane, two-way road with a bus lane north of Grafton Place. Generally, the footway has a clear width of 4m on the western side and 3m on the eastern side.



Euston Street (looking east)

Westbound only road. Generally, the footways have a clear width of about 1m on both sides of the road.



Drummond Street (looking east)

Eastbound only road between Cobourg Street and Melton Street. Generally, the footways have a clear width of approximately 3m on the south side and 1m to 2m on the north side. On the north side the footway widens to a clear width of about 3m approaching Melton Street.

### **Pedestrian crossing assessment summary**

- 2.2.47 The aim of a pedestrian crossing comfort assessment is to understand if the infrastructure is comfortable for users in the context of vehicle traffic environment. This determines the level of compliance and the way pedestrians perceive connectivity in the area.
- 2.2.48 The main signalised pedestrian crossings are located at:
- A501 Euston Road junction with Melton Street and Gordon Street;
  - A501 Euston Road junction with bus station entrance;
  - A501 Euston Road junction with A4200 Eversholt Street and A4200 Upper Woburn Place; and
  - A4200 Eversholt Street junction with Grafton Place.
- 2.2.49 The assessment results show that during the existing peak hour, the majority of pedestrians are uncomfortable at crossings with pedestrian comfort level (PCL) results ranging from C+ to E on a scale of A (most comfortable) to E (least comfortable)<sup>1</sup>. Based on these findings, the crossings have a large degree of restricted movement and may lead to some users avoiding certain crossings or crossing during the red phase.

<sup>1</sup> TfL. 2010. Pedestrian Comfort Level Guidance. London: Transport for London.



2.2.50 The crossings which show PCL E include:

- A501 Euston Road junction with A4200 Eversholt Street and A4200 Upper Woburn Place on the east side;
- A501 Euston Road junction with Gordon Street and Melton Street on the east and north sides; and
- the west side of the A4200 Eversholt Street junction with Grafton Place.

2.2.51 At the junction of A501 Euston Road with Melton Street, the busiest crossing is the north side of A501 Euston Road at Melton Street which shows PCL E. Flow rates (in terms of people per metre per minute) are substantially higher than elsewhere and pure static analysis implies that these cannot be physically accommodated given signal times and crossing width.

2.2.52 Further observations and analysis has identified that a considerable number of pedestrians (up to 80%) cross on red signals and use more width than the demarcated crossing area. This is shown in Figure 5. In general, the PM peak results reflect the AM peak with tidal flows.

Figure 5: Pedestrians on A501 Euston Road crossing Melton Street on red signal



### **Pedestrian footway assessment summary**

2.2.53 The purpose of the pedestrian footway comfort assessment is to understand the pedestrian experience as people walk down the street. A number of locations have been assessed to understand the level of comfort and how this may change owing to changes in street furniture or footway width.

2.2.54 The pedestrian comfort assessment for the Euston station area included main footways for:

- A501 Euston Road between North Gower Street and Dukes Road (north and south footways);

- A4200 Eversholt Street between A501 Euston Road and Grafton Place (western footway);
- Melton Street between A501 Euston Road and Drummond Street (eastern footway); and
- Drummond Street between Melton Street and North Gower Street (north and south footways).

2.2.55 An assessment was undertaken for locations where the clear width changed along the footway length. For example, static objects like street furniture and areas where people are waiting, such as bus stops or cafes, all change the available width for pedestrian movement.

2.2.56 Similar to the pedestrian crossing assessment, the PCL ranges from A (most comfortable) to F (least comfortable) and is measured in people per metre minute (ppmm).

2.2.57 Euston is considered a 'Transport Interchange' location, giving a target PCL of C+ (defined as an 'acceptable' level of comfort) for the local streets as set out in the TfL's Pedestrian Comfort Guidance for London<sup>2</sup> guidance document.

2.2.58 The baseline analysis was undertaken using two-way footway pedestrian survey data from the surveys undertaken in June 2014. Based on these flows, the assessment results show the majority of streets in the vicinity of Euston station have footway widths that are comfortable for their users.

2.2.59 The existing locations that are less comfortable for users (with results showing a PCL C- to E) are as follows:

- A501 Euston Road, east of Melton Street: two bus stops on the north and south side;
- Euston Street; and
- Drummond Street.

2.2.60 At all of these locations street furniture or obstructions reduce the effective width for pedestrians to less than minimum requirements recommended by TfL. The TfL calculation methodology automatically provides a score of E (very comfortable) when the minimum width is not achieved. In the case of Euston Street and Drummond Street, additional observations indicate that many pedestrians walk in the road when there are no vehicles suggesting that the PCL would actually be higher in reality than in the theoretical assessment.

### **PERS audit**

2.2.61 A number of Pedestrian Environment Review System (PERS) audits have been undertaken recently in the vicinity of Euston station to audit the pedestrian infrastructure and facilities. The PERS audit undertaken in January 2008 in the vicinity of Euston station by the Transport Research Laboratory (TRL), on behalf of TfL, has

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<sup>2</sup> <https://tfl.gov.uk/cdn/static/cms/documents/pedestrian-comfort-guidance-technical-guide.pdf>

been reviewed. A street audit undertaken by TfL in February 2013 has also been reviewed. The February 2013 audit is not a full PERS audit but rather an update and summary of the same study area around Euston station.

2.2.62 Subsequent to these reviews, a supplementary PERS audit was undertaken by HS2 Ltd to include an additional study area in the vicinity of Euston station. The supplementary PERS audit was undertaken in March 2013 and included the following streets:

- A400 Hampstead Road from A501 Euston Road to A400 Harrington Square;
- A400 Harrington Square/Lidlington Place;
- Granby Terrace overbridge;
- Varndell Street, Robert Street, William Road and Drummond Street all Stanhope Street and A400 Hampstead Road;
- Drummond Street between A400 Hampstead Road and North Gower Street;
- The approaches to Euston Circus along A501 Euston Road and A400 Tottenham Court Road;
- Grafton Way between A400 Tottenham Court Road and A400 Gower Street;
- A400 Gower Street between Gower Place and University Street;
- Gordon Street, Taviton Street, Endsleigh Street and A4200 Upper Woburn Place between Endsleigh Gardens and Endsleigh Square;
- A501 Euston Road between Churchway and Midland Road;
- Ossulston Street between A501 Euston Road and Phoenix Road;
- Chalton Street between A501 Euston Road between A501 Euston Road and Polygon Road;
- Phoenix Road between A4200 Eversholt Street and Midland Road;
- Polygon Road between A4200 Eversholt Street and Chalton Street; and
- A4200 Eversholt Street between Polygon Road and Phoenix Road and between A400 Oakley Square and Aldenham Street.

2.2.63 Based on the study findings the following headline recommendations have been made:

- review the maintenance plan or schedule for pedestrian crossings with high usage;
- review the effective width of the footways on A501 Euston Road and at the southern ends of A400 Hampstead Road and A4200 Eversholt Street, and consider relocating or repositioning bus stops, aligning street furniture correctly and removing unnecessary obstructions;
- review the existing provision and quality of dropped kerbs on minor roads

linking to other minor roads; and

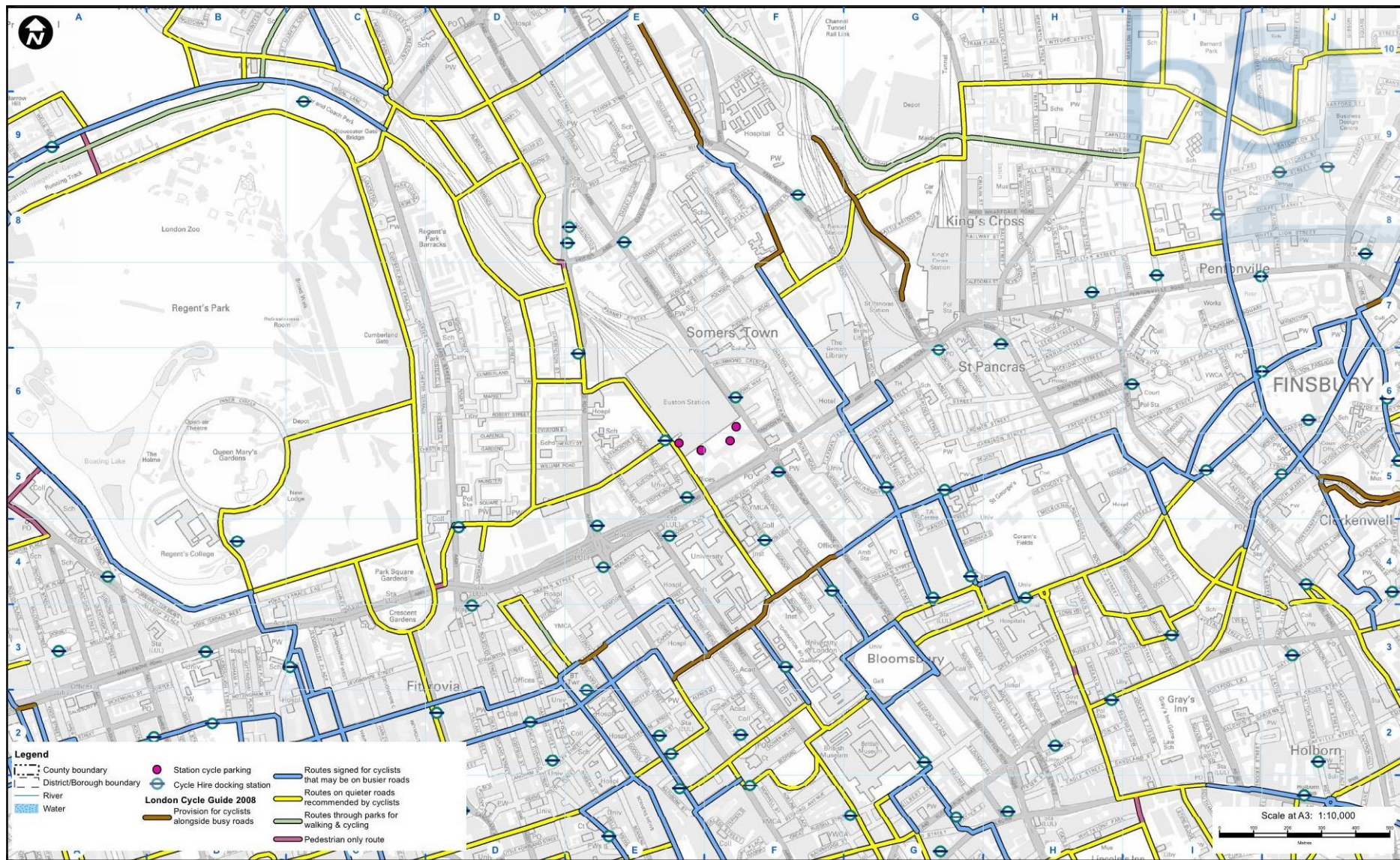
- enhance legibility across the main roads on A501 Euston Road, A400 Hampstead Road and A4200 Eversholt Street to navigate users to the station.

### *Cyclist facilities*

#### **Cycle routes**

- 2.2.64 Figure 6 shows the local cycle network which serves Euston station and is based on information provided by the TfL 'Local Cycling Guides'.
- 2.2.65 A network of cycle routes called the London Cycle Network Plus (LCN+) exists in the London metropolitan area. A number of LCN+ routes use the street network surrounding Euston station, namely:
- LCN+ Route 6a is an 'unsigned route on quieter roads recommended by cyclists' on Cardington Street/Melton Street. This provides a route northward via Varndell Street towards Primrose Hill, or via Hampstead Road towards Camden Town. It also provides a route southward via Gordon Street to Bloomsbury, where it links to an east-west route with 'provision for cyclists adjacent to busy roads' on Torrington Place/Tavistock Place, LCN+ Route o.
  - LCN+ Route o runs east-west and is a two-way cycle track on Torrington Place/Tavistock Place; it also forms part of LCN north-south route 6 which turns northward up Ossulston Street to the east of Euston station.
  - LCN+ route 50 is an 'unsigned route on quieter roads recommended by cyclists' on Drummond Street. This provides a route westward to Regent's Park, where it links to a north-south 'route signed for cyclists that may be on busier roads' on Cornwall Terrace/York Gate, which runs in a north-south direction.
- 2.2.66 Drummond Street is one-way eastbound only, between Cobourg Street and Cardington Street. Short sections of 'unsigned route on quieter roads recommended by cyclists' on Euston Street and Cobourg Street allow cyclists to bypass the one-way section of Drummond Street.
- 2.2.67 There are no signed or recommended routes on Eversholt Street or Euston Road. The nearest signed route eastward is on Torrington Place/Tavistock Place.
- 2.2.68 The existing Euston station and its railway approach form a barrier between the cycle networks west and east of the station.

Figure 6: Local cycle network and facilities



## Cycle parking

- 2.2.69 Figure 6 shows there are four cycle parking areas at the front of the existing Euston station, which use a mixture of Sheffield stand and new, covered two-tier cycle racks.
- 2.2.70 TfL's 'Euston Interchange Study: Final Pre-feasibility Report' (February 2010) states (at paragraph 4.6.4) that "in May 2009 cycle parking provision at Euston doubled to 286 spaces by the inclusion of double decked Josta two-tier racks. These racks were funded by TfL, with NR taking on responsibility for their on-going management and maintenance."
- 2.2.71 Surveys on Saturday 20 and Thursday 25 October 2012, as well as additional observations in 2015, found that the actual cycle parking provision at Euston station is 310 spaces:
- 60 cycle parking spaces provided using Sheffield stand 'toast racks' on the west side of Euston station piazza near the ticket office, Sainsbury's supermarket and 40 Melton Street;
  - 124 cycle parking spaces provided using Josta two tier racks (88 spaces) and Sheffield stand 'toastracks' (36 spaces) near the centre of Euston station piazza in an 'L' shape around Nandos; and
  - 50 cycle parking spaces provided using Josta two tier racks on the east side of Euston station piazza near Marks & Spencer and William Hill/One Eversholt Street; and
  - 76 cycle parking spaces using Josta two tier racks also available close to the Melton Street entrance on the west side of the station.

## Local cycle hire provision

- 2.2.72 Figure 6 shows existing Cycle Hire docking stations in the Euston area. The eleven docking stations in the local and wider Euston station area are described in Table 9 and total some 302 cycles. The docking stations in the direct vicinity of the station provide 143 Cycle Hire docking stations.

Table 9: Cycle hire docking stations

| Location                                 | Number of Spaces |
|--|------------------|
| <b>Direct vicinity of Euston station</b> |                  |
| Drummond Street , Euston                 | 27               |
| Doric Way, Somers Town                   | 28               |
| A501 Euston Road, Euston                 | 24               |
| Endsleigh Gardens, Euston                | 32               |
| A400 Hampstead Road (Cartmel), Euston    | 16               |
| A400 Gower Place, Euston                 | 16               |

| Location                            | Number of Spaces |
|-------------------------------------|------------------|
| Total                               | 143              |
| <b>Wider local area</b>             |                  |
| A400 Hampstead Road, Euston         | 51               |
| A4200 Eversholt Street, Camden Town | 16               |
| Taviton Street, Bloomsbury          | 28               |
| Harrington Square, Camden Town      | 27               |
| Harrington Square 2, Camden Town    | 37               |
| Total                               | 159              |

### *Equestrian facilities*

2.2.73 There are no equestrian facilities in the local area.

## **Parking and loading**

### *Public parking at Euston station*

2.2.74 Within Euston station there are 217 public car parking spaces available in an underground parking facility. The parking accumulation survey on June 26 2012 recorded observed a low parking utilisation with an average of just under 50% of spaces occupied during the survey. The parking provision is shown in Table 10.

Table 10: Existing Euston station public parking provision

| Parking type/user    | Number of parking spaces |
|----------------------|--------------------------|
| Blue badge parking   | 4                        |
| Public parking       | 213                      |
| Total public parking | 217                      |

### *Car hire company*

2.2.75 In discussions with station facilities staff, it was indicated that in the past the station car park used to be full every day but demand has reduced recently. Subsequently, the car park operator has leased part of the underground car park to a car hire company. Currently a car hire firm leases the first floor of the underground car park which is estimated at 45 spaces. These spaces are marked specifically for use by the car hire company only and are additional to the 217 public parking spaces provided.

## Operational parking

- 2.2.76 Within Euston station there are an estimated 326 operational parking spaces<sup>3</sup>. These spaces are provided for various services and functions. An estimated breakdown of the car parking numbers by user is provided below in Table 11. During site observations, only a small proportion of the available spaces were observed to be use.

Table 11: Existing Euston station operational parking provision

| Parking type/user               | Approximate number of parking spaces |
|---------------------------------|--------------------------------------|
| TOCs                            | 100                                  |
| Other service companies         | 200                                  |
| Special event                   | 20                                   |
| Mobility impaired staff parking | 0                                    |
| Total operational <sup>4</sup>  | 320                                  |

### Train Operating Companies (TOC)

- 2.2.77 It is understood that, currently, legal agreements exist with each of the TOCs and include a provision for a number of on-site parking spaces. It is understood that these parking spaces are used by staff members mainly outside of the peak hours.

### British Transport Police

- 2.2.78 British Transport Police (BTP) currently has around six parking spaces for use at Euston station. It is understood that, on occasion, BTP request the use of a larger number of spaces for certain policing events in the area.

### Other rail service companies

- 2.2.79 Within Euston station, several rail-related businesses currently operate, including rail food services, rail engineering companies and station facility services companies.
- 2.2.80 These companies currently have access to parking for their employees.

### Event parking

- 2.2.81 In discussions with station management staff, additional special event parking can be provided at the end of platform 18. This space is sometimes used for special events (e.g. a special train service), or used as overflow for the BTP as mentioned above.

### Mobility impaired staff parking

- 2.2.82 Currently there are no dedicated parking bays for mobility impaired staff parking within Euston station. Due to the over provision of parking on site, this is unlikely to create a problem and spaces should be available.

<sup>3</sup> Estimate based on September 2012 site visit records.

<sup>4</sup> The total parking includes parking for the British Transport Police



### **Public on-street parking**

- 2.2.83 Table 12 shows the parking facilities available on a number of roads within the vicinity of the station. The number of parking spaces provided for each location is an approximation based upon site visit observations, as each vehicle space may not be individually marked.

SES2 and AP3 ES Appendix TR-001-000 | Baseline conditions (CFA1)

Table 12: On-street parking locations

| Location   | Permit holder | Resident permit holder | Pay and display | Resident permit holder / pay and display | Disabled | Motorcycle | Car club | Coach | Taxi | Loading | Doctor |
|--|---------------|------------------------|-----------------|--|----------|------------|----------|-------|------|---------|--------|
| Robert Street (east of junction with Stanhope Street)                                  | 0             | 9                      | 14              | 0  | 0        | 0          | 0        | 0     | 0    | 0       | 0      |
| Robert Street (west of junction with Stanhope Street)                                  | 0             | 16                     | 18              | 0  | 1        | 0          | 0        | 0     | 0    | 0       | 0      |
| Stanhope Street (north of junction with Robert Street)                                 | 0             | 20                     | 4               | 0  | 1        | 0          | 0        | 0     | 0    | 0       | 0      |
| Mackworth Street   | 0             | 16                     | 0               | 0  | 0        | 0          | 0        | 0     | 0    | 0       | 0      |
| Varndell Street (between Augustus Street and A400 Hampstead Road)                      | 0             | 25                     | 7               | 0  | 1        | 0          | 0        | 0     | 0    | 0       | 0      |
| Harrington Street (between Granby Terrace overbridge and Varndell Street)              | 0             | 27                     | 2               | 0  | 0        | 0          | 0        | 0     | 0    | 0       | 0      |
| Granby Terrace overbridge  | 0             | 19                     | 7               | 0  | 0        | 0          | 0        | 0     | 0    | 0       | 0      |
| Park Village East (between Granby Terrace overbridge and Mornington Street overbridge) | 0             | 41                     | 16              | 0  | 0        | 0          | 0        | 0     | 0    | 0       | 0      |
| Park Village East (from Mornington Street Bridge to A4201 Parkway)                     | 0             | 21                     | 2               | 0  | 0        | 3          | 0        | 0     | 0    | 0       | 0      |
| Augustus Street (between Varndell Street and Park Village East)                        | 0             | 46                     | 12              | 0  | 0        | 0          | 0        | 0     | 0    | 0       | 0      |

SES2 and AP3 ES Appendix TR-001-000 | Baseline conditions (CFA1)

| Location   | Permit holder | Resident permit holder | Pay and display | Resident permit holder / pay and display | Disabled | Motorcycle | Car club | Coach | Taxi | Loading | Doctor |
|--|---------------|------------------------|-----------------|--|----------|------------|----------|-------|------|---------|--------|
| Mornington Terrace (between Mornington Street Bridge and Mornington Place) one-way         | 0             | 26                     | 0               | 0  | 0        | 0          | 0        | 0     | 0    | 0       | 0      |
| Mornington Terrace (between A503 Delancey Street and Mornington Street overbridge) one-way | 0             | 49                     | 4               | 0  | 0        | 0          | 2        | 0     | 0    | 0       | 0      |
| Clarkson Row   | 0             | 21                     | 0               | 0  | 0        | 0          | 0        | 0     | 0    | 0       | 0      |
| Mornington Crescent (south of Clarkson Row)  | 0             | 10                     | 5               | 0  | 0        | 0          | 2        | 0     | 0    | 0       | 0      |
| Mornington Crescent (between Clarkson Row and Arlington Road)                              | 1             | 19                     | 0               | 12                                       | 0        | 0          | 2        | 0     | 0    | 0       | 0      |
| Mornington Place   | 0             | 13                     | 3               | 0  | 1        | 0          | 0        | 0     | 0    | 0       | 0      |
| A400 Hampstead Road (between Lidlington Place and A400 Harrington Square)                  | 0             | 0                      | 7               | 0  | 0        | 0          | 0        | 0     | 6    | 3       | 0      |
| Drummond Street (east of Cobourg Street)   | 0             | 6                      | 0               | 0  | 0        | 7          | 0        | 0     | 0    | 1       | 0      |
| Drummond Street (between Cobourg Street and North Gower Street)                            | 0             | 1                      | 9               | 0  | 0        | 0          | 0        | 0     | 0    | 0       | 0      |
| Drummond Street (west of Cobourg Street)   | 0             | 2                      | 0               | 0  | 1        | 0          | 0        | 0     | 0    | 0       | 0      |
| Starcross Street   | 0             | 23                     | 6               | 0  | 0        | 0          | 0        | 0     | 0    | 0       | 0      |
| Cobourg Street   | 0             | 17                     | 0               | 0  | 0        | 0          | 0        | 0     | 0    | 0       | 0      |

SES2 and AP3 ES Appendix TR-001-000 | Baseline conditions (CFA1)

| Location   | Permit holder | Resident permit holder | Pay and display | Resident permit holder / pay and display | Disabled | Motorcycle | Car club | Coach | Taxi | Loading | Doctor |
|--|---------------|------------------------|-----------------|--|----------|------------|----------|-------|------|---------|--------|
| Stephenson Way   | 0             | 0                      | 4               | 0  | 2        | 0          | 0        | 0     | 0    | 0       | 0      |
| Endsleigh Gardens (between Endsleigh Street and Gordon Street)               | 0             | 12                     | 0               | 0  | 3        | 0          | 0        | 0     | 0    | 0       | 0      |
| Endsleigh Gardens (between Endsleigh Street and A4200 Upper Woburn Place)    | 0             | 4                      | 3               | 0  | 0        | 0          | 0        | 0     | 0    | 0       | 0      |
| Gower Place (between Gordon Street and Gower Street) one-way                 | 0             | 0                      | 5               | 0  | 0        | 9          | 0        | 0     | 0    | 0       | 3      |
| Lancing Street   | 0             | 0                      | 3               | 0  | 1        | 0          | 0        | 0     | 0    | 1       | 0      |
| Wellesley Place  | 0             | 0                      | 2               | 0  | 0        | 0          | 0        | 0     | 0    | 0       | 0      |
| Harrington Square (east of Harrington Square Gardens)                        | 0             | 13                     | 0               | 0  | 0        | 0          | 1        | 0     | 0    | 0       | 0      |
| Harrington Square (south of Harrington Square Gardens)                       | 0             | 0                      | 0               | 0  | 0        | 0          | 0        | 0     | 0    | 0       | 0      |
| A400 Lidlington Place (between Harrington Square and A4200 Eversholt Street) | 0             | 0                      | 0               | 0  | 0        | 0          | 0        | 0     | 0    | 0       | 0      |
| A400 Oakley Square   | 0             | 0                      | 0               | 0  | 0        | 0          | 0        | 0     | 0    | 0       | 0      |
| A4200 Eversholt Street (from Lidlington Place to Barnby Street)              | 0             | 0                      | 0               | 0  | 0        | 0          | 0        | 0     | 0    | 1       | 0      |

SES2 and AP3 ES Appendix TR-001-000 | Baseline conditions (CFA1)

| Location  | Permit holder | Resident permit holder | Pay and display | Resident permit holder / pay and display | Disabled | Motorcycle | Car club | Coach | Taxi | Loading | Doctor |
|---|---------------|------------------------|-----------------|--|----------|------------|----------|-------|------|---------|--------|
| A4200 Eversholt Street (from Barnby Street to A501 Euston Road) | 0             | 0                      | 0               | 0  | 0        | 0          | 0        | 0     | 0    | 3       | 0      |
| Drummond Crescent   | 0             | 8                      | 2               | 0  | 1        | 15         | 0        | 0     | 0    | 0       | 0      |
| Doric Way   | 0             | 18                     | 8               | 0  | 1        | 24         | 2        | 0     | 0    | 0       | 0      |
| Barnby Street   | 0             | 2                      | 5               | 0  | 0        | 0          | 0        | 0     | 0    | 0       | 0      |
| Grafton Place (between A4200 Eversholt Street and Churchway)    | 0             | 0                      | 0               | 0  | 0        | 0          | 0        | 0     | 0    | 0       | 0      |
| Churchway (between A501 Euston Road and Grafton Place)          | 0             | 0                      | 0               | 0  | 0        | 0          | 0        | 0     | 0    | 0       | 0      |
| Gordon Street (north of Endsleigh Gardens)                      | 0             | 0                      | 0               | 0  | 0        | 0          | 0        | 0     | 0    | 2       | 0      |
| Euston Street   | 0             | 0                      | 10              | 0  | 0        | 7          | 0        | 0     | 0    | 1       | 0      |
| North Gower Street  | 0             | 0                      | 36              | 0  | 1        | 0          | 0        | 0     | 0    | 0       | 0      |
| Cardington Street   | 0             | 0                      | 45              | 0  | 0        | 0          | 1        | 1     | 4    | 0       | 0      |
| Melton Street (between A501 Euston Road and Drummond Street)    | 0             | 0                      | 0               | 0  | 0        | 0          | 3        | 0     | 0    | 0       | 0      |

### *Off-street private parking*

2.2.84 Private off-street parking is provided within the Amphill Estate to the north of Euston station. 150 spaces are provided within two separate areas. 77 spaces are provided to the east of the estate and can be accessed from A4200 Eversholt Street. The remaining 73 spaces are located on the western part of the estate and can be accessed from Barnby Street.

### **Taxi**

2.2.85 The existing taxi rank is a basement level facility located at the south-west corner of Euston station. The basement level comprises a drop-off area (for use by taxis, private vehicles and mini-cabs) and a pick-up zone for use by taxis only.

2.2.86 Access to the basement level facilities is via a one-way only ramp down from Melton Street. To exit the basement level, there is an additional one-way only ramp up back on to Melton Street, which is located to the south of the entry ramp close to the junction of Melton Street with A501 Euston Road.

2.2.87 Table 13 shows the number of taxis entering and exiting the basement taxi facilities during the AM and PM peak hour and peak three hour periods. The surveyed occupancy rates of occupied taxis are shown in Table 14. Vehicle occupancy does not include the driver.

Table 13: 2014 surveyed taxis flows entering and exiting the basement facilities

| Taxi vehicle flow    | Time period   | Entry | Exit |
|----------------------|---------------|-------|------|
| AM peak 3-hour total | 07:00 – 10:00 | 611   | 627  |
| PM peak 3-hour total | 16:00 – 19:00 | 644   | 667  |
| AM peak hour         | 08:00 – 09:00 | 222   | 244  |
| PM peak Hour         | 17:00 - 18:00 | 205   | 210  |

Table 14: 2014 surveyed taxi occupancy rates

| Taxi vehicle flow    | Time period   | Entry | Exit |
|----------------------|---------------|-------|------|
| AM peak 3-hour total | 07:00 – 10:00 | 1.5   | 1.3  |
| PM peak 3-hour total | 16:00 – 19:00 | 1.5   | 1.4  |
| AM peak hour         | 08:00 – 09:00 | 1.4   | 1.2  |
| PM peak hour         | 17:00 - 18:00 | 1.5   | 1.4  |

2.2.88 For taxis travelling to Euston station during the AM peak period, approximately 50% arrive from the west, approximately 40% arrive from the south and south-east, and approximately 10% arrive from the north. For taxis travelling to Euston station during the PM peak period, approximately 40% arrive from the west, approximately 40% arrive from the south and south-east, and approximately 20% arrive from the north.

- 2.2.89 Taxis departing Euston station were recorded travelling in the following directions:
- 40% south or east from the station during the AM peak period and 50% during the PM peak period;
  - 35% west from the station during the AM peak period and 30% during the PM peak period; and
  - 25% north from the station during the AM peak period and 20% during the PM peak period.

## Highway network

### *London road network*

- 2.2.90 The strategic road network in London is made up of three categories of road:
- motorways that are owned and maintained by the HA.
  - Transport for London Road Network (TLRN) 'Red Routes' which are owned and maintained by TfL. This network is mostly made up of 'A' roads. The TLRN is made up of approximately 5% of London's road network, but carries approximately one third (33%) of all London's traffic. In some instances 'Red Route' controls extend onto adjacent side roads and, in these cases, TfL is the Traffic Authority whilst the London Borough is the Highway Authority. It should also be noted that TfL are responsible for all traffic signals in London, regardless of which category of road they are on.
  - the Strategic Road Network (SRN) generally consists of the remaining 'A' roads in London, carrying the main traffic flows and longer distance movements. These roads are owned and maintained by the London Boroughs, but any proposed changes in layout or operation that may impact upon the performance of the road must be referred to TfL for approval.
- 2.2.91 The local road network is owned and maintained by the London Boroughs.
- 2.2.92 Euston station is well connected to the TLRN and the SRN, with the A501 Euston Road forming a southern boundary to the station. The primary junctions forming access to the station are:
- A501 Euston Road/Melton Street/Gordon Street;
  - A501 Euston Road/A4200 Upper Woburn Place/Euston Square (A4200 Eversholt Street);
  - A501 Euston Road/Grafton Place;
  - A501 Euston Road/Churchway/Dukes Road;
  - A400 Hampstead Road/Cardington Street; and
  - A400 Hampstead Road/Drummond Street.

## *Transport for London Road Network*

### **A501 Euston Road**

- 2.2.93 The A501 Euston Road runs in an east-west direction from A5 Edgware Road to the west and A5201 Old Street to the east and forms the southern boundary of the Euston station site. A501 Euston Road is part of the TLRN and is a red route with bus lanes along sections of its length in both directions.
- 2.2.94 To the west of Euston station is the major junction of A501 Euston Road with A400 Tottenham Court Road and A400 Hampstead Road, known as Euston Circus. This includes a grade-separated underpass for ahead movements (in both directions) along A501 Euston Road, with on and off slip roads provided in both directions. To the east of Euston station, the first junction is with Euston Square (A4200 Eversholt Street) and A4200 Upper Woburn Place.
- 2.2.95 Adjacent to Euston station the road provides two traffic lanes and one bus lane in both directions, and A501 Euston Road has a speed limit of 30mph.
- 2.2.96 The A501 Euston Road operates with varying traffic conditions from day to day. On occasions, A501 Euston Road experiences congestion, particularly during the AM and PM peak hours.

### **A400 Hampstead Road**

- 2.2.97 A400 Hampstead Road runs north-south from A501 Euston Road at its southern end to A400 Camden High Street at its northern end. The road is part of the TLRN, carries various TfL bus services and is a designated red route.
- 2.2.98 A400 Hampstead Road forms a junction with A400 Tottenham Court Road and A501 Euston Road at Euston Circus. A400 Hampstead Road has a southbound bus lane from a point just to the north of the signalised junction with Drummond Street. Generally, A400 Hampstead Road varies in width along its length providing a combination of one and two lanes in each direction.
- 2.2.99 Across A400 Hampstead Road overbridge, the road widens to two general traffic lanes and a bus lane in each direction. The road narrows to one lane in each direction just south of Cardington Street.
- 2.2.100 The speed limit along the entire length of A400 Hampstead Road is 30mph.
- 2.2.101 A400 Hampstead Road generally experiences free flow traffic conditions, with the junctions along its length operating within capacity during the AM and PM peak hours. Localised queuing and congestion is experienced at some junctions and pedestrian crossings at times, but this tends to be of a short duration with little impact on other junctions along A400 Hampstead Road.

## *Strategic Road Network*

- 2.2.102 This section describes the roads in the vicinity of Euston station that are part of the SRN. All roads described have a speed limit of 20mph unless otherwise stated.



### **A4200 Eversholt Street**

- 2.2.103 A4200 Eversholt Street is a north-south road running between A501 Euston Road to the south and Harrington Square to the north. A4200 Eversholt Street forms the eastern boundary to Euston station, with a mix of retail and residential land uses along the eastern side of the street.
- 2.2.104 A4200 Eversholt Street is generally three lanes wide with one lane in each direction for general traffic and a third lane southbound that operates as a bus lane during peak times or for on-street parking. This varies by section and by direction. The road accommodates a number of TfL bus services.
- 2.2.105 At its southern end, A4200 Eversholt Street turns into Euston Square (east) for approximately 60 metres between the junction with Grafton Place and A501 Euston Road.
- 2.2.106 There are a number of controlled junctions and crossings along A4200 Eversholt Street, including traffic signals at its junctions with Euston Road, Grafton Place and A400 Oakley Square. There are also signalised pedestrian crossings near Doric Way and Aldenham Street and a zebra crossing near Phoenix Road. Other priority junctions exist along the road with a number of local residential roads.
- 2.2.107 Instances of localised queuing and congestion can be experienced at pedestrian crossings and junctions during the AM and PM peak hours. This is particularly evident along the southbound approach to the junction of A4200 Eversholt Street with Grafton Way and Euston bus station.

### **A4200 Upper Woburn Place**

- 2.2.108 A4200 Upper Woburn Place is a north-south road that extends south from the junction with A501 Euston Road and Euston Square (A4200 Eversholt Street).
- 2.2.109 At its widest point, A4200 Upper Woburn Place has three lanes with two lanes (one bus lane and one general traffic lane) in the southbound direction and one lane (for general traffic) in the northbound direction. South of Endsleigh Place, A4200 Upper Woburn Place is typically one general traffic lane in each direction.
- 2.2.110 A4200 Upper Woburn Place carries TfL bus services in both directions. The road includes a number of priority junctions and zebra crossings as well as signalised junctions with A501 Euston Road and Tavistock Square.
- 2.2.111 On A4200 Upper Woburn Place, the approach to the junction with A501 Euston Road can experience some queuing during the AM and PM peak hours with limited spare capacity.

### **A400 Tottenham Court Road**

- 2.2.112 A400 Tottenham Court Road is a one-way northbound road, typically with three general traffic lanes, with additional bus lane and facilities along parts of the road. The road supports multiple bus services.
- 2.2.113 A400 Tottenham Court Road supports a significant retail, employment and public transport function and consequently is subject to high pedestrian movements. A400

Tottenham Court Road has several signalised crossing facilities to support these movements.

- 2.2.114 A400 Tottenham Court Road forms a junction with A501 Euston Road and A400 Hampstead Road at Euston Circus.
- 2.2.115 Traffic flows along A400 Tottenham Court Road are high and with traffic typically free flowing between junctions during the AM and PM peak hours. Localised queuing at pedestrian crossings and at junctions tends to occur during the AM and PM peak hours, particularly on the approach to Euston Circus.

### **A400 Gower Street**

- 2.2.116 A400 Gower Street is a one-way southbound road, typically with three lanes. A bus lane is provided to the south of the pedestrian crossing which is located just south of Gower Place. The road supports multiple bus services.
- 2.2.117 At the northern end, A400 Gower Street supports a significant amount of educational uses (University College London) and hospital facilities (University College London Hospital). As such, numerous pedestrian crossings are provided along its length to support these uses.
- 2.2.118 At its northern extent, A400 Gower Street forms a junction with A501 Euston Road. Pedestrian crossing facilities are also provided at this junction, allowing safe access for pedestrians to Euston Square LU station.
- 2.2.119 Typically, traffic flows along A400 Gower Street are high. However, traffic generally experiences free flow conditions, although short periods of localised queuing does occur at junctions and pedestrian crossings.

### *Local road network*

- 2.2.120 This section describes the local roads in the vicinity of Euston station. All roads described in this section have a speed limit of 20mph unless otherwise stated.

### **Gordon Street**

- 2.2.121 Gordon Street runs north-south between A501 Euston Road to the north and Gordon Square to the south. Gordon Street is a borough road maintained by LBC.
- 2.2.122 At its widest point (at A501 Euston Road), there are two northbound lanes and one southbound lane. South of Endsleigh Gardens, the road narrows to one lane in each direction with space for parking on both sides. Gordon Street contains a number of zebra crossings and priority junctions, with the only signalised junction being with A501 Euston Road.
- 2.2.123 Gordon Street typically experiences free flow traffic conditions in both directions during the AM and PM peak hours.

### **Melton Street/Cardington Street**

- 2.2.124 Melton Street and Cardington Street are north-south running streets that extend along the western edge of Euston station. At its north-end, Cardington Street turns to an east-west alignment and connects with A400 Hampstead Road at a signalised junction.

- 2.2.125 Cardington Street has one general traffic lane in each direction and traffic calming speed humps along much of its length. Parking is provided on both sides of the road. The junction of Cardington Street and Drummond Street is a priority junction.
- 2.2.126 South of Drummond Street, Cardington Street becomes Melton Street. Melton Street includes priority junctions with Euston Street and entrances to Euston station (taxi rank) and a zebra crossing. The road has two general traffic lanes in each direction, with a dedicated turning lane provided at the vehicle entrance to Euston station.
- 2.2.127 At its southern end, Melton Street turns into Euston Square (west) for approximately 40 metres alongside Euston Square Gardens.
- 2.2.128 Melton Street and Cardington Street are borough roads maintained by LBC.
- 2.2.129 The traffic flow on Melton Street comprises a large number of taxis travelling to and from Euston station. The movement of taxis to and from the station often results in queuing from the taxi facility backing onto the southern section of Melton Street, including during the AM and PM peak hour.
- 2.2.130 Cardington Street experiences lighter traffic flow when compared with Melton Street and traffic conditions are typically free flowing.

### **Drummond Street**

- 2.2.131 Drummond Street runs in an east-west direction between Melton Street crossing A400 Hampstead Road and continuing to Stanhope Street. The road is a local two-way road with one lane in each direction and parking on both sides westwards from Cobourg Street. The road includes a number of priority junctions with other local roads and traffic calming along much of its length. Drummond Street is one-way eastbound between Cobourg Street and Melton Street.
- 2.2.132 Drummond Street is lightly trafficked with free flow conditions experienced during the AM and PM peak hours.

### **Euston Street**

- 2.2.133 Euston Street runs in a westbound direction between Melton Street and North Gower Street. The road is predominantly a local one-way road with parking on one side. The road includes a number of priority junctions with other local roads.

### **Starcross Street**

- 2.2.134 Starcross Street runs in an east-west direction between North Gower Street and Cobourg Street. The road is a local two-way road with parking on both sides. The road serves the Maria Fidelis Covenant School and includes some traffic calming features and parking controls.

### **Stephenson Way**

- 2.2.135 Stephenson Way runs in an eastbound direction, turning north between North Gower Street and Euston Street. The road is a local one-way road with parking on one side and limited pedestrian footpath width. The road includes a number of vehicle access points to buildings.

### Granby Terrace

- 2.2.136 Granby Terrace is a one-way eastbound road connecting Park Village East and A400 Hampstead Road. The bridge section of Granby Terrace has one central, general traffic lane flaring to two lanes at the junction with A400 Hampstead Road. Parking is provided on either side as well as two metre (approximate) footways on either side of the road.

### Mornington Street

- 2.2.137 Mornington Street is a two-way road with an east-west alignment connecting Park Village East to Mornington Terrace, Albert Street and Arlington Road. The bridge section of Mornington Street has one general traffic lane in each direction with two metre (approximate) footways on either side of the road.

### Park Village East

- 2.2.138 Park Village East is one-way in a north to south direction from Parkway to Mornington Street and two-way from Mornington Street to Stanhope Street. Between A4201 Parkway and Mornington Street, one wide lane is provided and parking is permitted on the eastern side. One lane is provided in each direction between Mornington Street and Stanhope Street. Parking is permitted on the western side of the street along this section.

### *Baseline conditions*

- 2.2.139 The 2012 baseline conditions on the roads in the vicinity of the Euston station are outlined in Table 15 below. The traffic flows have been extracted from the 2012 CLoHAM (Central London Highway Assignment Model) model.

Table 15: Euston - Station and Approach AM and PM peak hour 2012 baseline flows (model output)

| Location  | Direction  | 2012 modelled baseline flows |     |                          |     |
|---|------------|------------------------------|-----|--------------------------|-----|
|   |            | AM peak (08:00 to 09:00)     |     | PM peak (17:00 to 18:00) |     |
|   |            | All vehicles                 | HGV | All vehicles             | HGV |
| <b>North of Euston Road</b>                                     |            |                              |     |                          |     |
| Outer Circle (between Park Square East and Chester Road)        | Northbound | 249                          | 0   | 81                       | 0   |
|   | Southbound | 218                          | 1   | 227                      | 7   |
| A4201 Albany Street (between Robert Street and Longford Street) | Northbound | 554                          | 9   | 335                      | 9   |
|   | Southbound | 260                          | 3   | 435                      | 19  |
| Stanhope Street (between Longford Street and Robert Street)     | Northbound | 106                          | 7   | 45                       | 5   |
|   | Southbound | 125                          | 2   | 153                      | 3   |
| A400 Hampstead Road (between Drummond Street and Robert Street) | Northbound | 608                          | 22  | 494                      | 51  |
|   | Southbound | 558                          | 13  | 863                      | 1   |

SES2 and AP3 ES Appendix TR-001-000 | Baseline conditions (CFA1)

| Location   | Direction  | 2012 modelled baseline flows |     |                          |     |
|--|------------|------------------------------|-----|--------------------------|-----|
|  |            | AM peak (08:00 to 09:00)     |     | PM peak (17:00 to 18:00) |     |
|  |            | All vehicles                 | HGV | All vehicles             | HGV |
| Cardington Street (north of Drummond Street)                                       | Northbound | 123                          | 5   | 23                       | 0   |
|  | Southbound | 94                           | 3   | 455                      | 7   |
| A4200 Eversholt St (between Phoenix Road and Polygon Road)                         | Northbound | 222                          | 3   | 174                      | 4   |
|  | Southbound | 173                          | 1   | 253                      | 15  |
| Chalton Street (between Euston Road and Phoenix Road)                              | Northbound | 129                          | 3   | 55                       | 14  |
|  | Southbound | 90                           | 1   | 104                      | 2   |
| Midland Road (between Brill Place and Euston Road)                                 | Southbound | 517                          | 14  | 657                      | 29  |
| A5202 Pancras Road (between Euston Road and Goods Way)                             | Northbound | 66                           | 4   | 175                      | 8   |
|  | Southbound | 278                          | 1   | 81                       | 3   |
| A5203 York Way between Euston Road and Caledonia Street                            | Northbound | 808                          | 35  | 565                      | 54  |
| <b>South of Euston Road</b>  |            |                              |     |                          |     |
| A4201 Portland Place (between Devonshire Street and Park Crescent)                 | Northbound | 302                          | 7   | 128                      | 50  |
|  | Southbound | 255                          | 6   | 274                      | 4   |
| B506 Great Portland Street (between Park Crescent Mews East and Devonshire Street) | Southbound | 341                          | 7   | 614                      | 26  |
| Cleveland Street (between Greenwell Street and Clipstone Street)                   | Southbound | 74                           | 0   | 122                      | 1   |
| A400 Tottenham Court Road (between Grafton Way and Warren Street)                  | Southbound | 1,297                        | 51  | 1,118                    | 110 |
| A400 Gower Street (between Grafton Way and Gower Place)                            | Southbound | 1,036                        | 19  | 1,088                    | 42  |
| Gordon Street (between Endsleigh Gardens and Euston Road)                          | Northbound | 375                          | 14  | 339                      | 19  |
|  | Southbound | 244                          | 19  | 283                      | 41  |
| A4200 Upper Woburn Place (between Endsleigh Gardens and Euston Road)               | Northbound | 152                          | 5   | 45                       | 0   |
|  | Southbound | 650                          | 5   | 597                      | 28  |

| Location  | Direction  | 2012 modelled baseline flows |     |                          |     |
|---|------------|------------------------------|-----|--------------------------|-----|
|   |            | AM peak (08:00 to 09:00)     |     | PM peak (17:00 to 18:00) |     |
|   |            | All vehicles                 | HGV | All vehicles             | HGV |
| B504 Judd Street (between Bidborough Street and Euston Road)        | Northbound | 15                           | 0   | 25                       | 3   |
|   | Southbound | 238                          | 5   | 253                      | 7   |
| A501 Gray's Inn Road (east of Birkenhead Street)                    | Northbound | 1,497                        | 50  | 1,577                    | 116 |
| <b>A501 Euston Road</b>   |            |                              |     |                          |     |
| A501 Euston Road between Euston Circus and Melton Street            | Eastbound  | 1,860                        | 35  | 1,656                    | 196 |
|   | Westbound  | 1,504                        | 39  | 1,509                    | 112 |
| A501 Euston Road between Melton Street and A4200 Upper Woburn Place | Eastbound  | 1,827                        | 26  | 1,709                    | 153 |
|   | Westbound  | 1,340                        | 31  | 1,485                    | 96  |
| A501 Euston Road between A4200 Upper Woburn Place and Churchway     | Eastbound  | 1,536                        | 26  | 1,369                    | 146 |
|   | Westbound  | 1,407                        | 27  | 1,602                    | 97  |

### *Junction analysis*

- 2.2.140 The operation of the six primary junctions which form the main access routes from the local road network to Euston station have been analysed for the 2012 baseline conditions and the results are summarised below. The traffic flows used have been derived from the traffic surveys undertaken in 2014 and have been validated, where appropriate, against on-street degree of saturation (DoS) data and recorded queues. The results for all junctions are presented in terms of the DoS and mean maximum queue (MMQ), presented in passenger car units (PCU).

### **A501 Euston Road junction with Melton Street and Gordon Street**

- 2.2.141 Table 16 shows the existing operation of the A501 Euston Road junction with Melton Street and Gordon Street during the weekday AM and PM peak hours. The results have been extracted from a TRANSYT model.

Table 16: 2014 baseline - A501 Euston Road/Melton Street/Gordon Street peak hour flows, DoS and queue lengths (PCU)

| Junction approach – movement           | AM peak hour (08:00 to 09:00) |     |     | PM peak hour (17:00 to 18:00) |     |     |
|--|-------------------------------|-----|-----|-------------------------------|-----|-----|
|  | Flow                          | DoS | MMQ | Flow                          | DoS | MMQ |
| Melton Street – left/ahead             | 332                           | 63% | 8   | 242                           | 43% | 5   |
| Melton Street – ahead/right            | 233                           | 76% | 7   | 221                           | 72% | 5   |
| A501 Euston Road east – left/ahead     | 1,125                         | 58% | 7   | 628                           | 34% | 4   |
| A501 Euston Road east bus lane – ahead | 423                           | 35% | 2   | 407                           | 35% | 3   |

| Junction approach – movement                | AM peak hour (08:00 to 09:00) |     |     | PM peak hour (17:00 to 18:00) |     |     |
|---|-------------------------------|-----|-----|-------------------------------|-----|-----|
|   | Flow                          | DoS | MMQ | Flow                          | DoS | MMQ |
| Gordon Street – left/ahead                  | 332                           | 79% | 10  | 389                           | 85% | 12  |
| A501 Euston Road west bus lane – left/ahead | 1,295                         | 64% | 24  | 972                           | 50% | 16  |
| A501 Euston Road west – left/ahead          | 553                           | 44% | 9   | 636                           | 53% | 12  |

2.2.142 The modelling results for the junction south of A501 Euston Road with Melton Street and Gordon Street, A4200 Upper Woburn Place and Euston Square, Churchway and Dukes Road and the junction of A4200 Eversholt Street with Grafton Place and the Euston bus station have been extracted from the TRANSYT model and presented in below. The results are as terms of Degree of Saturation (DoS) and mean maximum queue (MMQ) measured in passenger car units (PCU).

2.2.143 Table 16 shows that the longest queues occur on the A501 Euston Road west approach to the junction, during the AM and PM peak hours. The predicted maximum queue lengths is split over two lanes and can be accommodated within the available road space, although blocking back does occur on occasions.

### **A501 Euston Road junction with A4200 Upper Woburn Place and Euston Square**

2.2.144 Table 17 shows the existing operation of the A501 Euston Road junction with A4200 Upper Woburn Place and Euston Square (A4200 Eversholt Street), in the weekday AM and PM peak hour. The results have been extracted from a TRANSYT model.

Table 17: 2014 baseline - A501 Euston Road/A4200 Upper Woburn Place/ Euston Square peak hour flow, DoS and queue lengths (PCU)

| Junction approach – movement                | AM peak hour (08:00 to 09:00) |     |     | PM peak hour (17:00 to 18:00) |     |     |
|---|-------------------------------|-----|-----|-------------------------------|-----|-----|
|   | Flow                          | DoS | MMQ | Flow                          | DoS | MMQ |
| Euston Square – ahead                       | 257                           | 55% | 7   | 174                           | 32% | 3   |
| A501 Euston Road east – ahead               | 1,019                         | 57% | 23  | 580                           | 35% | 10  |
| A501 Euston Road east bus lane – left/ahead | 536                           | 62% | 14  | 512                           | 64% | 10  |
| A4200 Upper Woburn Place – left/ahead       | 419                           | 49% | 6   | 420                           | 48% | 6   |
| A501 Euston Road west – ahead               | 1,418                         | 54% | 3   | 1,400                         | 57% | 7   |
| A501 Euston Road west – right               | 291                           | 83% | 10  | 175                           | 50% | 5   |

2.2.145 The table shows that during the AM peak hour, the longest queue occurs on the A501 Euston Road east approach to the junction. The predicted maximum queue lengths can be accommodated within the available storage without affecting upstream junctions. During the PM peak hour, the largest queue occurs on the A501 Euston Road east approach to the junction. Again, the predicted queue can be accommodated across the two lanes on this approach to the junction.

### A501 Euston Road junction with Churchway and Dukes Road

2.2.146 Table 18 shows the existing operation of the A501 Euston Road junction with Churchway and Dukes Road in the weekday AM and PM peak hour. The results have been extracted from a TRANSYT model.

Table 18: 2014 baseline - A501 Euston Road/Churchway/Dukes Road peak hour flow, DoS and queue lengths (PCU)

| Junction approach – movement           | AM peak hour (08:00 to 09:00) |     |     | PM peak hour (17:00 to 18:00) |     |     |
|--|-------------------------------|-----|-----|-------------------------------|-----|-----|
|  | Flow                          | DoS | MMQ | Flow                          | DoS | MMQ |
| Churchway – left/ahead/right           | 207                           | 79% | 7   | 214                           | 94% | 10  |
| A501 Euston Road east – ahead/right    | 437                           | 93% | 13  | 301                           | 58% | 4   |
| A501 Euston Road east – left/ahead     | 713                           | 55% | 6   | 376                           | 28% | 2   |
| A501 Euston Road east bus lane – ahead | 553                           | 42% | 4   | 552                           | 41% | 3   |
| Dukes Road – left/ahead/right          | 10                            | 4%  | 0   | 18                            | 8%  | 0   |
| A501 Euston Road West – left/ahead     | 1,432                         | 73% | 17  | 1,385                         | 62% | 9   |

2.2.147 Table 18 shows that the longest queues occur on the A501 Euston Road west approach to the junction, during both the AM and PM peak hours. The predicted maximum queue lengths can be accommodated on Euston Road without affecting upstream junctions.

### A4200 Eversholt Street junction with Grafton Place and Euston bus station

2.2.148 Table 19 shows the existing operation of the A4200 Eversholt Street junction with Grafton Place and Euston bus station in the weekday AM and PM peak hour. The results have been extracted from a TRANSYT model.

Table 19: 2014 baseline - A4200 Eversholt Street/Grafton Place/Euston bus station peak hour flows, DoS and queue lengths (PCU)

| Junction approach - movement              | AM peak hour (08:00 to 09:00) |     |     | PM peak hour (17:00 to 18:00) |     |     |
|---|-------------------------------|-----|-----|-------------------------------|-----|-----|
|   | Flow                          | DoS | MMQ | Flow                          | DoS | MMQ |
| A4200 Eversholt Street - left/ahead/right | 255                           | 53% | 5   | 206                           | 43% | 5   |
| Grafton Place - left/ahead/right          | 154                           | 67% | 5   | 150                           | 60% | 4   |
| Euston Square - left/ahead/right          | 299                           | 44% | 7   | 319                           | 45% | 8   |
| Euston bus station - left/ahead/right     | 186                           | 77% | 6   | 174                           | 84% | 7   |

2.2.149 Table 19 shows that the longest queues occur on the A4200 Eversholt Street approach to the junction, during both the AM and PM peak hours. The predicted maximum queue lengths can be accommodated on A4200 Eversholt Street without affecting upstream junctions.



### A400 Hampstead Road junction with Drummond Street

2.2.150 Table 20 shows the existing operation of the A400 Hampstead Road junction with Drummond Street in the weekday AM and PM peak hour. The results have been extracted from a TRANSYT model.

Table 20: 2014 baseline - A400 Hampstead Road/Drummond Street peak hour flow, DoS and queue length (PCU)

| Junction approach – movement            | AM peak hour (08:00 to 09:00) |     |     | PM peak hour (17:00 to 18:00) |     |     |
|---|-------------------------------|-----|-----|-------------------------------|-----|-----|
|   | Flow                          | DoS | MMQ | Flow                          | DoS | MMQ |
| A400 Hampstead Road north – left/ahead  | 469                           | 47% | 8   | 354                           | 34% | 5   |
| A400 Hampstead Road north – left/ahead  | 254                           | 29% | 4   | 210                           | 23% | 3   |
| Drummond Street east – left/ahead/right | 151                           | 49% | 4   | 188                           | 70% | 6   |
| A400 Hampstead Road south – left/ahead  | 412                           | 21% | 3   | 690                           | 34% | 7   |
| Drummond Street west – left/ahead       | 94                            | 32% | 2   | 142                           | 55% | 4   |

2.2.151 Table 20 shows that the longest queues occur on the A400 Hampstead Road north approach to the junction, during the AM peak hour. During the PM peak hour, the longest queues occur on the A400 Hampstead Road north approach to the junction. The predicted maximum queue lengths can be accommodated on A400 Hampstead Road without affecting upstream junctions.

### A400 Hampstead Road with Cardington Street

2.2.152 Table 11 shows the existing operation of the A400 Hampstead Road junction with Cardington Street in the weekday AM and PM peak hour. Results have been extracted from a validated LINSIG model.

Table 21: 2014 baseline - A400 Hampstead Road/Cardington Street peak hour flows, DoS and queue lengths (PCU)

| Junction approach – movement            | AM peak hour (08:00 to 09:00) |     |     | PM peak hour (17:00 to 18:00) |     |     |
|---|-------------------------------|-----|-----|-------------------------------|-----|-----|
|   | Flow                          | DoS | MMQ | Flow                          | DoS | MMQ |
| A400 Hampstead Road north – left/ahead  | 429                           | 32% | 4   | 338                           | 25% | 3   |
| A400 Hampstead Road north – ahead       | 843                           | 63% | 10  | 574                           | 43% | 5   |
| Cardington Street – left/right          | 119                           | 39% | 2   | 208                           | 67% | 5   |
| A400 Hampstead Road south – ahead/right | 467                           | 37% | 4   | 794                           | 56% | 3   |

## Accidents and safety

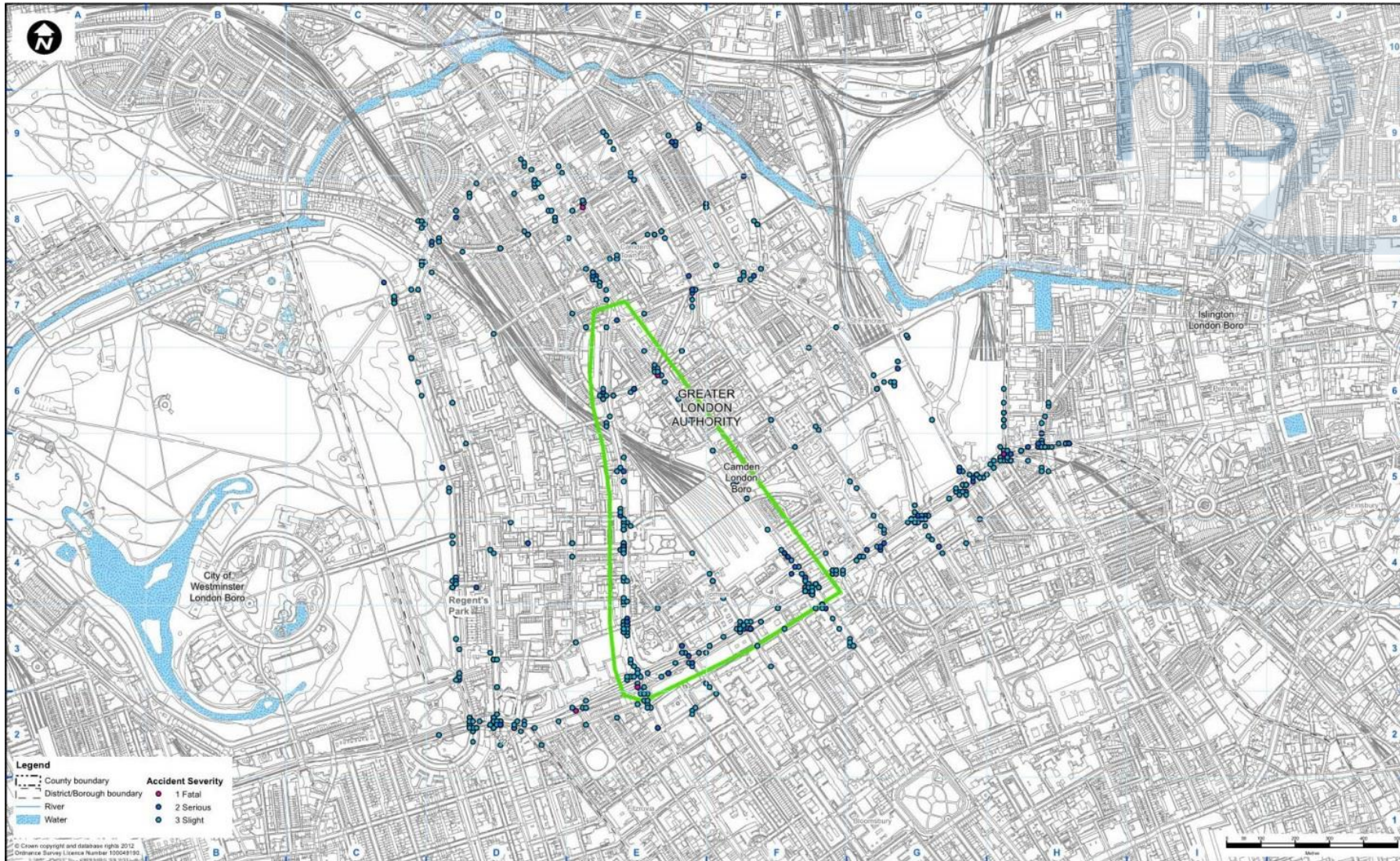
2.2.153 Accident data was obtained from TfL for the three year period up to the end of March 2012. A total of 264 personal injury accidents (PIA) occurred over the three year period in the study area, an average of 88 per year. The locations of the accidents are shown in Figure 7 below.

- 2.2.154 Of the 264 accidents, 88% were classified as slight, 11% involved a serious injury and 1% were fatal. The highest number of accidents occurred along A501 Euston Road and the junctions that intersect A501 Euston Road (116 accidents), on A400 Hampstead Road and the junctions that intersect Hampstead Road (74 accidents), and A4200 Eversholt Street (34 accidents).
- 2.2.155 In the Euston station area, 28% (74 accidents) of the total number of accidents involved pedal cyclists while 24% (63 accidents) involved pedestrians. Two of the pedestrian accidents resulted in fatalities while eight pedestrian accidents and twelve accidents involving cyclists were of a serious severity.
- 2.2.156 Table 22 shows a summary of the accidents within the local study area, at the locations where there were clusters of accidents (nine or more, in the three year period).

Table 22: Summary of accidents in the Euston station area

| Location   | Year   |        |        | Total | Severity |         |        |
|--|--------|--------|--------|-------|----------|---------|--------|
|  | Year 1 | Year 2 | Year 3 |       | Fatal    | Serious | Slight |
| A501 Euston Road/A4200 Eversholt Street/A4200 Upper Woburn Place | 12     | 8      | 12     | 32    | -        | 2       | 30     |
| A501 Euston Road/Gordon Street/Melton Street                     | 6      | 7      | 10     | 23    | -        | 4       | 19     |
| A400 Hampstead Road/Robert Street                                | 5      | 10     | 6      | 21    | -        | 2       | 19     |
| A501 Euston Road/A400 Tottenham Court Road                       | 9      | 8      | 13     | 30    | 1        | 1       | 28     |
| A400 Hampstead Road/Drummond Street                              | 4      | 6      | 5      | 15    | -        | 2       | 13     |
| A400 Camden High Street  | 6      | 2      | 5      | 13    | -        | 2       | 11     |
| A4200 Eversholt Street/Lidlington Place                          | 3      | 4      | 2      | 9     | 1        | -       | 8      |
| A400 Hampstead Road/Cardington Street                            | 1      | 6      | 2      | 9     | -        | -       | 9      |
| A501 Euston Road/Churchway/Dukes Road                            | 5      | 4      | 6      | 15    | -        | 1       | 14     |

Figure 7: Location of accidents in the Euston station area



2.2.157 There were a further 390 accidents outside the local study, as shown outside the green line boundary in Figure 7. Table 23 below summarises accidents at locations outside the local study area, but within the CFA area, where there were clusters.

Table 23: Summary of accidents outside of the Euston area

| Location  | Year   |        |        | Total | Severity |         |        |
|---|--------|--------|--------|-------|----------|---------|--------|
|   | Year 1 | Year 2 | Year 3 |       | Fatal    | Serious | Slight |
| A5202 Pancras Road / A501 Euston Road / Belgrove Road                   | 11     | 11     | 7      | 29    | -        | 4       | 25     |
| A501 Euston Road / A5202 Midland Road / B504 Judd Street                | 5      | 9      | 10     | 24    | -        | 3       | 21     |
| A501 Marylebone Road / A4201 Albany Street / B506 Great Portland Street | 5      | 7      | 8      | 20    | -        | 3       | 17     |
| A501 Euston Road/ A5203 York Way / A501 Gray's Inn Road                 | 7      | 6      | 10     | 23    | 1        | 2       | 20     |
| A501 Pentonville Road / A5203 Caledonian Road                           | 3      | 9      | 6      | 18    | -        | 3       | 15     |
| A501 Marylebone Road / Park Square East                                 | 4      | 4      | 5      | 13    | -        | 1       | 12     |
| A4201 Albany Street   | 3      | 4      | 5      | 12    | -        | 2       | 10     |
| Regents Park Outer Circle   | 2      | 6      | 7      | 15    | -        | 4       | 11     |

2.2.158 In the area outside of the Euston station area, 29% (190 accidents) of the total number of accidents involved pedal cyclists while 27% (175 accidents) involved pedestrians. Four of the pedestrian accidents and one accident involving a pedal cyclist resulted in fatalities while 33 pedestrian accidents and 23 accidents involving cyclists were of a serious severity.

### Waterways and canals

2.2.159 There are no navigable waterways or canals in the local area.

### Air transport

2.2.160 There are no air transport facilities in the local area. Links to all London airports from Euston station can be made via LU and overground services. Birmingham International Airport is also accessible from Euston station, using direct national rail (Virgin and London Midland) services.

## **2.3 Camden Town (CFA2) and Primrose Hill to Kilburn (Camden) (CFA3)**

- 2.3.1 The main change for CFAs 2 and 3, when compared to the main TA, is the update to the baseline data used by CLoHAM (p3) traffic model.
- 2.3.2 Whilst no additional surveys were carried out in CFAs 2 and 3, the revised existing baseline and future baseline forecasts arise from the consequential use of the updated CLoHAM model as reported in section 2.2 and 3.2.

## **2.4 Kilburn (Brent) to Old Oak Common**

- 2.4.1 Current and future baseline results were outlined in AP2 TA (SES and AP2 ES Volume 5 Appendix - TR-001-000). There are no further changes to this information.

## 3 London Region

### 3.1 Regional methodology and assumptions

#### Introduction

3.1.1 This chapter describes changes to the methodology and assumptions adopted in the London area where they differ from those already described in the main TA. Where there are specific modelling approaches relevant to individual CFAs these are considered within the relevant CFA chapters.

3.1.2 Specific issues covered in this section are:

- stakeholder engagement;
- London modelling framework;
- regional highway modelling;
- regional public transport modelling; and
- local assessment – junction modelling.

3.1.3 The dominant impacts for the revised scheme operation scenario arise from Euston station and Old Oak Common station.

#### Stakeholder engagement

3.1.4 A number of stakeholder organisations were consulted during the development of the modelling methodology adopted for London. Reflecting the London-wide remit of TfL and the particular issues regarding development of Euston station, discussions were primarily focused on TfL and the LBC. All modelling was undertaken in close cooperation with TfL with regular meetings on highway and public transport modelling. Railplan modelling for the Euston station and for the broader London metropolitan areas was undertaken by TfL to the agreed specification of HS2 Ltd and the outputs were reviewed by HS2 Ltd and its consultants. The development of TfL's sub-regional highways models for use in the assessment was undertaken by HS2 Ltd and its consultants in close collaboration with TfL and reviewed by TfL.

3.1.5 Through a series of meetings, discussions and technical review, the methodology for the London area was agreed as the most appropriate approach to modelling the construction and operational impacts of the revised scheme within London for the TA.

#### Local modelling framework

##### *Approach*

3.1.6 The impact of the revised scheme through London, specifically but not only at Euston and Old Oak Common stations, was assessed through a combination of strategic and local modelling exercises, supplemented with data from other sources (most notably, the PLANET PFM Model, local transport authorities and HS2 Ltd's own data collection programme).

3.1.7 The purpose of all of the modelling and assessment work was to ensure that the impacts of the construction and operation of the revised scheme were duly considered, inclusive of:

- providing substantive analysis for the TA;
- establishing the likely impact and possible traffic and transport mitigation required;
- supporting the EIA process including the provision of traffic data to inform other assessments;
- informing the engineering design of the revised scheme for both the construction and operational phases of the project; and
- informing engagement with the planning authorities and other stakeholders throughout the development of, and passage of, the HS2 hybrid Bill.

3.1.8 The modelling and assessment work undertaken for the TA is robust because it:

- was undertaken respecting applicable guidance;
- used appropriate and suitably robust tools, taking the full variety of demand generation and responses into account, as appropriate;
- was subject to appropriate quality assurance checks; and
- used an objective methodology to reach conclusions.

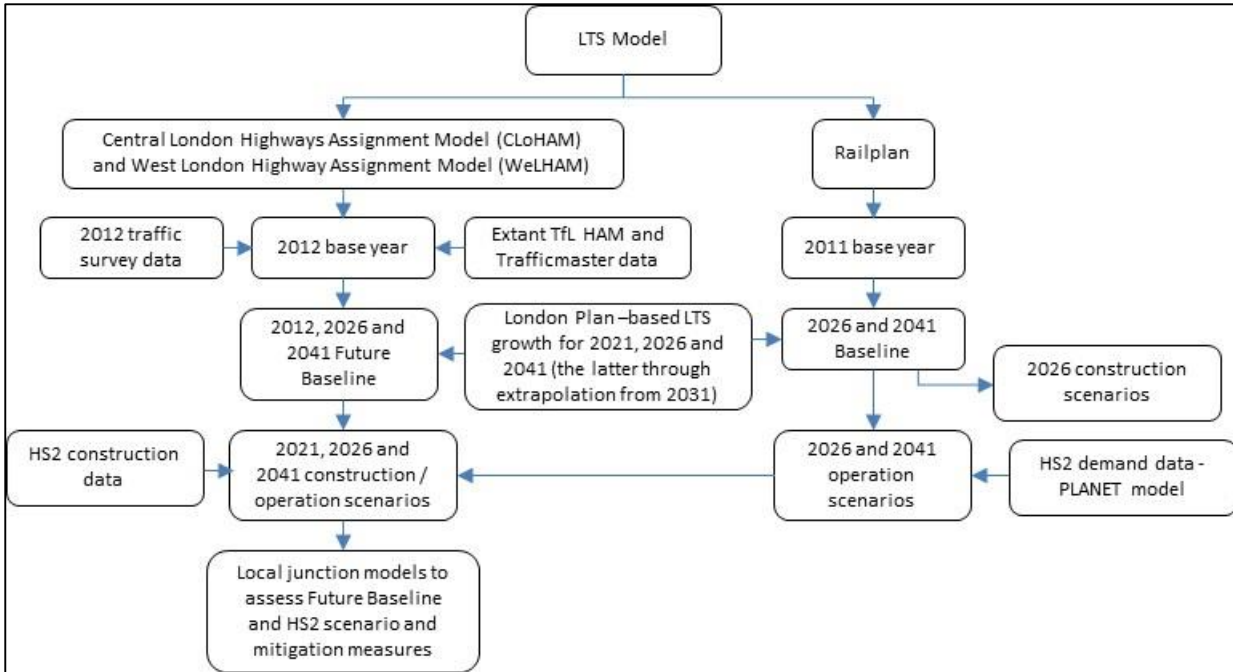
3.1.9 Where detailed modelling has been undertaken, it has used appropriately enhanced and updated versions of existing models.

#### *Framework*

3.1.10 An overview of the modelling framework for the London area is shown in Figure 8. It can be summarised as:

- strategic long distance rail demand modelling using the PLANET Framework of Models (PFM), including PLANET Long Distance (PLD), PLANET Midland (PM), PLANET South (PS) and the PLANET Station Choice Model (SCM);
- regional multi-modal transport demand modelling using the TfL London Transport Studies (LTS) model;
- strategic highway assignment modelling using the TfL Central London Highway Assignment Model (CLoHAM) and West London Highway Assignment Model (WeLHAM);
- regional public transport modelling using the TfL Railplan model; and
- local junction modelling as required.

Figure 8: London area modelling framework



- 3.1.11 The modelling framework outlined is based on and builds upon TfL's suite of regional and sub-regional models.
- 3.1.12 LTS is a strategic multi-modal demand model for London and its surrounding area, providing forecasts, analysis and traffic data using a comprehensive database of travel patterns within the London area. LTS provides an independent and common structure for all parties to provide a London-wide basis for major scheme appraisal.
- 3.1.13 The LTS model is a complete four-stage model system (i.e. generation, distribution, mode split and assignment) and is used for policy analysis, covering both strategic studies and evaluation frameworks, scheme evaluation for public transport and highway schemes and to provide data for other models. LTS provides the forecast year future baseline demand for TfL's Railplan and Highway Assignment Models (HAMs).
- 3.1.14 The version of LTS used for this assessment is LTSv7 which has been updated from the 2007 base used in the main TA to include rebased census population and car ownership, new GLA population and employment forecasts, and updated networks and services. The new version of LTS has a 2011 base year.
- 3.1.15 TfL's sub-regional Highway Assignments Models (HAMs) were developed by TfL to provide a consistent basis for assessing the highway impacts of land use and infrastructure proposals across London, with models developed for central, west, north, east and south London. Following discussions in early summer 2012, it was agreed by HS2 Ltd and TfL that the Central London and West London Highway Assignment Models (CloHAM and WeLHAM respectively) would provide the most appropriate basis for assessing the highway impacts of the construction and operational phases of the revised scheme in London. CloHAM is primarily used to assess the construction and operational impacts around Euston station and Camden and WeLHAM for the remainder of the revised scheme in London.



- 3.1.16 Regional Railplan is a strategic public transport assignment model now developed and managed by TfL, but initially developed by London Transport in the early 1990s. The model contains the service patterns for public transport modes within the south east of England, with a focus on London and rail routes serving London during the modelled periods.
- 3.1.17 Historically, Railplan has been primarily used for the morning peak period (07:00-10:00) on an “average” Monday to Friday weekday in a neutral month. An updated version (V7) of Railplan has been used for this assessment. For the assessment of HS2, TfL and HS2 Ltd agreed that the AM peak period and PM peak period models should be used.
- 3.1.18 RailplanV7 is calibrated to a 2011 base year and has future years of 2021, 2026 and 2031. A 2041 model was developed to model the revised scheme based on extrapolations of 2031 population and employment forecasts in LTS. Public transport demand is derived from LTS with demand assigned to the optimal routes in the network with routes being a combination of rail, underground, light rail or bus usage, together with walk for shorter journeys as well as for interchange.
- 3.1.19 The PLANET suite of models has been developed by the DfT and has been refined in order to model the revised scheme and provide input into the business case, ES and TA. The long distance rail movements in Railplan were replaced with long distance rail movements, including passengers using the revised scheme, from PLANET.
- 3.1.20 PLANET runs were undertaken for 2026 and 2036. The 2026 and 2036 long distance rail data from PLANET was substituted directly into the Railplan models for 2026 and 2041 respectively. The passenger growth in long distance rail between 2036 and 2041 is therefore not included in the 2041 Railplan model runs. Extrapolating trend forecasts, this would account for further growth of some 2% p.a. – total additional growth of approximately 10%. However, Railplan assumes that all rail passengers (specifically those arriving at Old Oak Common or Euston) would use public transport (bus, LU or rail services) or walk. This ignores car, taxi and cycle and consequently over estimates the impact of HS2 services on these modes. Separate analysis indicates that some 10% of HS2 passengers would use taxi, car or cycle and should, in principle, be deducted from the HS2 passengers forecast to transfer to public transport at Euston and Old Oak Common stations.
- 3.1.21 In the assessment of Euston and Old Oak Common station, these additional car, taxi and cycle trips have been added without any reduction in the transfers to public transport. Hence two adjustments should in principle be made, one to increase demand to reflect growth between 2036 and 2041, and a second adjustment to reduce demand to account for non-public transport and walk access modes. Since these two impacts largely negate one another it was decided to make neither adjustment and treat the 2036 forecasts as forecasts for 2041. It should be noted that no adjustment has been made for car, taxi and cycle access in 2026 when there is no compensating adjustment for growth. To this extent the 2026 impacts are likely to be over-stated.

## Regional highway modelling

### *CLoHAM and WeLHAM SATURN highway modelling*

- 3.1.22 The initial (Production Version 1) HAMS have been updated by TfL to Production Versions 2 (P2) which comprise network updates, but still include 2009 demand data. TfL is currently developing production version 3 (P3) which includes extensive network updating, greater consistency across the HAMS, an extensive overhaul of traffic signal data within CLoHAM and matrix calibration based on extensive survey data from Autumn 2012, together with the data collected in the environs of Euston station by Arup in summer 2012.
- 3.1.23 As a result of the programme for the AP03, TfL provided a preliminary version of CLoHAM P3, as of July 2014, recognising that TfL's work on P3 is on-going and due to conclude in 2015.
- 3.1.24 The Interim Production Version 3 versions of the CLoHAM was re-calibrated and re-validated to a November 2012 base, including additional network detail around the Euston area and other updates to improve the performance and robustness of the model. These improvements were carried forward to the 2021, 2026 and 2041 models. The models were substantially updated to a 2012 base and re-calibrated to this base year. As part of this, and as discussed further below, demand matrices were updated based on extensive new 2012 count data sourced by HS2 Ltd and TfL, together with 2012 observed journey time data.
- 3.1.25 The modelled time periods for CLoHAM and WeLHAM were the weekday AM peak hour (08:00 to 09:00), inter-peak average hour of 10:00-16:00 and PM peak hour (17:00 to 18:00).
- 3.1.26 TfL provided two versions of the WeLHAM model, one for the original 2009 WeLHAM calibration and a further version containing refinements to facilitate modelling of the Old Oak Common Opportunity Area Planning Framework (OAPF). The base model was re-calibrated by Hs2 Ltd with additional 2009 and 2012 traffic counts to increase the level of validation in the OOC area. The base models were further updated in early/mid-2014 to form version (p3), taking on board further network and matrix refinements by TfL and survey data.
- 3.1.27 TfL also updated the 2009 WeLHAM Old Oak Common OAPF model and this was developed to include the Old Oak Common OAPF in the first half of 2013. A key model modification was the introduction of a finer zoning system in the Old Oak Common area to represent the potential OAPF developments in more detail. As with CLoHAM the forecast WeLHAM reference case models were also updated in early/mid 2014 to reflect projected updated growth and the impacts of the Mayors Cycle Superhighway (CSH).
- 3.1.28 Based on an initial assessment of the likely main traffic impacts of the HS2 schemes and liaison with TfL, both CLoHAM and WeLHAM have been updated by HS2 Ltd for this assessment to reflect 2012 conditions for the strategic highway modelling. This used extensive new counts, journey time and other data provided by TfL, and sourced by HS2 Ltd. For CLoHAM, this represented a wholesale update of the model. Given the more restricted area of impact in other parts of London for WeLHAM, the updates

were more limited with local re-calibration of the 2009 WeLHAM OOC model focused on the following two local study areas of Old Oak Common (OOC) and West Ruislip.

- 3.1.29 The methodology and development of the validated 2012 base year highways models were agreed with TfL prior to their use in the future baseline models. The model performance reports for the re-based, re-calibrated and re-validated versions of the CLoHAM and WeLHAM models, describing the development and re-calibration and re-validation of the two models, are contained within Annex C(ii) for CLoHAM and SES and AP2 ES Volume 5 Appendix (TR-001-000) TA Annex C(iii) for WeLHAM.
- 3.1.30 The DMRB and DfT WebTAG (Transport Appraisal Guidance) guidance focuses on link flow validation and considers the actual difference between modelled and observed link flows, with a differential target dependent on the level of flow on a link together with the GEH (Geoffrey Havers) statistic, as a measure of the goodness of fit between modelled and observed flows. This guidance indicates a benchmark for the GEH statistic of 85% of modelled flows having a GEH statistic of less than 5.
- 3.1.31 A summary of the base year models' GEH link flow validation performance is given in Table 24. Model performance is reported in the CLoHAM model performance report in Annex C(ii). It indicates that the models achieve, or almost achieve 85% in each time period and for each model, and can be considered to provide a robust basis on which to assess the impacts of the revised scheme in the Euston and Old Oak Common and areas.

Table 24: CLoHAM and WeLHAM local area link flow performance summary

| DMRB GEH <5 guidance | AM peak hour (08:00 to 09:00) | PM peak hour (17:00 to 18:00) |
|----------------------|-------------------------------|-------------------------------|
| CLoHAM               | 92%                           | 83%                           |
| Old Oak Common area  | 94%                           | 94%                           |

- 3.1.32 Future baseline vehicle matrices for 2021, 2026 and 2041 were created by TfL using the 2012 validated model and LTS-sourced London Plan-based demand growth. Consented highway schemes were included in the relevant future baseline scenarios.
- 3.1.33 Based on traffic growth derived from CLoHAM, peak hour traffic volumes to, from and within the Euston area are forecast to grow by around 4% by 2021 and 9% by 2041, compared to 2012. Growth to 2026 is forecast to be similar to that for 2021. This has been derived from the demand growth between the 2012 validated model and the 2021, 2026 and 2041 demand provided by TfL.
- 3.1.34 For WeLHAM, the overall traffic growth in both peak periods is similar, with AM peak hour traffic volumes forecast to grow by around 2.5%-3% by 2021, 4.5%-5.5% by 2026 and 8.5-9.5% by 2041.
- 3.1.35 Section 9.6 of TfL's Transport Assessment Best Practice guidance<sup>5</sup> states that: 'For traffic modelling, any roads operating over 85% saturation are generally considered to be suffering from congestion. Where development proposals increase the saturation

<sup>5</sup> Transport for London (2010) Transport Assessment best practice guidance document

significantly above this level, mitigating factors should be proposed and described, taking into account any existing plans to relieve congestion’.

- 3.1.36 Junctions and roads affected by the revised scheme, as well as all roads and junctions that are proposed to be closed, temporarily diverted or built during construction or operation, are dealt with under the relevant CFA discussion. They were identified by:
- modelling all roads and junctions in the immediate vicinity of Euston and Old Oak Common stations and the Ruislip worksite and/or closed, temporarily diverted or proposed during construction or operation; and
  - identifying junction approach arms where the flow to capacity relationship for an approach arm, measured as the Volume Capacity (VoC) ratio, is over 87% during the construction or operation of the revised scheme and there is an increase of 2% or more.
- 3.1.37 For the Euston and Camden areas (and as modelled in CLoHAM), five construction activity phases were assessed:
- 2017 in the construction programme
  - 2018 in the construction programme
  - 2020 in the construction programme
  - 2023 in the construction programme
  - 2031 in the construction programme
- 3.1.38 Although the five construction tests represent different years, 2017, 2018, 2020 and 2023, they have all been modelled using 2021 background demands, as growth in background demand between the construction years is relatively minor. The 2031 construction scenario was assessed against 2026 background demand.
- 3.1.39 For the areas to the west of the A5 Kilburn Road to the Colne Valley, in CFA<sub>4</sub> and CFA<sub>5</sub>, two construction tests were undertaken:
- late 2017-early 2018, with substantial movement of excavated material underway but the railhead at Willesden not yet fully operational and Old Oak Common Lane (CFA<sub>4</sub>) still open; and
  - 2023/2024, with Old Oak Common Lane closed (CFA<sub>4</sub>) and the assumption for this assessment that the railhead is still not yet operational although this is not expected to be the case since the railhead should be in place well before the road closure.
- 3.1.40 For each scenario, there will be different levels of construction traffic, together with different patterns of road interventions and associated traffic management.
- 3.1.41 Changes to the road layout and operation associated with the revised scheme, together with increased demand from rail passengers using onwards modes of taxi and car pick-up/set-down, have been included in the relevant forecasts. Runs of both CLoHAM and WeLHAM have been undertaken for 2026 and 2041 to assess the highway impacts of the revised scheme operation.

## Regional Railplan public transport modelling

### *Methodology*

- 3.1.42 Given crowding levels on the London transport network and the established and strategic nature (and validation) of Railplan, it is the most appropriate tool to assess public transport impacts of the revised scheme within London. Railplan incorporates the full public transport network in London and surrounding areas, considers crowding and its impacts on travel choices, and is fully integrated with the LTS model. It has progressively been improved, particularly to better the detailed representation of public transport and development.
- 3.1.43 Railplan has for many years been the best practice standard model that is used to model major public transport interventions in London. This has included all new rail schemes such as Crossrail and indeed Crossrail 2 and other schemes considered by TfL to be complementary to HS2.
- 3.1.44 The primary use of Railplan in this TA was to assess the impact of the scheme on the public transport network, particularly with respect to providing information on passenger flow changes, usage of other stations, crowding levels and onward travel. More specifically, the outputs of the public transport modelling have been used in the assessment to:
- provide arrival and departure flows on the conventional railway (i.e. not including HS2) and HS2 at Euston and Old Oak Common stations in order to estimate the scheme impacts at each station;
  - provide an indicator of station activity (all access, egress and interchange trips) at all stations but focusing particularly on fare Zone 1 stations, together with Camden Town, Mornington Crescent and Ealing Broadway;
  - estimate the impacts of the revised scheme on the London-wide underground, rail and bus network in terms of flow changes on selected links/services around Euston and Old Oak Common stations;
  - provide information on crowding impacts on a network-wide basis for National Rail and LU services;
  - provide detailed outputs on the change in crowding on a station by station basis;
    - around Euston on the Northern line Bank and Charing Cross branches, Victoria line, Piccadilly line and Circle, Metropolitan Hammersmith & City lines;
    - on Crossrail between Ealing Broadway and Farringdon;
  - provide details of local impacts on buses at Old Oak Common;
  - inform the estimation of taxi and car pick up/set down demand for the strategic highway assessment; and
  - provide outputs to support presentation of the results such as plots of flow changes on the wider London public transport network.

3.1.45 Details concerning the update Railplan (V7) model's validation and compliance with modelling guidance are provided in the revised Railplan Modelling Performance Report in Annex C(i). Table 25 and Table 26 provide validation headline statistics that demonstrate Railplan's robustness.

Table 25: Euston station AM peak period passenger flow validation

|                            |                 |            | Observed | Modelled | % difference |
|----------------------------|-----------------|------------|----------|----------|--------------|
| <b>Station interchange</b> |                 |            |          |          |              |
| To/from                    |                 |            | 51,866   | 53,577   | 3%           |
| <b>Link flows</b>          |                 |            |          |          |              |
| NR Inbound                 |                 |            | 27,515   | 25,632   | -7%          |
| Underground                | North of Euston | Northbound | 38,660   | 32,510   | -16%         |
|                            |                 | Southbound | 97,590   | 97,360   | 0%           |
|                            | South of Euston | Northbound | 42,470   | 37,945   | -11%         |
|                            |                 | Southbound | 105,300  | 103,650  | -2%          |

Table 26: Euston station PM peak period passenger flow validation

|                            |                 |            | Observed | Modelled | % difference |
|----------------------------|-----------------|------------|----------|----------|--------------|
| <b>Station interchange</b> |                 |            |          |          |              |
| To/from                    |                 |            | 58,697   | 56,044   | -5%          |
| <b>Link flows</b>          |                 |            |          |          |              |
| NR Inbound                 |                 |            | 27,240   | 25,094   | -9%          |
| Underground                | North of Euston | Northbound | 91,266   | 85,571   | -6%          |
|                            |                 | Southbound | 56,859   | 50,002   | -12%         |
|                            | South of Euston | Northbound | 102,532  | 95,396   | -7%          |
|                            |                 | Southbound | 63,361   | 56,467   | -11%         |

3.1.46 This and Annex C indicate that both the 2011 AM and PM peak period base models provide a reasonably robust basis for assessing the revised scheme. The PM model validates slightly less well, mainly because of contra-peak direction modelling. However, compared against WebTAG guidance these meet guidance levels of performance.

3.1.47 For future year forecasts, all long distance rail trips in Railplan including those on both conventional rail and HS2, either starting or finishing beyond a line drawn between the Severn and the Wash estuaries, were replaced with trips from PLANET. This is a major element in the arriving and departing passenger flows at Euston and Old Oak Common stations.

3.1.48 PLANET is a daily model and Railplan models the three hour morning and afternoon peak periods. Consequently, daily PLANET HS2 demands have been converted to the peak periods. Factors generated by HS2 Ltd, based on detailed National Rail data on time-of-day flows, indicated that 2026 Phase One AM peak inbound and outbound HS2 demands comprise 29% and 22% of the daily inbound and outbound demands respectively. In 2036 Phase Two, the proportions change to 27% and 22% for inbound and outbound respectively. 2026 Phase One PM peak inbound and outbound HS2 demands are 21% and 31% of the daily inbound and outbound demands. In 2036 Phase Two, the proportions change to 21% and 30% for inbound and outbound respectively.

### **Crowding**

3.1.49 For the purposes of this analysis, four passengers per square metre (PPSM) can be considered as a proxy for practical capacity. Above this level, passengers will experience difficulties in boarding services resulting in uncomfortable travelling conditions and potential delays. However, it is important to note that this is a theoretical approach and responses such as peak spreading will serve to mitigate against very high crowding levels actually being achieved. In addition, crowding levels above this level already routinely occur during peak hours and are forecast to continue to worsen into the future.

3.1.50 Crowding is implemented in Railplan in the following way:

- As seated and standing capacity becomes occupied on each leg of each service, a time penalty is progressively applied as a factor to the actual journey time, resulting in the journey times on that leg of that service being perceived as slower.
- As a result, passengers on higher-loaded, higher-penalised services will re-route to lesser penalised routes where possible.
- Where no further re-routing is possible, passengers will be forced to accept the level of crowding penalty.
- No trips are suppressed due to crowding.

### **Modelling of construction**

3.1.51 During the construction period, LU services via Euston LU station will continue to operate. However, construction of the new escalators and lifts down to the underground are expected to require some closures of the underground platforms at Euston LU station, where LU services would not call at the affected platforms. Railplan was used to test the impacts of these potential platform closures based on a run of the 2026 do-minimum scenario and testing each of the three closures.

### *Post model processing to account for car, taxi and cycle as onward or access modes*

3.1.52 Railplan incorporates supply-side (network) details for rail, underground, bus and walk and, as such, assumes all demand arriving or departing Euston and Old Oak Common stations will use one of these modes for their onward or access journeys. However, car, taxi and cycle are also important arrival and departure modes, particularly in the

case of long distance rail travel. Their importance is likely to increase with the revised scheme. In order to account for them, available survey data indicating arrival and departure modes was investigated.

- 3.1.53 Using this data, onward car, taxi and cycle mode shares for arriving and departing rail passengers were estimated at both stations. Whilst this demand will effectively reduce the demands travelling by underground, bus and walk, the Railplan demand was not adjusted downwards. This reflects a robust case for the assessment of these modes for all except 2041 with HS2 forecasts where an underestimate in long distance rail demand from north of a broad line across England just south of Northampton (due to the use of 2036 HS2 demands. These are approximately 10% lower than expected 2041 demands) partially offsets any discrepancy, particularly at Euston station. The offset at Old Oak Common is less pronounced because HS2 demands comprise a smaller proportion of the total rail demand entering, exiting or interchanging there.
- 3.1.54 Car, taxi and cycle mode shares at Euston and Old Oak Common are 10% or more in magnitude, while long distance rail demand growth from 2036 to 2041 is expected to be approximately 2% per annum. Superficially these two factors are closely matched but because HS2 demand only comprises a portion of the total rail traffic at Euston and Old Oak Common stations this represents a robust approach. Demand is effectively increased by just over 10% by adding rather than netting off car, taxi and cycle access trips, while only growth in long distance demand from the Midlands and the north would need to be uplifted by 10%.



## 3.2 Future baseline assessment for CFA1, CFA2 and CFA3

3.2.1 This section replaces section 6.3 (paragraphs 6.3.37 to 6.3.139) of the main TA.

### Euston- Station and Approach (CFA1) future baseline

#### *Key future baseline transport issues*

3.2.2 Transport conditions for the future baseline have been considered for the assessment years of 2021 (highways only), 2026 and 2041. The main issues include:

- increase in traffic demand on the local highway network leading to a reduction in capacity at some junctions in the 2026 and 2041 future baseline scenarios;
- reduction in capacity at the Euston station interchange facilities due to the forecast growth in the 2026 and 2041 future baseline scenarios;
- increase in crowding on the southbound Victoria line and Northern line Bank branch to over 4 PPSM in the 2041 future baseline scenario; and
- reduction in the level of comfort experienced by pedestrians at some pedestrian crossings in the vicinity of Euston station in the 2026 and 2041 future baseline scenarios.

3.2.3 As there are no equestrian facilities, air transport facilities or canals/waterways affected by the revised scheme within this CFA, these topics are discussed no further within this report.

#### *Land use assumptions*

3.2.4 The land use assumptions used in deriving the additional demand generated in the vicinity of Euston station are those contained within the London Transportation Studies (LTS) model, as provided by Transport for London (TfL). These land use assumptions correspond to the available planning horizons and the Mayor's London Plan. In addition to the general background growth in the area, the future year baseline assessment includes traffic forecast to be generated by committed and planned developments.

3.2.5 It should be noted that the full Euston Area Plan (EAP) and Old Oak Common Opportunity Area Planning Framework (OAPF) are not included, but are considered in sensitivity tests.

#### *Transport supply assumptions*

##### **Rail and underground**

3.2.6 The future baseline rail and underground networks generally only contain committed changes to infrastructure and services. These have been represented in the Railplan network.

3.2.7 Table 27 shows the main assumptions contained within the LTS model for a number of future years. Future travel demand for London is generally based on London Plan 2010 development with TEMPRO forecasts used outside London. As GLA population and employment forecasts are not available beyond 2031, it was assumed that the zonal growth forecast between 2021 and 2031 would be repeated between 2031 and 2041.

Table 27: LTS assumptions

| Main assumptions                           | 2021  | 2026 | 2031 | 2041                                  |
|--|---|------|------|---------------------------------------|
| GLA population                             | London Plan 2010  |      |      | Growth 2021-2031 maintained 2031-2041 |
| GLA employment                             |   |      |      |                                       |
| Non-GLA demographics                       | TEMPRO - Version 6.2                                    |      |      |                                       |
| Congestion charges, tolls, parking charges | Increase in line with GDP (WebTAG Unit 3.5.6, Jan 2014) |      |      |                                       |
| River Crossing tolls                       | No GDP Uplift   |      |      |                                       |
| VOT, fuel prices, GDP                      | WebTAG Unit 3.5.6 - Jan 2014                            |      |      |                                       |
| Fares                                      | RPI + 1% 2011 to 2036                                   |      |      |                                       |
| Rail demand (Rest of UK)                   | GDP uplift with PDFH elasticity (+101% by 2041)         |      |      |                                       |

3.2.8 Table 28 and Table 29 show the modelled rail and underground network changes between the 2011 and 2041 scenarios that are in LTS. Crossrail 1 is one of the major new schemes that have been included in the future year networks.

3.2.9 Since Crossrail 2 is not committed this is not included. Its impact is, however, considered as a sensitivity test. Crossrail 2 is modelled as a sensitivity test for 2041, both in its own right and with the Euston Area Plan (EAP).

Table 28: LTS network changes - Network Rail

| Network Rail   | Year |
|--|------|
| Chiltern Evergreen 3 Phase 1                         | 2016 |
| Chiltern Evergreen 3 Phase 2                         | 2016 |
| HLOS1 - West Anglia services                         | 2016 |
| HLOS1 - South West Trains services                   | 2016 |
| HLOS1 - London Bridge                                | 2016 |
| HLOS1 - Victoria                                     | 2016 |
| HS1 Enhancement                                      | 2016 |
| London Midland Project 110 (Full)                    | 2016 |
| Thameslink KO1.1 - through services                  | 2016 |
| West Coast Pendolino lengthening (35x11car, 21x9car) | 2016 |

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| <b>Network Rail</b>  | <b>Year</b> |
|--|-------------|
| New Lea Bridge station   | 2016        |
| Extend all class 378s to 5 car   | 2016        |
| Devolution - West Anglia Inners  | 2016        |
| London Overground SLC3 - East London line Phase 2b to Clapham Junction | 2016        |
| Chiltern Speed Adjustment (Metropolitan)                               | 2021        |
| Crossrail 1 (Abbey Wood / Shenfield - Heathrow / Maidenhead)           | 2021        |
| Thameslink KO2 - Blackfriars services                                  | 2021        |
| Thameslink KO2 - Cannon Street services                                | 2021        |
| Thameslink KO2 - Charing Cross services                                | 2021        |
| Thameslink KO2 - GN Moorgate Suburban services                         | 2021        |
| Thameslink KO2 - GN Kings Cross Suburban services                      | 2021        |
| Thameslink KO2 - London Bridge services                                | 2021        |
| Thameslink KO2 - through services                                      | 2021        |
| Thameslink KO2 - Victoria (SE) services                                | 2021        |
| Thameslink KO2 - Victoria (south central) services                     | 2021        |
| Paddington GWML suburban electrification                               | 2021        |
| Paddington GWML long distance electrification                          | 2021        |
| HLOS2 - East West Rail (Aylesbury - Milton Keynes, Oxford - Bedford)   | 2021        |
| HLOS2 - West London Line   | 2021        |
| HLOS2 - Lea Valley Main Line   | 2021        |
| HLOS2 - Main Line  | 2021        |
| HLOS2 - Whole TOC  | 2021        |
| HLOS2 - Whole TOC  | 2021        |
| HLOS2 - Sydenham route   | 2021        |

| <b>Network Rail</b>  | <b>Year</b> |
|--|-------------|
| HLOS2 - Brighton Main Line (BML)                               | 2021        |
| HLOS2 - Main Line  | 2021        |
| HLOS2 - Main suburban  | 2021        |
| HLOS2 - Windsor lines  | 2021        |
| HLOS2 - Main Line  | 2021        |
| HLOS2 - Main line and Aylesbury route                          | 2021        |
| HLOS2 - London Midland   | 2021        |
| HLOS2 - Main Line  | 2021        |
| HLOS2 - Main line and Hertford loop                            | 2021        |
| West Anglia upgrade  | 2021        |
| Gospel Oak - Barking electrification and longer (4 car) trains | 2021        |
| London Overground speed adjustment (Watford DC - Bakerloo)     | 2026        |

Table 29: LTS Network Changes - London underground / DLR/Tramlink

| <b>London underground/DLR/Tramlink</b>                        | <b>line</b>       | <b>Year</b> |
|---|-------------------|-------------|
| Full Upgrade including new Next Generation Trains (NGT) stock | Bakerloo line     | 2031        |
| Full upgrade including new NGT stock                          | Central line      | 2031        |
| 36 tph Jubilee line   | Jubilee line      | 2021        |
| Croxley link  | Metropolitan line | 2016        |
| PPP upgrade - phase 1 (signalling upgrades)                   | Northern line     | 2016        |
| PPP upgrade - phase 2 (revised service patterns)              | Northern line     | 2021        |
| Northern line extension to Battersea                          | Northern line     | 2021        |
| Full Upgrade including new NGT stock                          | Piccadilly line   | 2026        |
| Phase 1 - new stock   | Sub-surface       | 2016        |
| Phase 2 - full upgrade  | Sub-surface       | 2021        |

| London underground/DLR/Tramlink  | line                 | Year |
|--|----------------------|------|
| 33 tph in operation 2012, potential to increase to 36 tph                      | Victoria line        | 2016 |
| New stock in line with deep tube upgrade and enhanced frequency (30 tph peaks) | Waterloo & City line | 2031 |
| Poplar - Stratford 3 car upgrade   | DLR                  | 2016 |
| IP service enhancement   | DLR                  | 2016 |
| North route double tracking phase 1 (Base service Plan B)                      | DLR                  | 2016 |
| Therapia Lane 2012   | Tramlink             | 2016 |
| Wimbledon higher frequency   | Tramlink             | 2016 |

### Bus network

- 3.2.10 In the direct vicinity of Euston station, the future baseline strategic highway and local modelling includes changes to the configuration of A400 Tottenham Court Road and A400 Gower Street associated with the West End Project (WEP), as well as the reconfiguration of the junction of A501 Euston Road with A400 Hampstead Road and A400 Tottenham Road (Euston Circus). The WEP will include the following changes for buses:
- two-way bus movement on A400 Tottenham Court Road;
  - moving of all bus routes from A400 Gower Street to A400 Tottenham Court Road;
  - moving all bus routes from St. Giles Street to Earnshaw Street; and
  - moving of some bus stops and bus stands from Earnshaw Street and Great Russell Street.
- 3.2.11 As all bus routes will be moved from A400 Gower Street to A400 Tottenham Court Road, southbound buses will serve A400 Tottenham Court Road. The northern section of A400 Gower Street, north of Grafton Way, will remain two-way for buses (and general traffic).
- 3.2.12 The changes to Euston Circus result in the provision of a westbound contraflow bus lane. As part of this scheme, a new westbound bus stop on A501 Euston Road, adjacent to University College London Hospital, is provided. Westbound bus routes 18, 30 & 205 will use this new facility. The parallel Grafton Way will no longer be served by these bus routes.
- 3.2.13 In the wider Greater London area, changes to other bus routes would be expected as a result of the following changes to the highway network:
- Britannia junction;
  - Baker Street two-way;
  - north-south Cycle Superhighway;

- east-west Cycle Superhighway;
- Cycle Superhighway 1 (Tottenham to Shoreditch);
- Cycle Superhighway 2 upgrade (Aldgate to Bow roundabout);
- Cycle Superhighway Inner 5 (Oval to Victoria);
- Cycle Superhighway 11 (West Hampstead to Marylebone);
- cycle grid - Calthorpe Street;
- Old Street roundabout reconfiguration;
- Elephant and Castle northern roundabout reconfiguration;
- Holborn Circus;
- Kennington Cross;
- Lambeth South;
- Oval;
- Waterloo IMAX; and
- Westminster Bridge.

3.2.14 No further assumptions have been made with regards to bus service routeing. In terms of frequency, a 4% global increase has been assumed as the modelled frequency change between 2011 and 2021 in the LTS.

### **Cycle network**

3.2.15 No changes have been assumed to the cycle infrastructure in the direct vicinity of Euston station. However, in the wider local area, a number of changes have been applied to the future baseline cycle network to reflect changes that are proposed as part of the WEP and changes to Euston Circus. The WEP includes the following for cyclists:

- protected cycle lanes on Gower Street/Bloomsbury Street, Shaftesbury Avenue and Grafton Way;
- making A400 Tottenham Court Road two-way for cyclists (and buses) only from 08:00 to 19:00, Monday to Saturday;
- wider traffic lanes on A400 Tottenham Court Road to make it safer and easier for buses and cyclists to overtake; and
- safer junctions including the removing conflicts between cycling and vehicles on A400 Tottenham Court.

3.2.16 As part of the Euston Circus scheme, a new westbound contraflow bus and cycle lane on Euston Road adjacent to University College London Hospital is provided.

3.2.17 As part of the strategic highway modelling, the proposed north-south (Elephant and Castle to King's Cross) and east-west (Lancaster Gate to Tower Hill) Cycle

Superhighways have been included to reflect the reduction in general traffic road capacity associated with those schemes.

### **Pedestrian network**

3.2.18 The new Euston Circus layout will enhance the pedestrian realm around the junction. Additional pedestrian space will be provided on the approaches to the junction. Signalised pedestrian crossings will also be provided on all approach (entry) and exit arms at the junction. The removal of the existing internal junction stoplines also removes the internal pedestrian crossings which will simplify movement across the junction for pedestrians.

3.2.19 As part of the WEP, the changes to the pedestrian infrastructure that will be implemented include the following:

- improved public spaces on A400 Tottenham Court Road;
- wider pavements on A400 Tottenham Court Road; and
- improved crossings on A400 Tottenham Court Road and A400 Gower Street.

3.2.20 No further changes have been assumed with regards to the future baseline pedestrian network or provision of pedestrian facilities.

### **Highway network**

3.2.21 The highway network in the immediate vicinity of Euston station will remain the same for the future baseline. However, some changes to the future baseline in the wider local area have been accounted for, including the WEP. The WEP will result in the following changes to the highway network:

- two-way operation on A400 Tottenham Court Road for buses and cyclists only from 08:00 to 19:00, Monday to Saturday;
- local access for cars, taxis and loading on short sections of A400 Tottenham Court Road via side roads;
- two-way operation for all traffic on A400 Gower Street/Bloomsbury Street;
- one-way operation on some side street to allow access but to prevent rat-running;
- banned turns to allow access but to prevent rat-running; and
- re-introduction of the right turn from A400 Charing Cross Road into A401 Shaftsbury Avenue at Cambridge Circus.

3.2.22 The highway network for the WEP during the restricted hour is shown in Figure 9 while the highway network outside the restricted hours is shown in Figure 10.

Figure 9: WEP highway layout - during restricted hours



Source: [www.camden.gov.uk](http://www.camden.gov.uk)



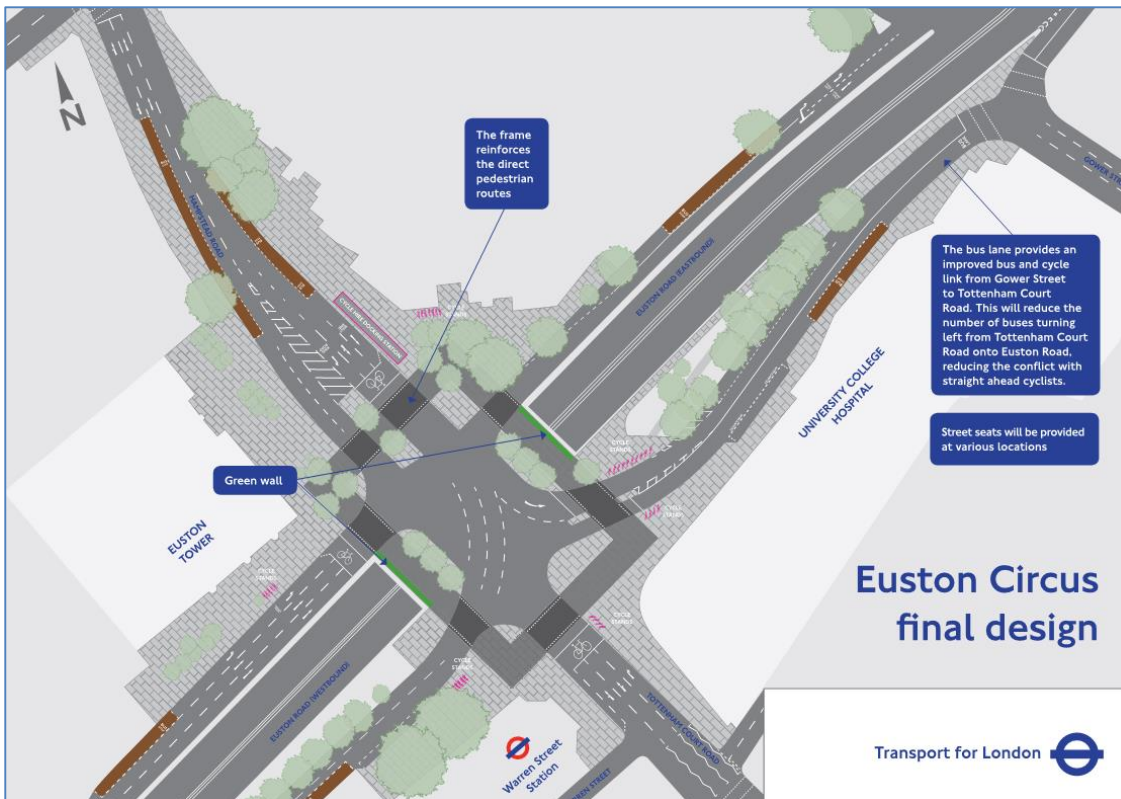
Figure 10: WEP highway layout - outside restricted hours



Source: [www.camden.gov.uk](http://www.camden.gov.uk)

3.2.23 As well as the WEP, the re-configuration of Euston Circus, has been accounted for in all future baseline scenarios. The new junction layout can be seen in Figure 11.

Figure 11: Euston Circus layout



3.2.24 The main changes to this junction in the future baseline scenarios are:

- the left-turn movement from A400 Hampstead Road onto the A501 Euston Road eastbound on-slip has been banned;
- a contra-flow bus and cycle lane has been provided on the link between A501 Euston Circus and A400 Gower Street (this was formerly a one-way eastbound link); and
- all stoplines internal to the junction and hence all pedestrian crossings within the junction have been removed.

3.2.25 The new junction layout has been reflected in all future baseline modelling, both strategic and local.

3.2.26 The junction of A400/A502 Camden High Street with A400 Kentish Town Road, A503 Camden Road, A4201 Parkway and Greenland Road, known as Britannia Junction, has also been reconfigured.

3.2.27 The key changes to this junction in the future baseline scenarios are:

- reduction from three lanes to two lanes on the A4201 Parkway approach to the junction;
- introduction of advanced stops lines (ASL) for cyclists on the A400/A502 Camden High Street northbound approach to the junction and the A4201 Parkway approach to the junction;
- removal of the central reservation in the centre of the junction; and

- widening of the footways outside A400 Camden Town London underground station (between A400/A502 Camden High Street and A400 Kentish Town Road) and on the north side of the junction between A4201 Parkway and A400/A502 Camden High Street.

3.2.28 The new junction layout has been reflected in all future baseline strategic modelling scenarios.

3.2.29 In addition to the above schemes, the schemes outlined in paragraph 3.2.13 will result in changes to the local highway network.

### Taxi facilities

3.2.30 Although background growth in taxi demand is included in the future baselines, it is assumed that there will be no changes to the taxi facilities in the area between 2012 and the 2026 and 2041 future baseline scenarios.

### Parking and loading

3.2.31 It is assumed that there will be no changes to the parking and loading facilities in the area between 2012 and the 2026 and 2041 future baseline scenarios.

### Transport demand assumptions

#### Rail and underground network

3.2.32 2012 baseline reflects the most recent estimates of station use. Growth in future baseline passenger numbers has been derived from TfL's Railplan model for 2026 and 2041, which assumes London Plan growth and includes long distance rail demand from the Department for Transport's (DfT) PLANET model. It should be noted that although Railplan generally models public transport well, it over-states Euston station usage in the 2011 base year. Consequently the growth stated below as a comparison of future year Railplan forecasts against 2012 baseline estimates also results in some over-statement of growth. No Railplan forecasts were required for 2021.

3.2.33 Future baseline public transport flows for 2026 arriving at Euston by rail in the AM peak (07:00-10:00) period are forecast to increase by 52% compared to 2012, as shown in Table 30. In the PM peak (16:00-19:00 period), public transport flows leaving Euston by rail are forecast to increase by 58% compared to 2012.

3.2.34 Future baseline public transport flows in 2041 arriving at Euston by rail in the AM peak period are forecast to increase by 78% compared to 2012. In the PM peak period, public transport flows leaving Euston by rail are forecast to increase by 87% compared to 2012.

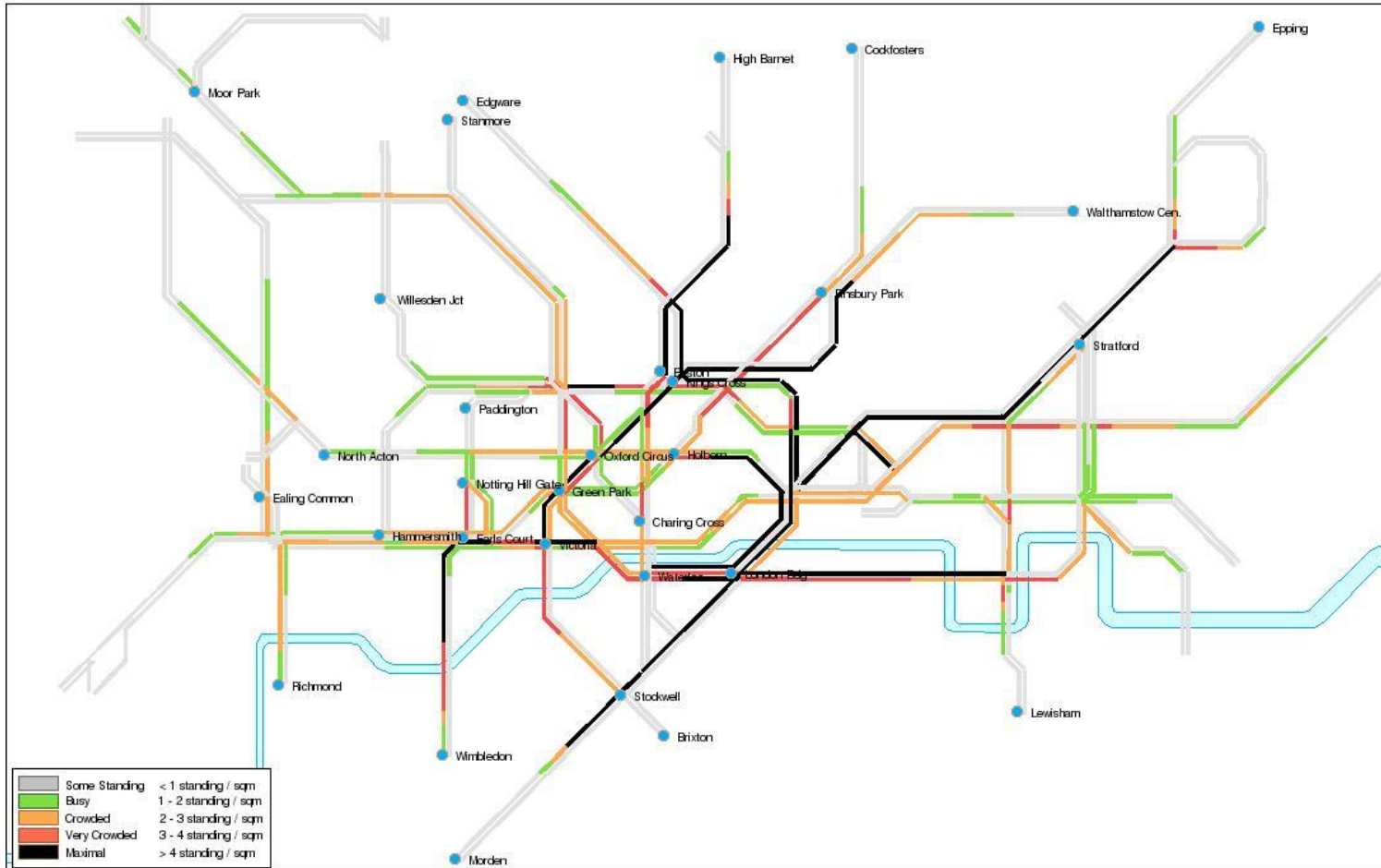
Table 30: 2026 and 2041 baseline rail demand growth at Euston station

|             | AM peak period (07:00-10:00) |               |               | PM peak period (16:00-19:00) |               |               |
|-------------|------------------------------|---------------|---------------|------------------------------|---------------|---------------|
|             | 2012 baseline                | 2026 baseline | 2041 baseline | 2012 baseline                | 2026 baseline | 2041 baseline |
| From trains | 24,680                       | 37,510        | 44,020        | 11,530                       | 15,710        | 20,150        |
| To trains   | 8,510                        | 13,910        | 17,410        | 23,980                       | 37,970        | 44,920        |

- 3.2.35 Upgrades planned by 2026 on the underground network mitigate the impacts and result in reductions in crowding. There are reductions in crowding during the AM peak between 2011 and 2026 on the Metropolitan and Hammersmith & City lines into Baker Street, the Piccadilly line, as a result of the upgrade and the Central line as a result of crowding relief resulting from Crossrail. There are no changes to the categories of crowding on the Northern line, Victoria line and sub-surface lines around Euston. Crowding also reduces across the network for the PM peak, with reductions on the westbound sub-surface lines towards Euston Square, the Central line, Piccadilly line and Northern line Charing Cross branch.
- 3.2.36 The level of crowding on the LU and National Rail services in 2026, for the AM peak period can be seen in Figure 12 and Figure 13 and for the PM peak period in Figure 14 and Figure 15. Crowding on LU and National Rail services in 2041, for the AM peak period can be seen in Figure 16 and Figure 17 and for the PM peak period in Figure 18 and Figure 19.

Figure 12: LU crowding - 2026 future baseline AM peak period

LUL and DLR Crowding  
HE414A25D - 2026 AM Do-Minimum



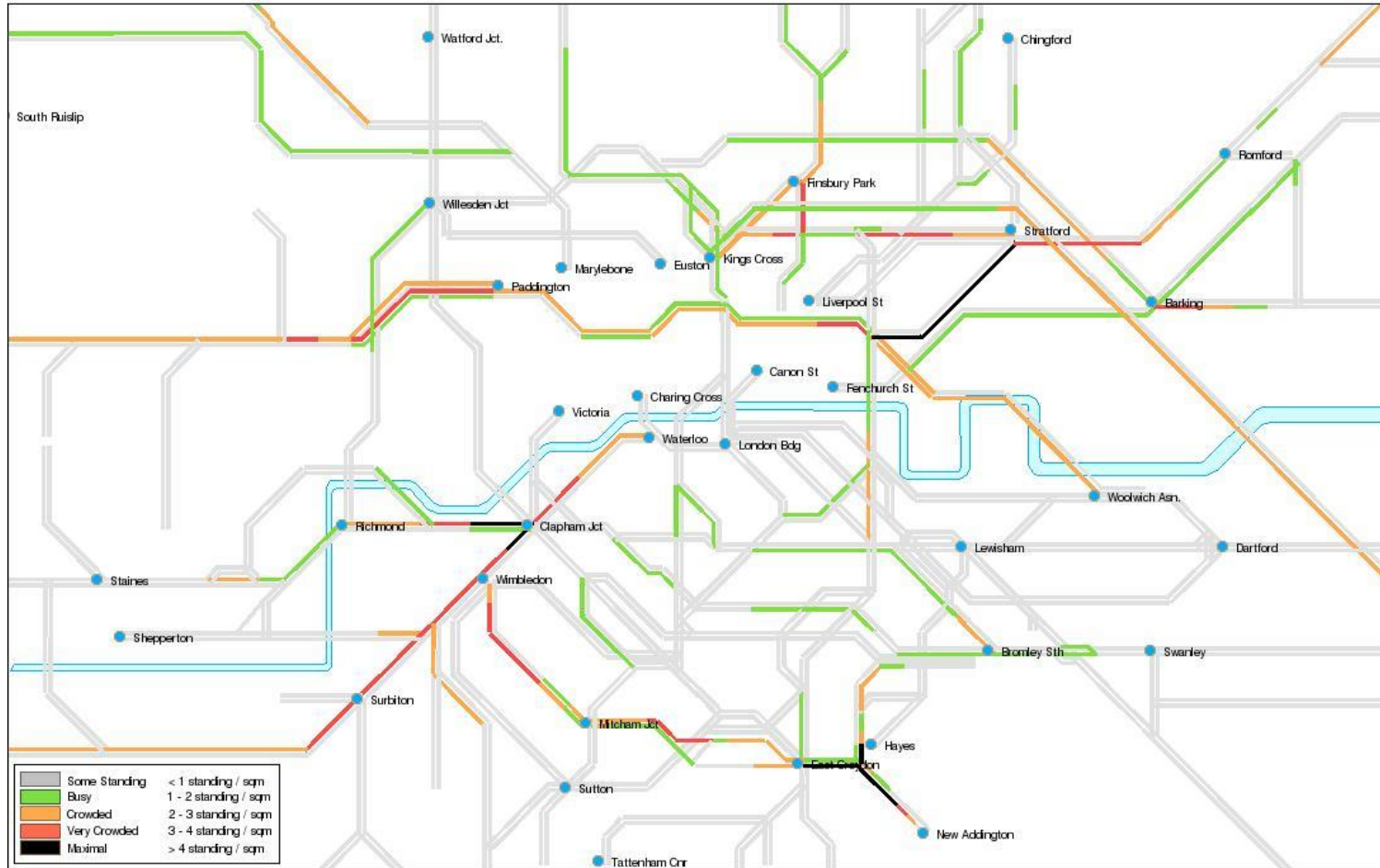
Note:  
 - Peak hour crowding (54% peak period demand)  
 - Standing density factor of 7 pax/sqm  
 - Includes reliability factor

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Figure 13: National Rail crowding - 2026 future baseline AM peak period

National Rail and Tramlink Crowding  
HE414A25D - 2026 AM Do-Minimum



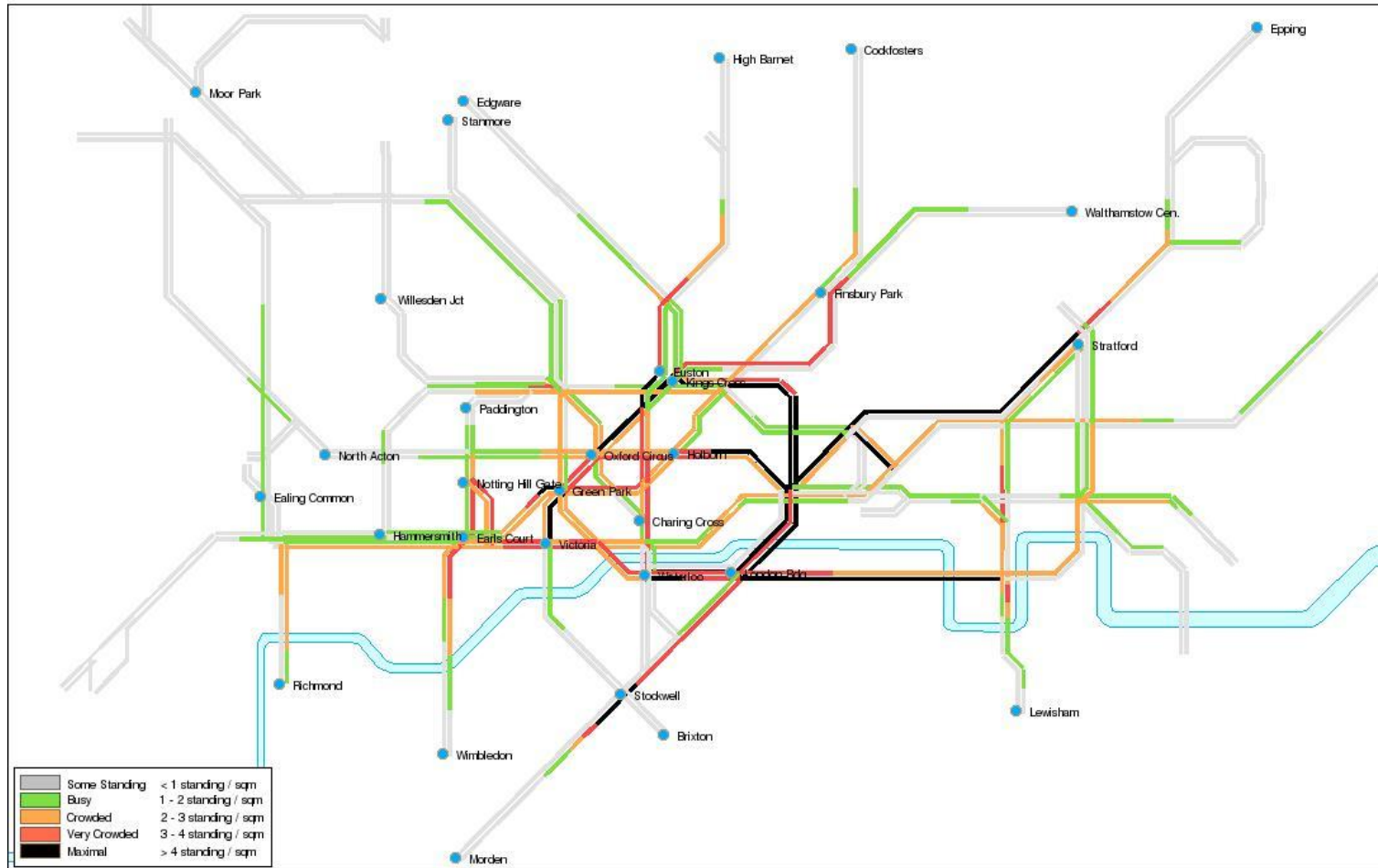
Note:  
 - Peak hour crowding (54% peak period demand)  
 - Standing density factor of 7 pax/sqm  
 - Includes reliability factor

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Figure 14: LU crowding - 2026 future baseline PM peak period

LUL and DLR Crowding  
 HF418P25D - 2026 PM Do-Minimum



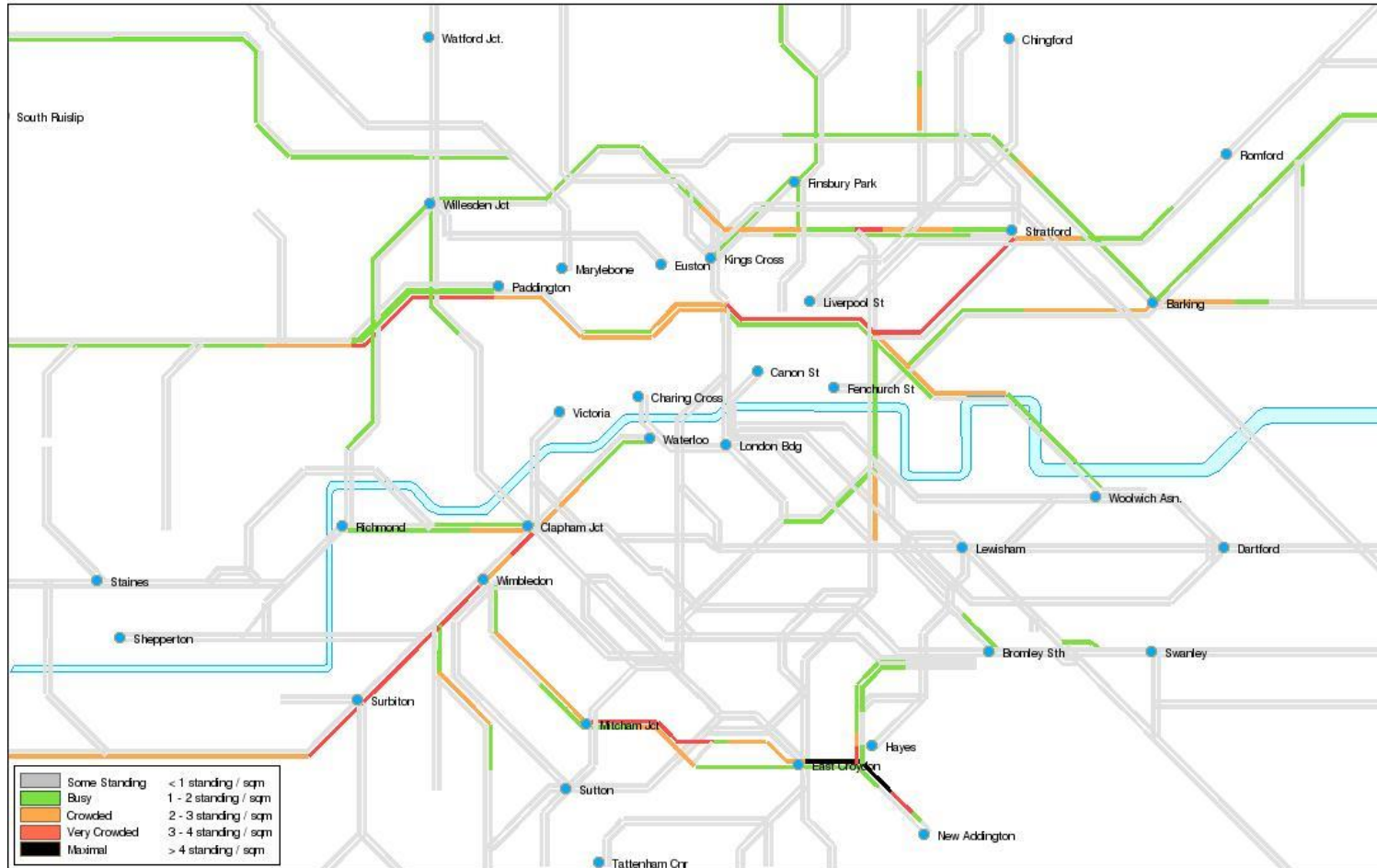
Note:  
 - Peak hour crowding (54% peak period demand)  
 - Standing density factor of 7 psq/m  
 - Includes reliability factor

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Figure 15: National Rail crowding - 2026 future baseline PM peak period

National Rail and Tramlink Crowding  
HF418P25D - 2026 PM Do-Minimum



Note:  
 - Peak hour crowding (54% peak period demand)  
 - Standing density factor of 7 pax/sqm  
 - Includes reliability factor

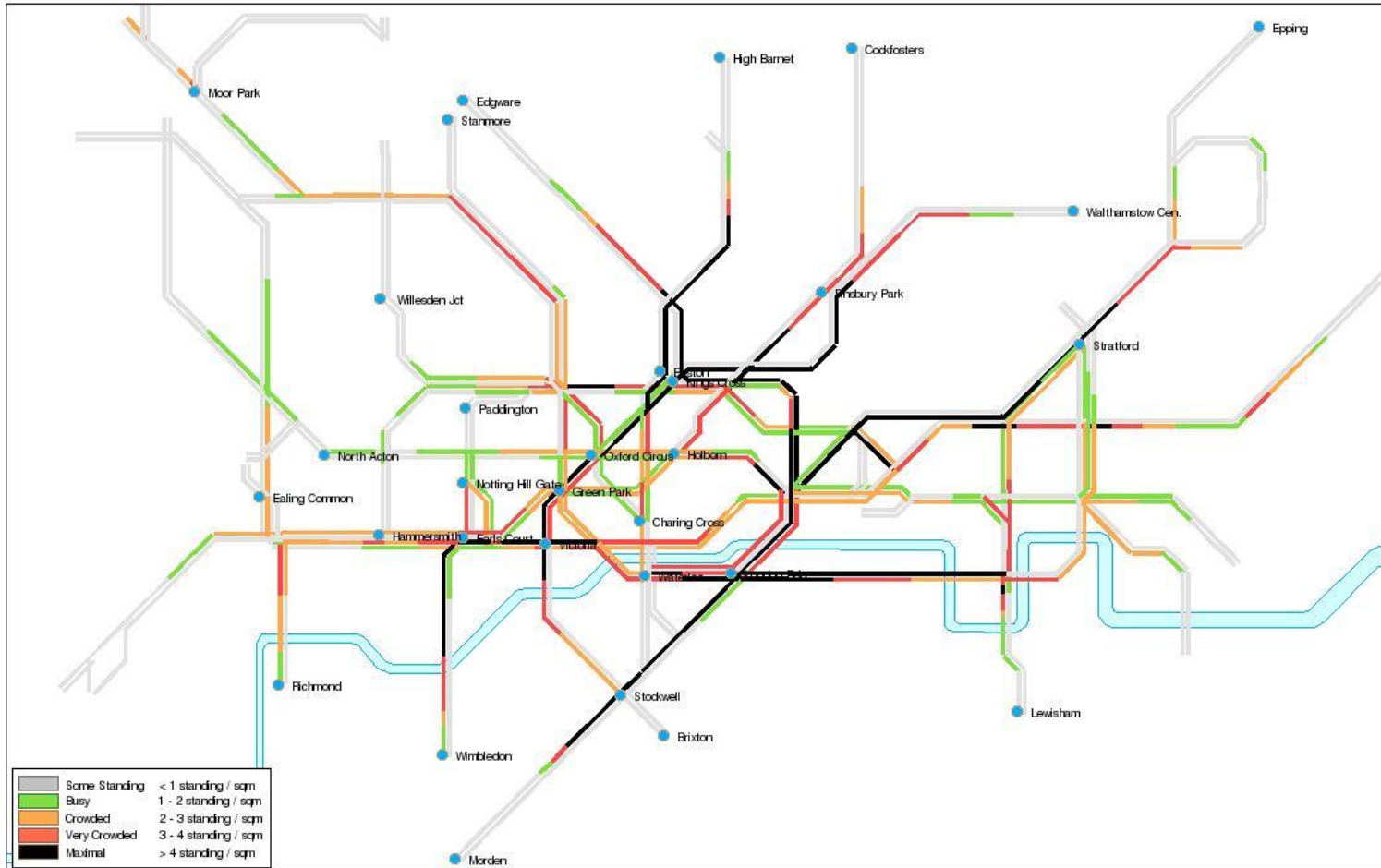
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Figure 16: LU crowding - 2041 future baseline AM peak period

LUL and DLR Crowding  
HE415A44G - 2041 AM Do-Minimum



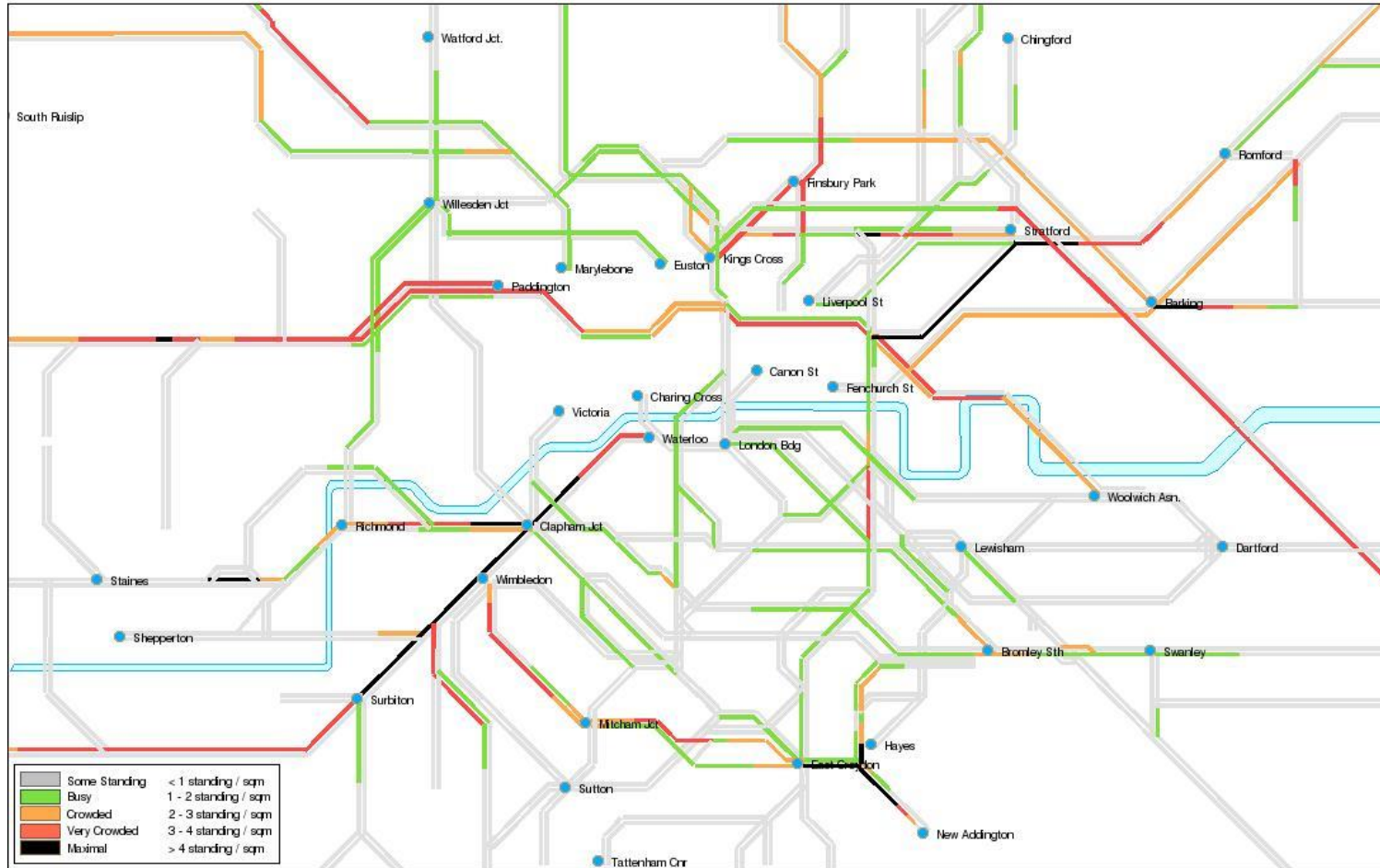
Note:  
 - Peak hour crowding (54% peak period demand)  
 - Standing density factor of 7 pax/sqm  
 - Includes reliability factor

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Figure 17: National Rail crowding - 2041 future baseline AM peak period

National Rail and Tramlink Crowding  
HE415A44G - 2041 AM Do-Minimum



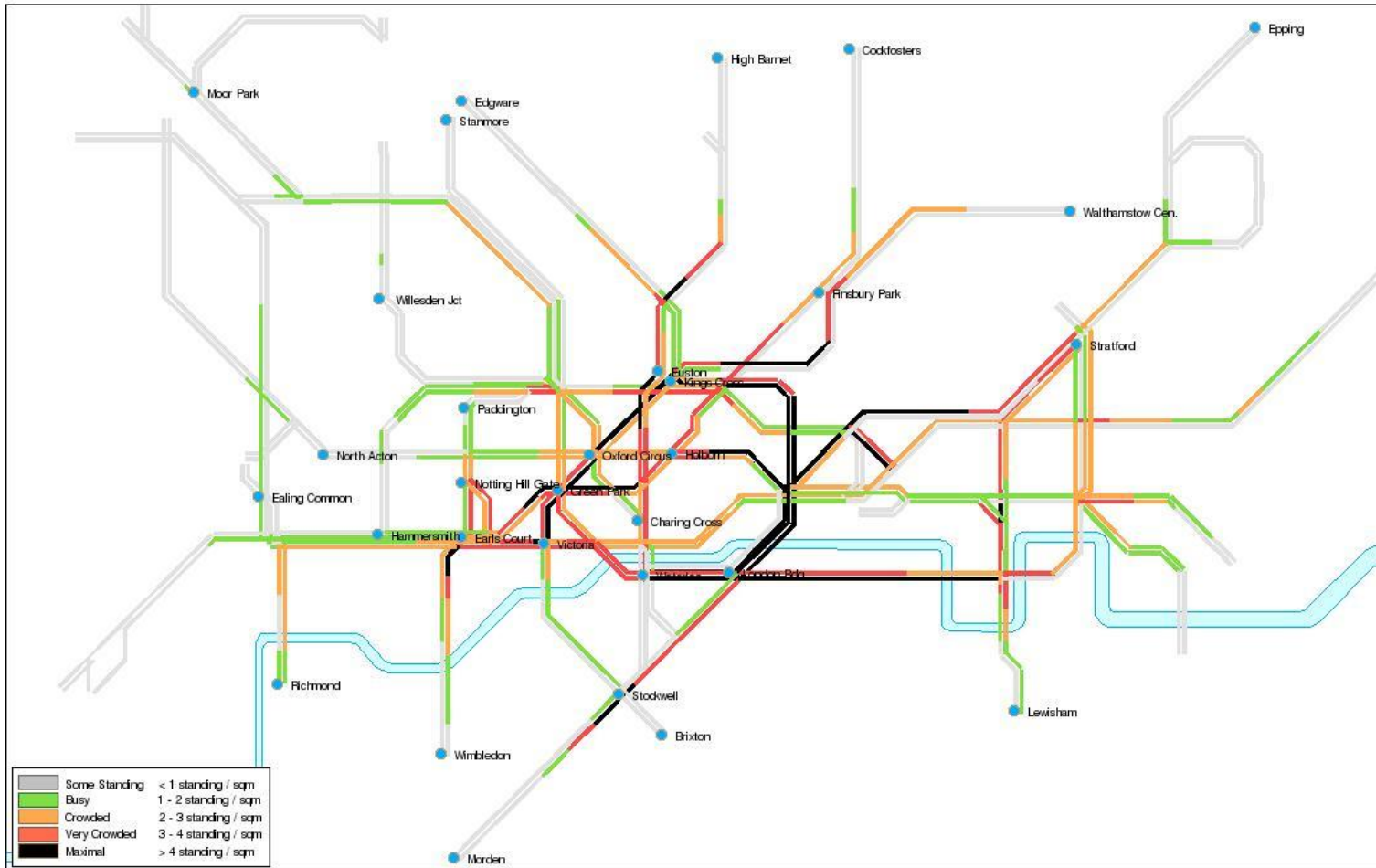
Note:  
 - Peak hour crowding (54% peak period demand)  
 - Standing density factor of 7 pax/sqm  
 - Includes reliability factor

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Figure 18: LU crowding - 2041 future baseline PM peak period

LUL and DLR Crowding  
 HF419P44G - 2041 PM Do-Minimum



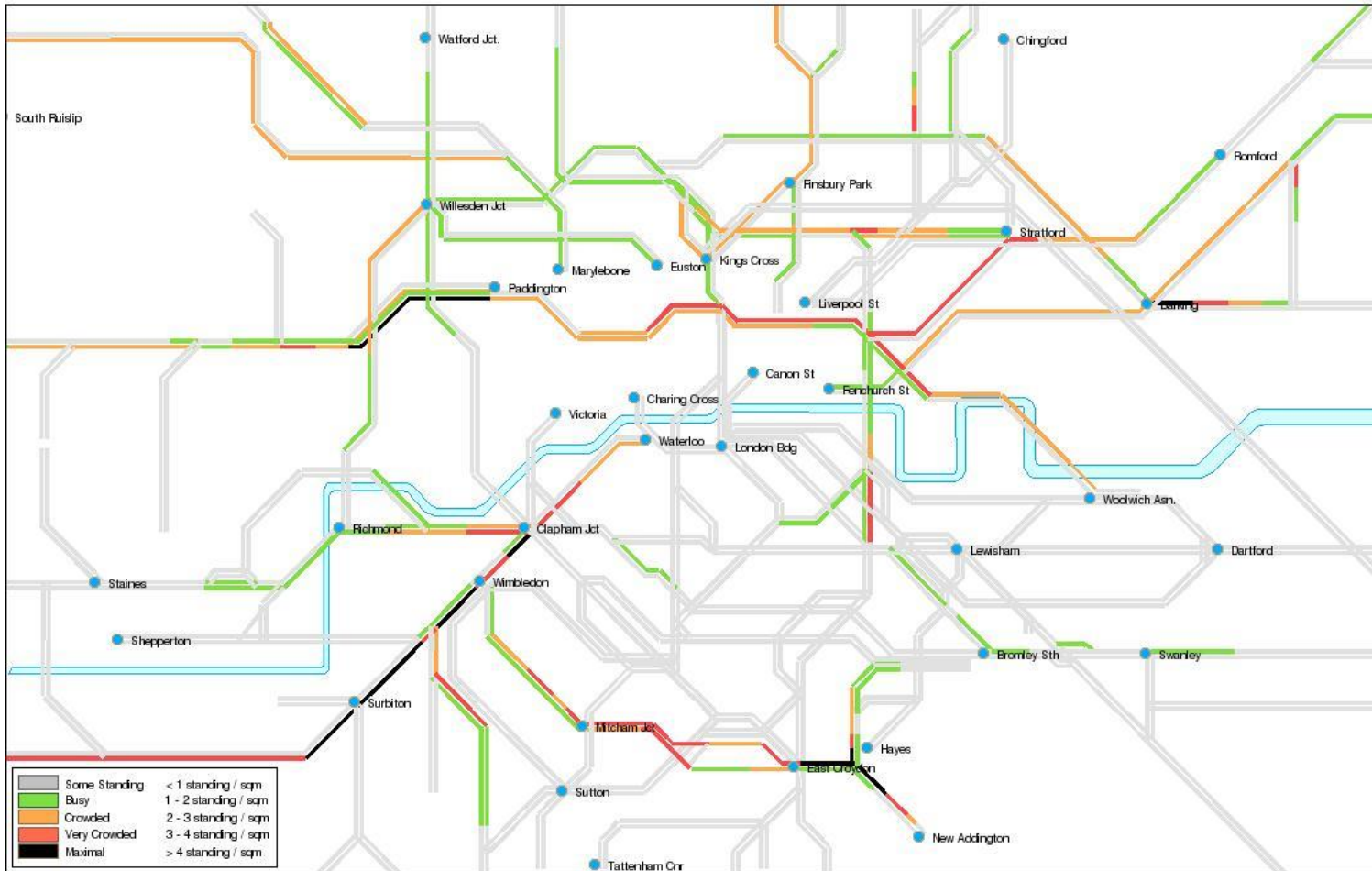
Note:  
 - Peak hour crowding (54% peak period demand)  
 - Standing density factor of 7 pax/sqm  
 - Includes reliability factor

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Figure 19: National Rail crowding - 2041 future baseline PM peak period

National Rail and Tramlink Crowding  
HF419P44G - 2041 PM Do-Minimum



Note:  
 - Peak hour crowding (54% peak period demand)  
 - Standing density factor of 7 pax/sqm  
 - Includes reliability factor

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3.2.37 On LUL there is a general increase in crowding across the network between 2026 and 2041, with increased crowding levels during the AM peak period on the southbound Northern line Charing Cross branch between Euston and Goadge Street (3 - 4 PPSM to greater than 4 PPSM), the southbound Victoria line from Seven Sisters to Finsbury Park (3 - 4 PPSM to greater than 4 PPSM), the Piccadilly line south of Finsbury Park (3 - 4 PPSM to greater than 4 PPSM) and the southbound Northern line between Hampstead and Camden Town (2 - 3 PPSM to greater than 3 - 4 PPSM). During the PM peak, there are increases in crowding levels on northbound Victoria line services north of Euston, on the northbound Northern line Charing Cross branch towards Euston and north of Camden Town, on the westbound sub-surface line west and east of Euston Square and on the northbound Piccadilly line through central London.

3.2.38 By 2041, passenger increases are such that crowding levels increase on most lines and will be above 4 PPSM on the Northern line Bank branch and Victoria line. Figure 20 to Figure 24 show the station to station average crowding per train for the 2011 baseline and the 2041 future baseline scenario, with the base year crowding level in blue and the 2041 future baseline crowding in pink. For the Northern line Bank branch, there is a small incremental increase in crowding on all sections of lines, but with a larger increase of 1.2 PPSM between Euston and King's Cross. On the Northern line Charing Cross branch, there is an increase of around 0.5 PPSM between Camden Town and Tottenham Court Road. The Victoria line has small increases and some decreases in crowding across most sections of line. The sub-surface lines have a relatively large increase of 0.8 PPSM between Baker Street and Great Portland Street but smaller changes thereafter. The only line with substantial reductions in crowding is the Piccadilly line where crowding reduces by almost 1.7 PPSM between King's Cross and Holborn as a result of the full upgrade including Next Generation Trains, equating to a 60% increase in capacity.

Figure 20: AM peak period baseline and 2041 future baseline crowding levels - Northern line Bank branch southbound

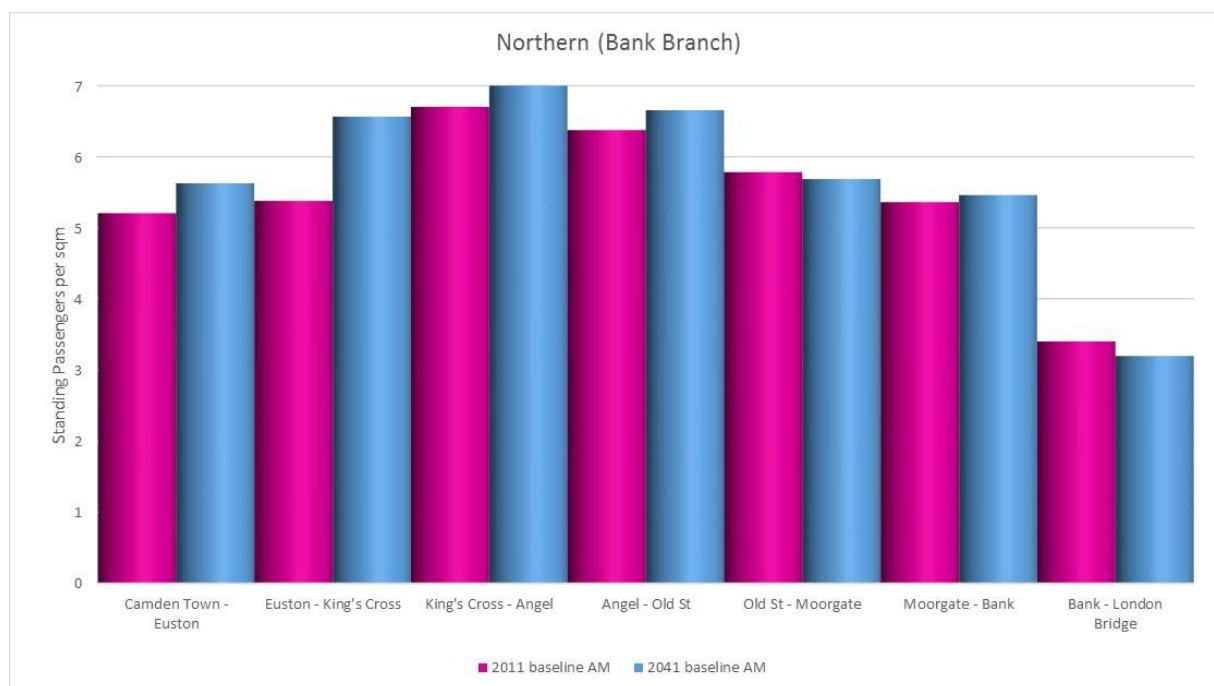


Figure 21: AM peak period baseline and 2041 future baseline crowding levels - Northern line Charing Cross branch southbound

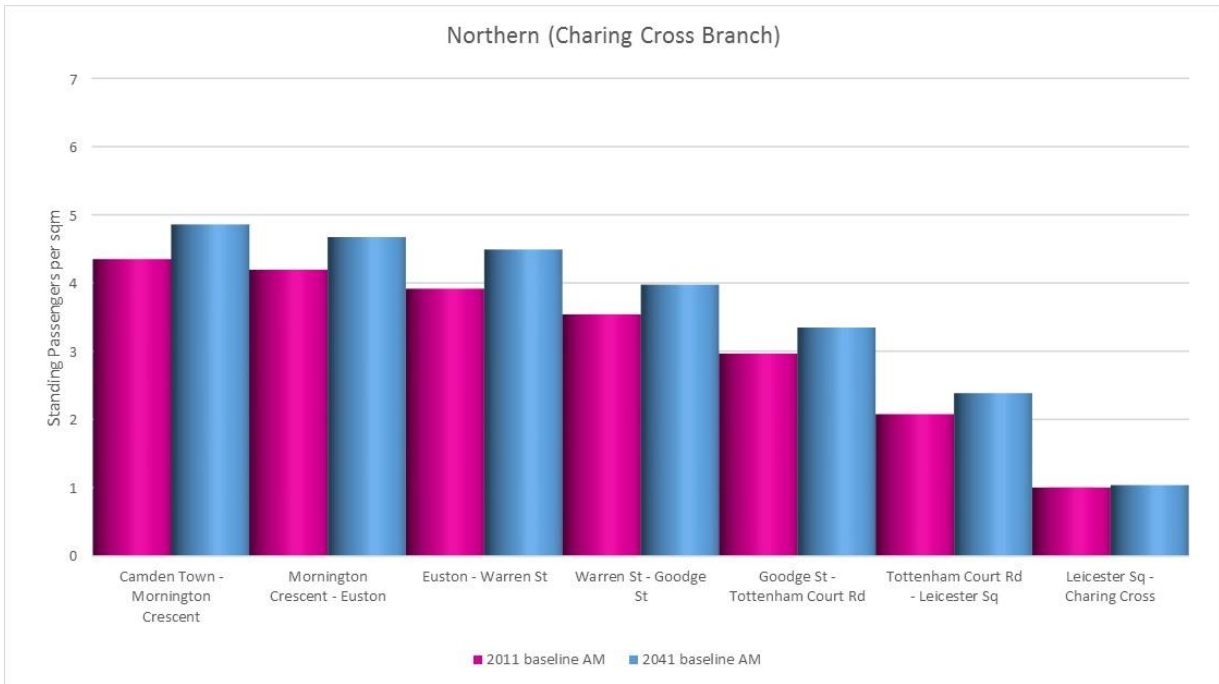


Figure 22: AM peak period baseline and 2041 future baseline crowding levels - Victoria line southbound

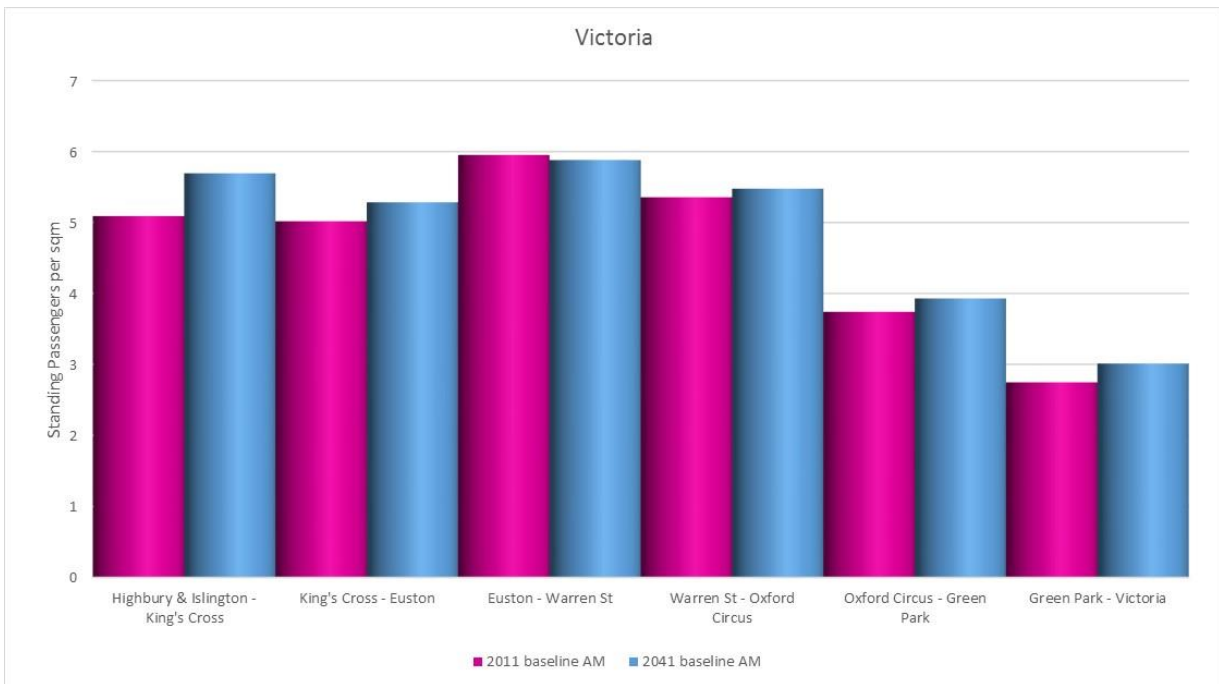


Figure 23: AM peak period baseline and 2041 future baseline crowding levels - Hammersmith & City, Circle and Metropolitan lines eastbound

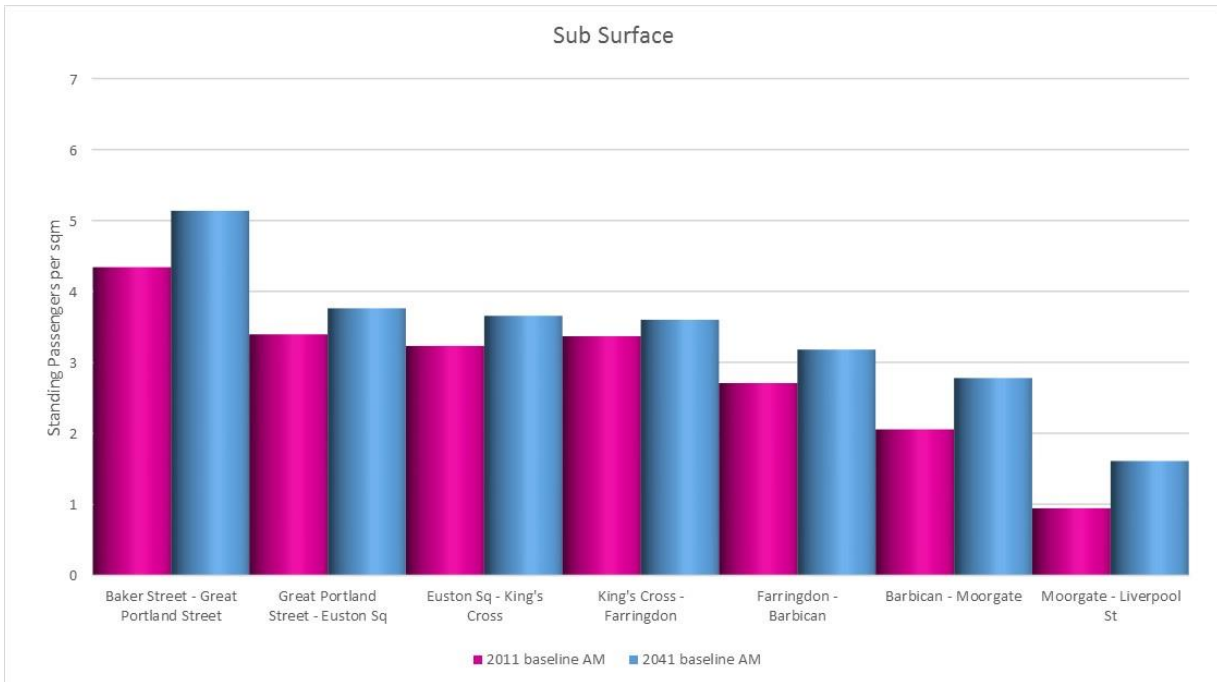
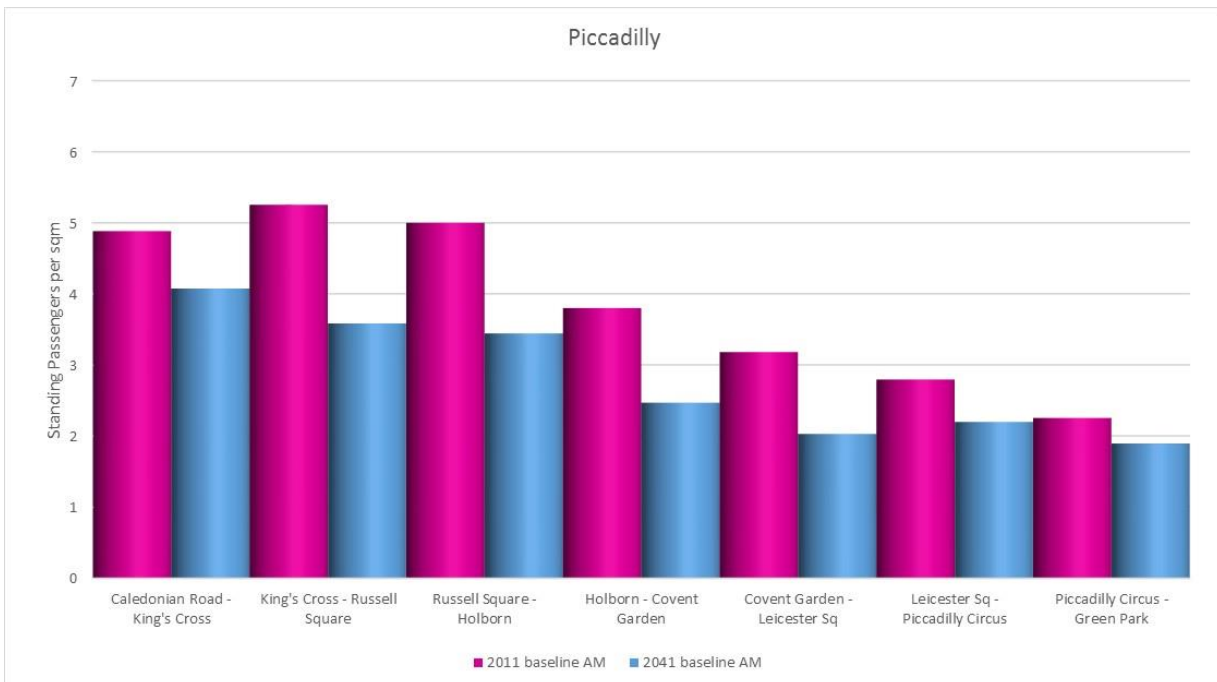


Figure 24: AM peak period Baseline and 2041 future baseline crowding levels - Piccadilly line southbound



### Bus and coach services

3.2.39

Demand for buses is expected to increase with respect to the 2012 baseline in the 2026 and 2041 future baseline scenario. The increase in bus passenger boarding and alighting demand between 2012 and 2026 and between 2012 and 2041 has been derived by calculating the proportional increase between the future baseline and base year in Railplan and applying this to the 2012 baseline demand, which was obtained through surveys of passengers boarding or alighting from buses in the Euston. The surveys were undertaken in June 2012.

- 3.2.40 The number of bus boarders and alighters during the AM and PM peak period in the Euston station and A400 Hampstead Road areas are set out in Table 31. The Euston station area includes:
- all bus stops in Euston bus station;
  - A501 Euston Road westbound stop H and eastbound terminating stop AZ;
  - A4200 Eversholt Street northbound stop A and southbound stop B; and
  - A4200 Upper Woburn Place northbound stop L and southbound stop M.
- 3.2.41 The A400 Hampstead Road area includes:
- A400 Hampstead Road 'Robert Street' northbound stop J and southbound stop K; and
  - A400 Hampstead Road 'Silverdale' northbound stop B and southbound stop W.
- 3.2.42 The changes to bus journey times between the 2012 baseline and 2021, 2026 and 2041 future baseline scenarios are shown in Table 32 for the AM peak hour and Table 33 for the PM peak hour. The journey time changes can be attributed to an increase in traffic on the network and changes in traffic patterns in both the 2026 and 2041 future baseline scenarios.



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Table 31: 2026 and 2041 future baseline bus demand (from Railplan)

| <b>AM peak period 07:00 to 10:00</b> |          |           |          |           |          |           |                                 |           |                                 |           |                            |           |                            |           |
|--------------------------------------|----------|-----------|----------|-----------|----------|-----------|---------------------------------|-----------|---------------------------------|-----------|----------------------------|-----------|----------------------------|-----------|
| Location                             | 2012     |           | 2026     |           | 2041     |           | Actual change from 2012 to 2026 |           | Actual change from 2012 to 2041 |           | % change from 2012 to 2026 |           | % change from 2012 to 2041 |           |
|                                      | Boarders | Alighters | Boarders | Alighters | Boarders | Alighters | Boarders                        | Alighters | Boarders                        | Alighters | Boarders                   | Alighters | Boarders                   | Alighters |
| Euston station area                  | 3,315    | 2,330     | 2,740    | 1,859     | 3,493    | 2,236     | -575                            | -471      | 178                             | -94       | -17%                       | -20%      | 5%                         | -4%       |
| A400 Hampstead Road area             | 690      | 540       | 605      | 357       | 793      | 485       | -85                             | -183      | 103                             | -55       | -12%                       | -34%      | 15%                        | -10%      |
| <b>PM peak period 16:00 to 19:00</b> |          |           |          |           |          |           |                                 |           |                                 |           |                            |           |                            |           |
| Location                             | 2012     |           | 2026     |           | 2041     |           | Actual change from 2012 to 2026 |           | Actual change from 2012 to 2041 |           | % change from 2012 to 2026 |           | % change from 2012 to 2041 |           |
|                                      | Boarders | Alighters | Boarders | Alighters | Boarders | Alighters | Boarders                        | Alighters | Boarders                        | Alighters | Boarders                   | Alighters | Boarders                   | Alighters |
| Euston station area                  | 4,060    | 3,205     | 3,395    | 3,346     | 4,055    | 3,916     | -655                            | 141       | -5                              | 711       | -16%                       | 4%        | -0.1%                      | 22%       |
| A400 Hampstead Road area             | 684      | 642       | 463      | 860       | 543      | 1,199     | -221                            | 218       | -141                            | 557       | -32%                       | 34%       | -21%                       | 87%       |

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Table 32: 2012 baseline, 2021 future baseline, 2026 future baseline and 2041 future baseline bus journey times (in minutes) - AM peak hour

| Bus route | From / to                         | Direction  | 2012 | 2021 | 2026  | 2041  | Actual Change 2012 to 2021 | % Change 2012 to 2021 | Actual Change 2012 to 2026 | % Change 2012 to 2026 | Actual Change 2012 to 2041 | % Change 2012 to 2041 |
|-----------|-----------------------------------|------------|------|------|-------|-------|----------------------------|-----------------------|----------------------------|-----------------------|----------------------------|-----------------------|
| 10        | King's Cross to Hammersmith       | Eastbound  | 41.5 | 51.7 | 52.20 | 58.80 | 10.2                       | 24.6%                 | 10.7                       | 25.8%                 | 17.3                       | 41.7%                 |
|           |                                   | Westbound  | 49   | 52.2 | 51.90 | 52.90 | 3.2                        | 6.5%                  | 2.9                        | 5.9%                  | 3.9                        | 8.0%                  |
| 18        | Euston to Sudbury                 | Terminates | 51.9 | 54.7 | 54.60 | 54.50 | 2.8                        | 5.4%                  | 2.7                        | 5.2%                  | 2.6                        | 5.0%                  |
|           |                                   | Westbound  | 49.2 | 47.9 | 47.50 | 47.90 | -1.3                       | -2.6%                 | -1.7                       | -3.5%                 | -1.3                       | -2.6%                 |
| 24        | Hampstead Heath to Grosvenor Road | Terminates | 38.8 | 52.3 | 52.40 | 59.00 | 13.5                       | 34.8%                 | 13.6                       | 35.1%                 | 20.2                       | 52.1%                 |
|           |                                   | Southbound | 46.8 | 49.2 | 49.00 | 50.00 | 2.4                        | 5.1%                  | 2.2                        | 4.7%                  | 3.2                        | 6.8%                  |
| 27        | Chalk Farm to Chiswick            | Northbound | 67.3 | 66.3 | 65.60 | 66.20 | -1                         | -1.5%                 | -1.7                       | -2.5%                 | -1.1                       | -1.6%                 |
|           |                                   | Southbound | 59.9 | 59.0 | 58.70 | 59.40 | -0.9                       | -1.5%                 | -1.2                       | -2.0%                 | -0.5                       | -0.8%                 |
| 29        | Trafalgar Square to Wood Green    | Northbound | 38.5 | 50.1 | 50.10 | 57.10 | 11.6                       | 30.1%                 | 11.6                       | 30.1%                 | 18.6                       | 48.3%                 |
|           |                                   | Southbound | 44   | 43.0 | 42.90 | 43.70 | -1                         | -2.3%                 | -1.1                       | -2.5%                 | -0.3                       | -0.7%                 |
| 30        | Hackney Wick to Oxford Street     | Eastbound  | 49.5 | 52.0 | 51.80 | 52.90 | 2.5                        | 5.1%                  | 2.3                        | 4.6%                  | 3.4                        | 6.9%                  |
|           |                                   | Westbound  | 54.3 | 54.9 | 54.70 | 56.70 | 0.6                        | 1.1%                  | 0.4                        | 0.7%                  | 2.4                        | 4.4%                  |

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| Bus route | From / to                              | Direction  | 2012 | 2021  | 2026   | 2041   | Actual Change 2012 to 2021 | % Change 2012 to 2021 | Actual Change 2012 to 2026 | % Change 2012 to 2026 | Actual Change 2012 to 2041 | % Change 2012 to 2041 |
|-----------|--|------------|------|-------|--------|--------|----------------------------|-----------------------|----------------------------|-----------------------|----------------------------|-----------------------|
| 73        | Victoria to Stoke Newington            | Eastbound  | 49.2 | 59.6  | 60.20  | 67.10  | 10.4                       | 21.1%                 | 11                         | 22.4%                 | 17.9                       | 36.4%                 |
|           |  | Westbound  | 51.9 | 55.5  | 55.10  | 56.80  | 3.6                        | 6.9%                  | 3.2                        | 6.2%                  | 4.9                        | 9.4%                  |
| 88        | Camden Town to Clapham Common          | Northbound | 44.9 | 47.1  | 46.90  | 47.40  | 2.2                        | 4.9%                  | 2                          | 4.5%                  | 2.5                        | 5.6%                  |
|           |  | Southbound | 54.9 | 62.8  | 62.30  | 63.70  | 7.9                        | 14.4%                 | 7.4                        | 13.5%                 | 8.8                        | 16.0%                 |
| 134       | North Finchley to Tottenham Court Road | Northbound | 42.2 | 50.6  | 50.70  | 56.70  | 8.4                        | 19.9%                 | 8.5                        | 20.1%                 | 14.5                       | 34.4%                 |
|           |  | Southbound | 45.1 | 48.3  | 48.00  | 48.30  | 3.2                        | 7.1%                  | 2.9                        | 6.4%                  | 3.2                        | 7.1%                  |
| 168       | Hampstead Heath to Old Kent Road       | Northbound | 40   | 112.8 | 112.60 | 113.50 | 72.8                       | 182.0%                | 72.6                       | 181.5%                | 73.5                       | 183.8%                |
|           |  | Southbound | 39   | 46.8  | 46.50  | 48.30  | 7.8                        | 20.0%                 | 7.5                        | 19.2%                 | 9.3                        | 23.8%                 |
| 205       | Paddington to Bow                      | Eastbound  | 58   | 59.6  | 59.50  | 61.10  | 1.6                        | 2.8%                  | 1.5                        | 2.6%                  | 3.1                        | 5.3%                  |
|           |  | Westbound  | 56.7 | 58.8  | 58.80  | 63.30  | 2.1                        | 3.7%                  | 2.1                        | 3.7%                  | 6.6                        | 11.6%                 |
| 253       | Euston to Hackney                      | Northbound | 36   | 35.6  | 35.30  | 36.00  | -0.4                       | -1.1%                 | -0.7                       | -1.9%                 | 0                          | 0.0%                  |
|           |  | Terminates | 36.8 | 36.4  | 36.30  | 36.90  | -0.4                       | -1.1%                 | -0.5                       | -1.4%                 | 0.1                        | 0.3%                  |

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| Bus route | From / to                             | Direction  | 2012 | 2021  | 2026   | 2041   | Actual Change 2012 to 2021 | % Change 2012 to 2021 | Actual Change 2012 to 2026 | % Change 2012 to 2026 | Actual Change 2012 to 2041 | % Change 2012 to 2041 |
|-----------|---------------------------------------|------------|------|-------|--------|--------|----------------------------|-----------------------|----------------------------|-----------------------|----------------------------|-----------------------|
| 390       | Archway to Notting Hill Gate          | Northbound | 42.6 | 54.3  | 54.60  | 61.50  | 11.7                       | 27.5%                 | 12                         | 28.2%                 | 18.9                       | 44.4%                 |
|           |                                       | Southbound | 40.6 | 45.7  | 45.50  | 46.60  | 5.1                        | 12.6%                 | 4.9                        | 12.1%                 | 6                          | 14.8%                 |
| 14        | Putney Heath to Warren Street station | Terminates | 47.2 | 56.0  | 55.60  | 62.70  | 8.8                        | 18.6%                 | 8.4                        | 17.8%                 | 15.5                       | 32.8%                 |
|           |                                       | Southbound | 46.1 | 47.5  | 47.10  | 47.80  | 1.4                        | 3.0%                  | 1                          | 2.2%                  | 1.7                        | 3.7%                  |
| 59        | Streatham Hill to King's Cross        | Eastbound  | 42.8 | 116.3 | 115.90 | 117.50 | 73.5                       | 171.7%                | 73.1                       | 170.8%                | 74.7                       | 174.5%                |
|           |                                       | Southbound | 43.1 | 48.5  | 48.60  | 50.70  | 5.4                        | 12.5%                 | 5.5                        | 12.8%                 | 7.6                        | 17.6%                 |
| 68        | Euston to West Norwood                | Terminates | 61.6 | 133.9 | 133.60 | 134.70 | 72.3                       | 117.4%                | 72                         | 116.9%                | 73.1                       | 118.7%                |
|           |                                       | Southbound | 60.7 | 68.5  | 68.40  | 70.40  | 7.8                        | 12.9%                 | 7.7                        | 12.7%                 | 9.7                        | 16.0%                 |
| 91        | Trafalgar Square to Hornsey           | Eastbound  | 42.3 | 45.9  | 44.00  | 45.60  | 3.6                        | 8.5%                  | 1.7                        | 4.0%                  | 3.3                        | 7.8%                  |
|           |                                       | Southbound | 40.7 | 41.0  | 40.50  | 41.70  | 0.3                        | 0.7%                  | -0.2                       | -0.5%                 | 1                          | 2.5%                  |
| 476       | Euston to Northumberland Park         | Eastbound  | 40.4 | 41.6  | 41.30  | 42.00  | 1.2                        | 3.0%                  | 0.9                        | 2.2%                  | 1.6                        | 4.0%                  |
|           |                                       | Terminates | 49.2 | 49.2  | 48.80  | 50.40  | 0                          | 0.0%                  | -0.4                       | -0.8%                 | 1.2                        | 2.4%                  |

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Table 33: 2012 baseline, 2021 future baseline, 2026 future baseline and 2041 future baseline bus journey times (in minutes) - PM peak hour

| Bus route | From / to                         | Direction  | 2012 | 2021  | 2026  | 2041  | Actual Change 2012 to 2021 | % Change 2012 to 2021 | Actual Change 2012 to 2026 | % Change 2012 to 2026 | Actual Change 2012 to 2041 | % Change 2012 to 2041 |
|-----------|-----------------------------------|------------|------|-------|-------|-------|----------------------------|-----------------------|----------------------------|-----------------------|----------------------------|-----------------------|
| 10        | King's Cross to Hammersmith       | Eastbound  | 45.3 | 52.40 | 54.30 | 64.00 | 7.1                        | 15.7%                 | 9                          | 19.9%                 | 18.7                       | 41.3%                 |
|           |                                   | Westbound  | 46.9 | 50.90 | 50.80 | 51.20 | 4                          | 8.5%                  | 3.9                        | 8.3%                  | 4.3                        | 9.2%                  |
| 18        | Euston to Sudbury                 | Eastbound  | 46.2 | 47.50 | 47.10 | 47.90 | 1.3                        | 2.8%                  | 0.9                        | 1.9%                  | 1.7                        | 3.7%                  |
|           |                                   | Westbound  | 51.5 | 48.40 | 48.90 | 48.50 | -3.1                       | -6.0%                 | -2.6                       | -5.0%                 | -3                         | -5.8%                 |
| 24        | Hampstead Heath to Grosvenor Road | Northbound | 40.3 | 54.80 | 56.70 | 67.50 | 14.5                       | 36.0%                 | 16.4                       | 40.7%                 | 27.2                       | 67.5%                 |
|           |                                   | Southbound | 46.4 | 50.80 | 50.30 | 51.30 | 4.4                        | 9.5%                  | 3.9                        | 8.4%                  | 4.9                        | 10.6%                 |
| 27        | Chalk Farm to Chiswick            | Northbound | 58.4 | 55.80 | 55.30 | 56.50 | -2.6                       | -4.5%                 | -3.1                       | -5.3%                 | -1.9                       | -3.3%                 |
|           |                                   | Southbound | 60.6 | 60.80 | 60.60 | 60.70 | 0.2                        | 0.3%                  | 0                          | 0.0%                  | 0.1                        | 0.2%                  |
| 29        | Trafalgar Square to Wood Green    | Northbound | 42.4 | 53.90 | 55.70 | 66.50 | 11.5                       | 27.1%                 | 13.3                       | 31.4%                 | 24.1                       | 56.8%                 |
|           |                                   | Southbound | 43.5 | 44.00 | 43.80 | 44.20 | 0.5                        | 1.1%                  | 0.3                        | 0.7%                  | 0.7                        | 1.6%                  |
| 30        | Hackney Wick to Oxford Street     | Eastbound  | 53.6 | 54.40 | 54.30 | 55.60 | 0.8                        | 1.5%                  | 0.7                        | 1.3%                  | 2                          | 3.7%                  |
|           |                                   | Westbound  | 50   | 50.30 | 50.10 | 51.70 | 0.3                        | 0.6%                  | 0.1                        | 0.2%                  | 1.7                        | 3.4%                  |

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| Bus route | From / to                              | Direction  | 2012 | 2021   | 2026   | 2041   | Actual Change 2012 to 2021 | % Change 2012 to 2021 | Actual Change 2012 to 2026 | % Change 2012 to 2026 | Actual Change 2012 to 2041 | % Change 2012 to 2041 |
|-----------|--|------------|------|--------|--------|--------|----------------------------|-----------------------|----------------------------|-----------------------|----------------------------|-----------------------|
| 73        | Victoria to Stoke Newington            | Eastbound  | 53   | 60.20  | 62.10  | 72.30  | 7.2                        | 13.6%                 | 9.1                        | 17.2%                 | 19.3                       | 36.4%                 |
|           |  | Westbound  | 50   | 53.70  | 53.50  | 54.20  | 3.7                        | 7.4%                  | 3.5                        | 7.0%                  | 4.2                        | 8.4%                  |
| 88        | Camden Town to Clapham Common          | Northbound | 45.9 | 60.10  | 60.10  | 62.40  | 14.2                       | 30.9%                 | 14.2                       | 30.9%                 | 16.5                       | 35.9%                 |
|           |  | Southbound | 50.7 | 58.10  | 57.40  | 59.60  | 7.4                        | 14.6%                 | 6.7                        | 13.2%                 | 8.9                        | 17.6%                 |
| 134       | North Finchley to Tottenham Court Road | Northbound | 44.6 | 51.10  | 52.70  | 61.60  | 6.5                        | 14.6%                 | 8.1                        | 18.2%                 | 17                         | 38.1%                 |
|           |  | Southbound | 43.1 | 47.90  | 47.70  | 48.10  | 4.8                        | 11.1%                 | 4.6                        | 10.7%                 | 5                          | 11.6%                 |
| 168       | Hampstead Heath to Old Kent Road       | Northbound | 39.1 | 121.80 | 121.50 | 122.40 | 82.7                       | 211.5%                | 82.4                       | 210.7%                | 83.3                       | 213.0%                |
|           |  | Southbound | 45.2 | 55.60  | 54.20  | 55.50  | 10.4                       | 23.0%                 | 9                          | 19.9%                 | 10.3                       | 22.8%                 |
| 205       | Paddington to Bow                      | Eastbound  | 57.4 | 57.60  | 57.70  | 59.70  | 0.2                        | 0.3%                  | 0.3                        | 0.5%                  | 2.3                        | 4.0%                  |
|           |  | Westbound  | 57.4 | 56.90  | 57.30  | 57.50  | -0.5                       | -0.9%                 | -0.1                       | -0.2%                 | 0.1                        | 0.2%                  |
| 253       | Euston to Hackney                      | Northbound | 38   | 37.40  | 37.20  | 38.00  | -0.6                       | -1.6%                 | -0.8                       | -2.1%                 | 0                          | 0.0%                  |
|           |  | Southbound | 35.6 | 35.70  | 35.50  | 36.00  | 0.1                        | 0.3%                  | -0.1                       | -0.3%                 | 0.4                        | 1.1%                  |

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| Bus route | From / to                             | Direction  | 2012 | 2021   | 2026   | 2041   | Actual Change 2012 to 2021 | % Change 2012 to 2021 | Actual Change 2012 to 2026 | % Change 2012 to 2026 | Actual Change 2012 to 2041 | % Change 2012 to 2041 |
|-----------|---------------------------------------|------------|------|--------|--------|--------|----------------------------|-----------------------|----------------------------|-----------------------|----------------------------|-----------------------|
| 390       | Archway to Notting Hill Gate          | Northbound | 44.1 | 52.70  | 54.60  | 64.40  | 8.6                        | 19.5%                 | 10.5                       | 23.8%                 | 20.3                       | 46.0%                 |
|           |                                       | Southbound | 38.8 | 45.80  | 45.60  | 46.10  | 7                          | 18.0%                 | 6.8                        | 17.5%                 | 7.3                        | 18.8%                 |
| 14        | Putney Heath to Warren Street station | Terminates | 48.1 | 57.50  | 59.20  | 70.60  | 9.4                        | 19.5%                 | 11.1                       | 23.1%                 | 22.5                       | 46.8%                 |
|           |                                       | Southbound | 51.8 | 53.30  | 52.90  | 54.30  | 1.5                        | 2.9%                  | 1.1                        | 2.1%                  | 2.5                        | 4.8%                  |
| 59        | Streatham Hill to King's Cross        | Eastbound  | 40.2 | 119.70 | 119.60 | 121.20 | 79.5                       | 197.8%                | 79.4                       | 197.5%                | 81                         | 201.5%                |
|           |                                       | Southbound | 50   | 55.00  | 54.40  | 57.00  | 5                          | 10.0%                 | 4.4                        | 8.8%                  | 7                          | 14.0%                 |
| 68        | Euston to West Norwood                | Northbound | 58.2 | 138.60 | 138.50 | 139.20 | 80.4                       | 138.1%                | 80.3                       | 138.0%                | 81                         | 139.2%                |
|           |                                       | Southbound | 68.3 | 76.30  | 76.80  | 77.50  | 8                          | 11.7%                 | 8.5                        | 12.4%                 | 9.2                        | 13.5%                 |
| 91        | Trafalgar Square to Hornsey           | Eastbound  | 42.2 | 44.10  | 43.90  | 45.50  | 1.9                        | 4.5%                  | 1.7                        | 4.0%                  | 3.3                        | 7.8%                  |
|           |                                       | Southbound | 39.2 | 40.40  | 40.10  | 41.40  | 1.2                        | 3.1%                  | 0.9                        | 2.3%                  | 2.2                        | 5.6%                  |
| 476       | Euston to Northumberland Park         | Eastbound  | 41.2 | 42.70  | 42.50  | 43.40  | 1.5                        | 3.6%                  | 1.3                        | 3.2%                  | 2.2                        | 5.3%                  |
|           |                                       | Westbound  | 48.3 | 47.10  | 46.70  | 47.40  | -1.2                       | -2.5%                 | -1.6                       | -3.3%                 | -0.9                       | -1.9%                 |

- 3.2.43 The large increases in bus journey times on some routes during the AM and PM peak hours for all future baseline scenarios may be mitigated through on-street optimisation of signal timings using SCOOT.

### **Public transport interchanges**

- 3.2.44 Euston and Euston underground stations currently experience a range of congestion issues. Growth and planned service enhancements (particularly the completion of on-going upgrade works to the Northern line) are expected to result in further increases in passenger volumes and congestion. These issues have been examined as part of the construction planning process.
- 3.2.45 The main capacity constraints, in the AM peak hour, are currently identified as access to and within Euston underground station. Access flows from Euston station to Euston underground station exceed the recommended capacity of the main entrance within Euston station concourse, resulting in queues to enter the station. Similarly, flows to the southbound Victoria line and Northern line (Bank branch) exceed the recommended capacity of the main access route, resulting in congestion within the LU station.
- 3.2.46 Station management measures to address the congestion within Euston underground station restrict station entries. This can further exacerbate existing queuing issues in the concourse.
- 3.2.47 Analysis of the PM peak period identifies passenger accumulation capacity in Euston station concourse as being the area of weakest performance. This was previously identified in NR's Network Route Utilisation Strategy (RUS) for stations. The RUS also identifies that the operation of this area requires management and control by station staff. These capacity issues are identified as being a result of the constraints of the existing infrastructure, a trend that will be further exacerbated by the forecast growth during the construction period.
- 3.2.48 Access to Euston underground station is also identified as a capacity issue in the PM peak, with flows again exceeding the recommended capacity of the main entrance. These congestion issues will increase in the future baseline scenarios, as demand at Euston and Euston underground station increases regardless of HS2. In the absence of the revised scheme, works would be needed to address these issues.

### **Taxis**

- 3.2.49 Future demand is based on LTS, which assumes London Plan growth, together with consented highway and public transport schemes (TfL's 'Reference Case'). The LTS forecasts also include an uplift to reflect the view of growth considered likely.
- 3.2.50 Growth in taxi use is derived from growth in public transport passenger numbers, which have been derived from TfL's Railplan model for 2026 and 2041 based on public transport demand from LTS and including long-distance rail demand from DfT's PLANET model. No relevant Railplan forecasts are available for 2021.
- 3.2.51 Growth in public transport passenger numbers in 2026 and 2041 will result in a growth in taxi passenger demand. Table 34 shows the forecast demand in 2026 and 2041 that will be dropped-off or picked-up by taxi at Euston station. The tables show the demand for both the AM and PM peak hours.



Table 34: Future baseline taxi passenger demand

|                      | AM peak hour (08:00 to 09:00) |                     | PM peak hour (17:00 to 18:00) |                     |
|----------------------|-------------------------------|---------------------|-------------------------------|---------------------|
|                      | Pick-up from station          | Drop-off at station | Pick-up from station          | Drop-off at station |
| 2026 Future Baseline | 457                           | 242                 | 417                           | 516                 |
| 2041 Future Baseline | 549                           | 290                 | 514                           | 638                 |

## Pedestrians

3.2.52 Pedestrian movements around the station in the future baseline have been forecast using observed baseline station entry and exit volumes and Railplan forecasts for the future baseline scenarios.

3.2.53 These predicted changes in flows on routes to and from the station are used to uplift walkway and crossing flows, allowing the assessment of their performance in the absence of the revised scheme.

3.2.54 This assessment has been undertaken on the basis of TfL's Pedestrian Comfort Guidance for London.

3.2.55 The pedestrian demand for the 2026 and 2041 future baseline scenarios has been derived from observed and forecast pedestrian demand using the following process:

- future AM and PM peak flows to and from the station are calculated by applying 2012 observed routings to the 2026 and 2041 Future Baseline Railplan outputs;
- non-station flows are generated by applying a 0.5% growth per year to the background pedestrian network demand; and
- resulting forecast and baseline flows on the routes to and from the station are used to generate growth factors which are used to scale observed 2014 peak hour flows at selected walkway and crossing locations.

3.2.56 The pedestrian crossing and footway comfort level assessments, using this demand, are outlined in the subsequent sections.

### *Pedestrian crossing assessment summary*

3.2.57 The future baseline pedestrian crossing comfort assessment aims to understand if the infrastructure is comfortable for users during the 2026 and 2041 future baseline scenarios.

3.2.58 Table 35 shows the pedestrian comfort level (PCL) assessment for the pedestrian crossing in the vicinity of Euston station for the 2012 baseline and 2026 and 2041 future baseline scenarios. A PCL A shows the most comfortable conditions while a PCL E shows the least comfortable conditions<sup>6</sup>. The pedestrian crossing locations can be seen in Figure 25. Pedestrian crossing timings have been taken from the local (TRANSYT) models used to assess the junction capacity at the relevant junctions.

<sup>6</sup> Pedestrian Comfort Level guidance document (TfL, 2010)

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Table 35: 2026 and 2041 future baseline PCL assessment for pedestrian crossings

| No. | Location  | Actual width (m)                                   | AM peak hour (08:00 - 09:00) |               |               | PM peak hour (17:00 - 18:00) |               |               |
|-----|---|--|------------------------------|---------------|---------------|------------------------------|---------------|---------------|
|     |   |  | 2014 baseline                | 2026 baseline | 2041 baseline | 2014 baseline                | 2026 baseline | 2041 baseline |
| 1   | A4200 Upper Woburn Place at A501 Euston Road        | 2.4  | B                            | B             | B-            | C+                           | B             | C+            |
| 2   | Euston Square at A501 Euston Road                   | 2.4  | B                            | B-            | C+            | B-                           | B             | B-            |
| 3   | A501 Euston Road (West) at A4200 Upper Woburn Place | 2.8  | E                            | E             | E             | E                            | E             | E             |
| 4   | A501 Euston Road (West) at Euston Square            | 2.8  | C                            | C-            | C-            | D                            | D             | D             |
| 5   | A501 Euston Road (East) at A4200 Upper Woburn Place | 2.4  | E                            | E             | E             | E                            | E             | E             |
| 6   | A501 Euston Road                                    | 3.2  | C+                           | C             | C-            | C+                           | C+            | C             |
| 7   | A501 Euston Road (East) at Gordon Street            | 3  | B-                           | B-            | C+            | C                            | B             | B-            |
| 8   | A501 Euston Road (East) at Gordon Street            | 3  | E                            | E             | E             | E                            | E             | E             |
| 9   | Gordon Street at A501 Euston Road                   | 3  | B+                           | C+            | C+            | B                            | C             | D             |
| 10  | Melton Street at A501 Euston Road                   | 3  | E                            | E             | E             | E                            | E             | E             |
| 11  | Melton Street at A501 Euston Road                   | 3  | D                            | E             | E             | D                            | E             | E             |
| 12  | Bus station access at A4200 Eversholt Street        | 3  | E                            | E             | E             | E                            | E             | E             |
| 13  | Euston Square at Grafton Way                        | 2.5  | C+                           | C             | C-            | B-                           | B             | B-            |
| 14  | A4200 Eversholt Street at Grafton Way               | 2.5  | C                            | C-            | D             | D                            | D             | D             |
| 15  | A501 Euston Road at Gordon Street (new crossing)    | Future crossing location in with scheme scenarios. |                              |               |               |                              |               |               |
| 16  | A4200 Eversholt Street at Doric Way                 | 2.4  | B+                           | B+            | B+            | B+                           | A-            | B+            |

Figure 25: Pedestrian crossing locations



- 3.2.59 The assessment results show that, similar to the 2012 baseline scenario, pedestrians are uncomfortable at a number of crossings with Pedestrian Comfort Level (PCL) results ranging from C+ to E for the 2026 and 2041 future baseline scenarios during the AM and PM peak hours.
- 3.2.60 Based on this, the crossings can have a large degree of restricted movement at peak times and this may lead to some users avoiding certain crossings.
- 3.2.61 The crossings which show PCL E include:
- A501 Euston Road junction with A4200 Eversholt Street and A4200 Upper Woburn Place on the east and north sides;
  - A501 Euston Road junction with Gordon Street on the east and west sides; and
  - The bus station access on the west side of A4200 Eversholt Street junction with Grafton Place.
- 3.2.62 At the junction of A501 Euston Road junction with Melton Street, the busiest crossing is the north side of A501 Euston Road at Melton Street which shows PCL E. Flow rates (in terms of people per metre per minute) are substantially higher than elsewhere, and the static theoretical analysis suggests that the flow of people cannot continue to be

physically accommodated given signal times and crossing width. Further observations and analysis have identified that a considerable number of pedestrians (up to 80%) cross on red signals and use more width than the demarcated crossing area. This pattern of movement would be expected to continue at this crossing during the 2026 and 2041 future baseline scenarios.

- 3.2.63 In certain instances, the PCL on footways improved between the 2014 and 2026 and/or 2041 future baseline scenarios. This is due to a predicted lower number of pedestrians arriving on foot and more people arriving at Euston station by public transport.

#### *Pedestrian footway assessment summary*

- 3.2.64 The future baseline pedestrian footway comfort assessment aims to understand if the footways are comfortable for users during the 2026 and 2041 future baseline scenarios. Similarly to the 2012 baseline scenario, the pedestrian comfort assessment for the Euston station area included main footways for:

- A501 Euston Road between North Gower Street and Dukes Road (north and south footways);
- A4200 Eversholt Street between A501 Euston Road and Grafton Place (western footway);
- Melton Street between A501 Euston Road and Drummond Street (eastern footway); and
- Drummond Street between Melton Street and North Gower Street (north and south footways).

- 3.2.65 An assessment was undertaken when the clear width changed along the footway length. For example, static objects like street furniture and areas where people are waiting, such as bus stops or cafes, all change the available width for pedestrian movement.

- 3.2.66 Similarly to the pedestrian crossing assessment, the PCL ranges from A (most comfortable) to F (least comfortable)<sup>7</sup>, and is measured in people per metre minute (ppmm).

- 3.2.67 The analysis was undertaken using two-way footway pedestrian counts to reflect the forecast level of demand, and summarised in EAP Pedestrian Analysis provided by WSP and Space Syntax. Based on these flows, the assessment results show the majority of streets in the vicinity of Euston station have footway widths that are comfortable for their users.

- 3.2.68 The main areas that may require mitigation measures (with results showing a PCL C- to F) are as follows:

- A501 Euston Road, east of Melton Street: two bus stops on the north and south side;

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<sup>7</sup> Pedestrian Comfort Level guidance document (TfL, 2010)

- Euston Street; and
- Drummond Street.

3.2.69 At all of these locations street furniture or obstructions will continue to reduce the effective width for pedestrians to less than minimum requirements recommended by TfL.

3.2.70 Performance in other areas ranges from PCL A+ to B- in the AM peak hour and from PCL A+ to C in the PM peak hour.

### Cyclists

3.2.71 The Railplan model results have initially been used to calculate a scale factor based on the estimated change in rail passenger numbers and any change in cycle mode share. The cycle trip generation for the 2026 and 2041 future baseline scenarios has been estimated by applying this factor to the 2012 cycle trips.

3.2.72 The demand for cycling at Euston station in the 2026 and 2041 future baseline scenarios is shown in Table 36. This is based on the existing mode share of 2% to 3% for cycling at the station.

Table 36: 2026 and 2041 future baseline cycling demand - existing mode share

|               | AM peak hour (08:00 - 09:00) |             | PM peak hour (17:00 - 18:00) |             |
|---------------|------------------------------|-------------|------------------------------|-------------|
|               | To Euston                    | From Euston | To Euston                    | From Euston |
| 2026 baseline | 50                           | 258         | 197                          | 35          |
| 2041 baseline | 62                           | 301         | 240                          | 44          |

3.2.73 Many stakeholders, including TfL, predict a growth in cycle mode share from mainline stations. Following consultation with TfL, a 7% mode share scenario has been assessed. The cycle demand at 7% mode share is shown in Table 37.

Table 37: 2026 and 2041 future baseline cycling demand - 7% mode share

|               | AM peak hour (08:00 - 09:00) |             | PM peak hour (17:00 - 18:00) |             |
|---------------|------------------------------|-------------|------------------------------|-------------|
|               | To Euston                    | From Euston | To Euston                    | From Euston |
| 2026 baseline | 457                          | 1,242       | 1,854                        | 267         |
| 2041 baseline | 572                          | 1,458       | 2,192                        | 342         |

3.2.74 This additional demand is expected to follow the same distribution on the local cycle network as the 2012 baseline cycle demand.

*Euston - Station and Approach (CFA1), Camden (CFA2) and Primrose Hill to Kilburn (Camden) (CFA3) strategic and local road network traffic flows*

3.2.75 Future baseline vehicle matrices for 2021, 2026 and 2041 were based on the recalibrated 2012 CLoHAM interim Production Version 3 (PV3) model and developed and provided by TfL, based on growth in LTSv7 demand which assumes London Plan growth. Consented highway schemes have been included in the relevant future baseline scenarios.

- 3.2.76 Traffic volumes in the future baseline peak hours are forecast to grow by approximately 4% across the network by 2021 compared to 2012. Traffic volumes between 2021 and 2026 are forecast to remain static. Traffic volumes are forecast to grow by approximately 9% by 2041 compared to 2012.
- 3.2.77 As part of the reporting of the revised scheme, a number of links in CLoHAM (covering CFA1 and parts of CFA2 and CFA3) have been identified, and the traffic flow impacts assessed strategically through CLoHAM. For the assessment, all links within CLoHAM have been assessed. The 2021, 2026 and 2041 future baseline traffic flows on two screenlines, comprising key links immediately north and south of A501 Euston Road and on A501 Euston Road itself, are shown in Table 38 and Table 39 for the AM and PM peak hours respectively. Table 40 and Table 41 show the traffic flows for the AM and PM peak hours on a screenline further north between A5203 Caledonian Road and A5 Kilburn High Road, running east west immediately north of Camden.
- 3.2.78 The tables show the total vehicle flows and heavy goods vehicle (HGV) flows for each scenario, as well the actual and proportional increase with respect to the 2012 baseline scenario. Taking the AM peak hour, the Camden screenline increases by around 6% in each direction between 2012 and 2041, with the north of A501 Euston Road screenline increasing by around 6% in both directions, and the south of A501 Euston Road by around 3% in both directions over the same period. However, growth between 2012 and 2026 is negative for all screenlines reflecting the LTS assumptions on decreasing car ownership and increased cycle usage.
- 3.2.79 Flow increases are similar in the PM peak period across all three screenlines.
- 3.2.80 The equivalent future baselines for CFA4 and CFA5, including updated WeLHAM forecasts, were presented in the SES and AP2 ES Volume 5 Appendix (TR-001-000).

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Table 38: A501 Euston Road north and south screenline traffic flows - AM peak hour (08:00 to 09:00)

| Location  | Direction  | Baseline flow |     |         |     |         |     |         |     | All vehicles actual change from 2012 |      |      | All vehicles % change from 2012 |      |      |
|---|------------|---------------|-----|---------|-----|---------|-----|---------|-----|--------------------------------------|------|------|---------------------------------|------|------|
|   |            | 2012          |     | 2021    |     | 2026    |     | 2041    |     | 2021                                 | 2026 | 2041 | 2021                            | 2026 | 2041 |
|   |            | All veh       | HGV | All veh | HGV | All veh | HGV | All veh | HGV |                                      |      |      |                                 |      |      |
| <b>North of Euston Road</b>                                     |            |               |     |         |     |         |     |         |     |                                      |      |      |                                 |      |      |
| Outer Circle (between Park Square East and Chester Road)        | Northbound | 81            | 0   | 96      | 0   | 104     | 0   | 135     | 0   | 15                                   | 23   | 54   | 18%                             | 28%  | 66%  |
|   | Southbound | 227           | 7   | 203     | 7   | 198     | 7   | 200     | 7   | -24                                  | -29  | -26  | -10%                            | -13% | -12% |
| A4201 Albany Street (between Robert Street and Longford Street) | Northbound | 335           | 9   | 358     | 9   | 339     | 9   | 348     | 10  | 23                                   | 4    | 14   | 7%                              | 1%   | 4%   |
|   | Southbound | 435           | 19  | 378     | 19  | 366     | 18  | 359     | 18  | -58                                  | -70  | -76  | -13%                            | -16% | -18% |
| Stanhope Street (between Longford Street and Robert Street)     | Northbound | 45            | 5   | 103     | 11  | 109     | 10  | 117     | 9   | 58                                   | 64   | 72   | 128%                            | 141% | 159% |
|   | Southbound | 153           | 3   | 155     | 3   | 158     | 3   | 189     | 3   | 3                                    | 5    | 36   | 2%                              | 4%   | 24%  |
| A400 Hampstead Road (between Drummond Street and Robert Street) | Northbound | 494           | 51  | 262     | 37  | 255     | 34  | 227     | 24  | -232                                 | -238 | -267 | -47%                            | -48% | -54% |
|   | Southbound | 863           | 1   | 763     | 2   | 755     | 3   | 778     | 2   | -100                                 | -108 | -85  | -12%                            | -12% | -10% |
| Cardington Street (north of Drummond Street)                    | Northbound | 23            | 0   | 22      | 0   | 26      | 0   | 32      | 0   | -1                                   | 3    | 9    | -3%                             | 15%  | 39%  |
|   | Southbound | 455           | 7   | 277     | 3   | 294     | 3   | 325     | 3   | -179                                 | -162 | -130 | -39%                            | -35% | -29% |
| New Cobourg Street (north of Starcross Street)                  | Northbound | -             | -   | 0       | 0   | 0       | 0   | 0       | 0   | -                                    | -    | -    | -                               | -    | -    |
|   | Southbound | -             | -   | 0       | 0   | 0       | 0   | 0       | 0   | -                                    | -    | -    | -                               | -    | -    |

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| Location  | Direction  | Baseline flow |     |         |     |         |     |         |     | All vehicles actual change from 2012 |      |      | All vehicles % change from 2012 |      |      |
|---|------------|---------------|-----|---------|-----|---------|-----|---------|-----|--------------------------------------|------|------|---------------------------------|------|------|
|   |            | 2012          |     | 2021    |     | 2026    |     | 2041    |     | 2021                                 | 2026 | 2041 | 2021                            | 2026 | 2041 |
|   |            | All veh       | HGV | All veh | HGV | All veh | HGV | All veh | HGV |                                      |      |      |                                 |      |      |
| A4200 Eversholt St<br>(between Phoenix Road and Polygon Road)         | Northbound | 174           | 4   | 193     | 6   | 199     | 6   | 232     | 11  | 19                                   | 25   | 58   | 11%                             | 14%  | 33%  |
|   | Southbound | 253           | 15  | 430     | 20  | 455     | 21  | 555     | 25  | 176                                  | 202  | 302  | 70%                             | 80%  | 119% |
| Chalton Street (between A501 Euston Road and Phoenix Road)            | Northbound | 55            | 14  | 180     | 56  | 198     | 55  | 249     | 58  | 125                                  | 142  | 194  | 226%                            | 257% | 351% |
|   | Southbound | 104           | 2   | 202     | 12  | 205     | 13  | 229     | 17  | 98                                   | 101  | 125  | 94%                             | 97%  | 121% |
| Midland Road (between Brill Place and A501 Euston Road)               | Southbound | 657           | 29  | 659     | 27  | 666     | 26  | 681     | 24  | 2                                    | 9    | 24   | 0%                              | 1%   | 4%   |
| A5202 Pancras Road<br>(between A501 Euston Road and Goods Way)        | Northbound | 175           | 8   | 209     | 7   | 219     | 8   | 251     | 9   | 34                                   | 44   | 76   | 19%                             | 25%  | 43%  |
|   | Southbound | 81            | 3   | 93      | 6   | 97      | 6   | 108     | 8   | 12                                   | 17   | 27   | 15%                             | 20%  | 34%  |
| A5203 York Way between A501 Euston Road and Caledonia Street          | Northbound | 565           | 54  | 508     | 60  | 491     | 58  | 490     | 51  | -57                                  | -74  | -75  | -10%                            | -13% | -13% |
| <b>South of Euston Road</b>   |            |               |     |         |     |         |     |         |     |                                      |      |      |                                 |      |      |
| A4201 Portland Place<br>(between Devonshire Street and Park Crescent) | Northbound | 128           | 50  | 187     | 38  | 193     | 38  | 205     | 37  | 59                                   | 66   | 77   | 47%                             | 51%  | 60%  |
|   | Southbound | 274           | 4   | 314     | 5   | 325     | 5   | 345     | 4   | 40                                   | 51   | 71   | 15%                             | 19%  | 26%  |



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| Location   | Direction  | Baseline flow |     |         |     |         |     |         |     | All vehicles actual change from 2012 |      |      | All vehicles % change from 2012 |      |      |
|--|------------|---------------|-----|---------|-----|---------|-----|---------|-----|--------------------------------------|------|------|---------------------------------|------|------|
|  |            | 2012          |     | 2021    |     | 2026    |     | 2041    |     | 2021                                 | 2026 | 2041 | 2021                            | 2026 | 2041 |
|  |            | All veh       | HGV | All veh | HGV | All veh | HGV | All veh | HGV |                                      |      |      |                                 |      |      |
| B506 Great Portland Street (between Park Crescent Mews East and Devonshire Street) | Southbound | 614           | 26  | 619     | 25  | 610     | 24  | 601     | 24  | 5                                    | -4   | -12  | 1%                              | -1%  | -2%  |
| Cleveland Street (between Greenwell Street and Clipstone Street)                   | Southbound | 122           | 1   | 202     | 2   | 196     | 3   | 244     | 3   | 80                                   | 73   | 122  | 65%                             | 60%  | 100% |
| A400 Tottenham Court Road (between Grafton Way and Warren Street)                  | Northbound | 1,118         | 110 | 447     | 56  | 448     | 53  | 479     | 42  | -672                                 | -670 | -639 | -60%                            | -60% | -57% |
|  | Southbound | -             | -   | 71      | 0   | 71      | 0   | 71      | 0   | -                                    | -    | -    | -                               | -    | -    |
| A400 Gower Street (between Grafton Way and Gower Place)                            | Northbound | -             | -   | 38      | 2   | 40      | 2   | 46      | 2   | -                                    | -    | -    | -                               | -    | -    |
|  | Southbound | 1,088         | 42  | 660     | 35  | 707     | 33  | 794     | 37  | -429                                 | -381 | -295 | -39%                            | -35% | -27% |
| Gordon Street (between Endsleigh Gardens and A501 Euston Road)                     | Northbound | 339           | 19  | 457     | 7   | 467     | 7   | 447     | 7   | 118                                  | 128  | 108  | 35%                             | 38%  | 32%  |
|  | Southbound | 283           | 41  | 394     | 7   | 376     | 5   | 401     | 5   | 111                                  | 93   | 119  | 39%                             | 33%  | 42%  |
| A4200 Upper Woburn Place (between Endsleigh Gardens and A501 Euston Road)          | Northbound | 45            | 0   | 188     | 8   | 200     | 9   | 224     | 14  | 143                                  | 155  | 179  | 316%                            | 343% | 396% |
|  | Southbound | 597           | 28  | 544     | 60  | 533     | 62  | 540     | 54  | -53                                  | -64  | -57  | -9%                             | -11% | -9%  |
| B504 Judd Street (between Bidborough Street and Euston Road)                       | Northbound | 25            | 3   | 94      | 4   | 86      | 3   | 118     | 5   | 69                                   | 62   | 93   | 276%                            | 246% | 372% |
|  | Southbound | 253           | 7   | 264     | 19  | 266     | 20  | 312     | 24  | 10                                   | 12   | 58   | 4%                              | 5%   | 23%  |

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| Location  | Direction  | Baseline flow |     |         |     |         |     |         |     | All vehicles actual change from 2012 |      |      | All vehicles % change from 2012 |      |      |
|---|------------|---------------|-----|---------|-----|---------|-----|---------|-----|--------------------------------------|------|------|---------------------------------|------|------|
|   |            | 2012          |     | 2021    |     | 2026    |     | 2041    |     | 2021                                 | 2026 | 2041 | 2021                            | 2026 | 2041 |
|   |            | All veh       | HGV | All veh | HGV | All veh | HGV | All veh | HGV |                                      |      |      |                                 |      |      |
| A501 Gray's Inn Road (east of Birkenhead Street)                      | Northbound | 1,577         | 116 | 1,800   | 138 | 1,820   | 136 | 1,909   | 131 | 224                                  | 243  | 332  | 14%                             | 15%  | 21%  |
| <b>A501 Euston Road</b>   |            |               |     |         |     |         |     |         |     |                                      |      |      |                                 |      |      |
| A501 Euston Road (between Euston Circus and Melton Street)            | Eastbound  | 1,656         | 196 | 1,605   | 175 | 1,633   | 176 | 1,673   | 159 | -51                                  | -23  | 17   | -3%                             | -1%  | 1%   |
|   | Westbound  | 1,509         | 112 | 1,915   | 98  | 1,920   | 99  | 1,953   | 90  | 407                                  | 411  | 444  | 27%                             | 27%  | 29%  |
| A501 Euston Road (between Melton Street and A4200 Upper Woburn Place) | Eastbound  | 1,709         | 153 | 1,721   | 178 | 1,707   | 178 | 1,720   | 159 | 12                                   | -3   | 11   | 1%                              | 0%   | 1%   |
|   | Westbound  | 1,485         | 96  | 1,727   | 91  | 1,731   | 91  | 1,752   | 83  | 241                                  | 246  | 267  | 16%                             | 17%  | 18%  |
| A501 Euston Road (between A4200 Upper Woburn Place and Churchway)     | Eastbound  | 1,369         | 146 | 1,456   | 145 | 1,451   | 142 | 1,466   | 129 | 87                                   | 82   | 98   | 6%                              | 6%   | 7%   |
|   | Westbound  | 1,602         | 97  | 1,704   | 96  | 1,702   | 95  | 1,721   | 85  | 101                                  | 99   | 119  | 6%                              | 6%   | 7%   |

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Table 39: A501 Euston Road north and south screenline traffic flows - PM peak hour (17:00 to 18:00)

| Location  | Direction  | Baseline flow |     |         |     |         |     |         |     | All vehicles actual change from 2012 |      |      | All vehicles % change from 2012 |      |      |
|---|------------|---------------|-----|---------|-----|---------|-----|---------|-----|--------------------------------------|------|------|---------------------------------|------|------|
|   |            | 2012          |     | 2021    |     | 2026    |     | 2041    |     | 2021                                 | 2026 | 2041 | 2021                            | 2026 | 2041 |
|   |            | All veh       | HGV | All veh | HGV | All veh | HGV | All veh | HGV |                                      |      |      |                                 |      |      |
| <b>North of Euston Road</b>                                     |            |               |     |         |     |         |     |         |     |                                      |      |      |                                 |      |      |
| Outer Circle (between Park Square East and Chester Road)        | Northbound | 249           | 0   | 297     | 0   | 304     | 0   | 351     | 0   | 48                                   | 55   | 102  | 19%                             | 22%  | 41%  |
|   | Southbound | 218           | 1   | 206     | 1   | 206     | 1   | 210     | 2   | -13                                  | -12  | -9   | -6%                             | -5%  | -4%  |
| A4201 Albany Street (between Robert Street and Longford Street) | Northbound | 554           | 9   | 483     | 11  | 481     | 11  | 530     | 12  | -71                                  | -73  | -24  | -13%                            | -13% | -4%  |
|   | Southbound | 260           | 3   | 271     | 3   | 258     | 3   | 244     | 3   | 10                                   | -2   | -17  | 4%                              | -1%  | -6%  |
| Stanhope Street (between Longford Street and Robert Street)     | Northbound | 106           | 7   | 103     | 5   | 102     | 5   | 106     | 5   | -3                                   | -4   | 0    | -3%                             | -4%  | 0%   |
|   | Southbound | 125           | 2   | 124     | 2   | 122     | 2   | 131     | 2   | -1                                   | -3   | 6    | -1%                             | -3%  | 4%   |
| A400 Hampstead Road (between Drummond Street and Robert Street) | Northbound | 608           | 22  | 355     | 11  | 353     | 10  | 324     | 12  | -253                                 | -255 | -284 | -42%                            | -42% | -47% |
|   | Southbound | 558           | 13  | 430     | 10  | 418     | 9   | 424     | 9   | -128                                 | -140 | -134 | -23%                            | -25% | -24% |
| Cardington Street (north of Drummond Street)                    | Northbound | 123           | 5   | 87      | 7   | 92      | 7   | 102     | 2   | -35                                  | -31  | -20  | -29%                            | -25% | -17% |
|   | Southbound | 94            | 3   | 71      | 4   | 72      | 3   | 100     | 3   | -22                                  | -21  | 6    | -24%                            | -23% | 6%   |
| New Cobourg Street (north of Starcross Street)                  | Northbound | -             | -   | 0       | 0   | 0       | 0   | 0       | 0   | -                                    | -    | -    | -                               | -    | -    |
|   | Southbound | -             | -   | 0       | 0   | 0       | 0   | 0       | 0   | -                                    | -    | -    | -                               | -    | -    |

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| Location  | Direction  | Baseline flow |     |         |     |         |     |         |     | All vehicles actual change from 2012 |      |      | All vehicles % change from 2012 |       |      |
|---|------------|---------------|-----|---------|-----|---------|-----|---------|-----|--------------------------------------|------|------|---------------------------------|-------|------|
|   |            | 2012          |     | 2021    |     | 2026    |     | 2041    |     | 2021                                 | 2026 | 2041 | 2021                            | 2026  | 2041 |
|   |            | All veh       | HGV | All veh | HGV | All veh | HGV | All veh | HGV |                                      |      |      |                                 |       |      |
| A4200 Eversholt St<br>(between Phoenix Road and Polygon Road)         | Northbound | 222           | 3   | 356     | 11  | 368     | 11  | 431     | 13  | 133                                  | 145  | 209  | 60%                             | 65%   | 94%  |
|   | Southbound | 173           | 1   | 279     | 3   | 280     | 4   | 291     | 4   | 107                                  | 107  | 118  | 62%                             | 62%   | 69%  |
| Chalton Street (between A501 Euston Road and Phoenix Road)            | Northbound | 129           | 3   | 291     | 6   | 284     | 7   | 283     | 8   | 162                                  | 155  | 154  | 126%                            | 121%  | 120% |
|   | Southbound | 90            | 1   | 179     | 4   | 182     | 4   | 205     | 6   | 89                                   | 92   | 115  | 99%                             | 103%  | 128% |
| Midland Road (between Brill Place and A501 Euston Road)               | Southbound | 517           | 14  | 534     | 14  | 531     | 14  | 555     | 15  | 18                                   | 15   | 38   | 3%                              | 3%    | 7%   |
| A5202 Pancras Road<br>(between A501 Euston Road and Goods Way)        | Northbound | 66            | 4   | 108     | 6   | 108     | 6   | 134     | 8   | 42                                   | 41   | 68   | 63%                             | 62%   | 103% |
|   | Southbound | 278           | 1   | 287     | 2   | 287     | 2   | 292     | 2   | 9                                    | 9    | 14   | 3%                              | 3%    | 5%   |
| A5203 York Way between A501 Euston Road and Caledonia Street          | Northbound | 808           | 35  | 704     | 37  |         | 37  | 702     | 36  | -104                                 | -808 | -105 | -13%                            | -100% | -13% |
| <b>South of Euston Road</b>   |            |               |     |         |     |         |     |         |     |                                      |      |      |                                 |       |      |
| A4201 Portland Place<br>(between Devonshire Street and Park Crescent) | Northbound | 302           | 7   | 378     | 2   | 381     | 2   | 403     | 1   | 77                                   | 79   | 101  | 25%                             | 26%   | 34%  |
|   | Southbound | 255           | 6   | 262     | 3   | 260     | 3   | 279     | 3   | 7                                    | 5    | 24   | 3%                              | 2%    | 9%   |

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| Location   | Direction  | Baseline flow |     |         |     |         |     |         |     | All vehicles actual change from 2012 |      |      | All vehicles % change from 2012 |      |      |
|--|------------|---------------|-----|---------|-----|---------|-----|---------|-----|--------------------------------------|------|------|---------------------------------|------|------|
|  |            | 2012          |     | 2021    |     | 2026    |     | 2041    |     | 2021                                 | 2026 | 2041 | 2021                            | 2026 | 2041 |
|  |            | All veh       | HGV | All veh | HGV | All veh | HGV | All veh | HGV |                                      |      |      |                                 |      |      |
| B506 Great Portland Street (between Park Crescent Mews East and Devonshire Street) | Southbound | 341           | 7   | 318     | 7   | 308     | 7   | 324     | 7   | -23                                  | -33  | -18  | -7%                             | -10% | -5%  |
| Cleveland Street (between Greenwell Street and Clipstone Street)                   | Southbound | 74            | 0   | 160     | 4   | 157     | 4   | 164     | 5   | 85                                   | 83   | 90   | 115%                            | 112% | 121% |
| A400 Tottenham Court Road (between Grafton Way and Warren Street)                  | Northbound | 1297          | 51  | 527     | 14  | 537     | 13  | 544     | 15  | -770                                 | -760 | -753 | -59%                            | -59% | -58% |
|  | Southbound | -             | -   | 67      | 0   | 67      | 0   | 66      | 0   | -                                    | -    | -    | -                               | -    | -    |
| A400 Gower Street (between Grafton Way and Gower Place)                            | Northbound | -             | -   | 86      | 10  | 86      | 10  | 84      | 8   | -                                    | -    | -    | -                               | -    | -    |
|  | Southbound | 1,036         | 19  | 708     | 13  | 738     | 12  | 778     | 17  | -328                                 | -299 | -259 | -32%                            | -29% | -25% |
| Gordon Street (between Endsleigh Gardens and A501 Euston Road)                     | Northbound | 375           | 14  | 435     | 24  | 445     | 24  | 441     | 18  | 60                                   | 69   | 66   | 16%                             | 18%  | 18%  |
|  | Southbound | 244           | 19  | 290     | 14  | 280     | 13  | 325     | 12  | 46                                   | 36   | 81   | 19%                             | 15%  | 33%  |
| A4200 Upper Woburn Place (between Endsleigh Gardens and A501 Euston Road)          | Northbound | 152           | 5   | 369     | 8   | 361     | 9   | 372     | 10  | 217                                  | 208  | 220  | 142%                            | 137% | 144% |
|  | Southbound | 650           | 5   | 643     | 7   | 644     | 7   | 646     | 8   | -7                                   | -6   | -3   | -1%                             | -1%  | -1%  |
| B504 Judd Street (between Bidborough Street and Euston Road)                       | Northbound | 15            | 0   | 64      | 4   | 70      | 4   | 84      | 3   | 49                                   | 54   | 69   | 322%                            | 359% | 454% |
|  | Southbound | 238           | 5   | 253     | 6   | 265     | 6   | 301     | 6   | 15                                   | 27   | 63   | 6%                              | 11%  | 26%  |

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| Location  | Direction  | Baseline flow |     |         |     |         |     |         |     | All vehicles actual change from 2012 |      |      | All vehicles % change from 2012 |      |      |
|---|------------|---------------|-----|---------|-----|---------|-----|---------|-----|--------------------------------------|------|------|---------------------------------|------|------|
|   |            | 2012          |     | 2021    |     | 2026    |     | 2041    |     | 2021                                 | 2026 | 2041 | 2021                            | 2026 | 2041 |
|   |            | All veh       | HGV | All veh | HGV | All veh | HGV | All veh | HGV |                                      |      |      |                                 |      |      |
| A501 Gray's Inn Road (east of Birkenhead Street)                      | Northbound | 1,497         | 50  | 1,691   | 57  | 1,693   | 57  | 1,787   | 58  | 194                                  | 196  | 291  | 13%                             | 13%  | 19%  |
| <b>A501 Euston Road</b>   |            |               |     |         |     |         |     |         |     |                                      |      |      |                                 |      |      |
| A501 Euston Road (between Euston Circus and Melton Street)            | Eastbound  | 1,860         | 35  | 1,767   | 28  | 1,769   | 28  | 1,822   | 28  | -93                                  | -91  | -38  | -5%                             | -5%  | -2%  |
|   | Westbound  | 1,504         | 39  | 1,786   | 51  | 1,796   | 51  | 1,870   | 50  | 282                                  | 292  | 366  | 19%                             | 19%  | 24%  |
| A501 Euston Road (between Melton Street and A4200 Upper Woburn Place) | Eastbound  | 1,827         | 26  | 1,830   | 28  | 1,823   | 29  | 1,843   | 28  | 4                                    | -4   | 17   | 0%                              | 0%   | 1%   |
|   | Westbound  | 1,340         | 31  | 1,550   | 34  | 1,556   | 35  | 1,626   | 34  | 211                                  | 217  | 286  | 16%                             | 16%  | 21%  |
| A501 Euston Road (between A4200 Upper Woburn Place and Churchway)     | Eastbound  | 1,536         | 26  | 1,638   | 28  | 1,630   | 29  | 1,645   | 28  | 102                                  | 94   | 109  | 7%                              | 6%   | 7%   |
|   | Westbound  | 1,407         | 27  | 1,527   | 33  | 1,535   | 33  | 1,595   | 32  | 120                                  | 128  | 188  | 9%                              | 9%   | 13%  |

Table 40: Camden screenline traffic flows - AM peak hour (08:00 to 09:00)

| Location  | Direction  | Baseline flow |     |         |     |         |     |         |     | All vehicles actual change from 2012 |      |      | All vehicles % change from 2012 |      |      |
|---|------------|---------------|-----|---------|-----|---------|-----|---------|-----|--------------------------------------|------|------|---------------------------------|------|------|
|   |            | 2012          |     | 2021    |     | 2026    |     | 2041    |     | 2021                                 | 2026 | 2041 | 2021                            | 2026 | 2041 |
|   |            | All veh       | HGV | All veh | HGV | All veh | HGV | All veh | HGV |                                      |      |      |                                 |      |      |
| A5203 Caledonian Road (south of Wheelwright Road) | Northbound | 675           | 8   | 657     | 8   | 651     | 8   | 653     | 8   | -17                                  | -24  | -21  | -2%                             | -3%  | -3%  |
|   | Southbound | 834           | 33  | 799     | 40  | 815     | 40  | 808     | 38  | -28                                  | -12  | -21  | -3%                             | -1%  | -2%  |

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| Location   | Direction  | Baseline flow |     |         |     |         |     |         |     | All vehicles actual change from 2012 |      |      | All vehicles % change from 2012 |      |      |
|--|------------|---------------|-----|---------|-----|---------|-----|---------|-----|--------------------------------------|------|------|---------------------------------|------|------|
|  |            | 2012          |     | 2021    |     | 2026    |     | 2041    |     | 2021                                 | 2026 | 2041 | 2021                            | 2026 | 2041 |
|  |            | All veh       | HGV | All veh | HGV | All veh | HGV | All veh | HGV |                                      |      |      |                                 |      |      |
| A5200 York Way (north of Vale Road)              | Northbound | 294           | 24  | 257     | 24  | 251     | 22  | 259     | 20  | -38                                  | -45  | -39  | -12%                            | -14% | -12% |
|  | Southbound | 503           | 13  | 499     | 13  | 484     | 13  | 486     | 12  | -5                                   | -19  | -19  | -1%                             | -4%  | -4%  |
| A5202 St Pancras Way (north of Baynes Street)    | Southbound | 812           | 59  | 845     | 51  | 861     | 50  | 914     | 51  | 24                                   | 40   | 94   | 3%                              | 5%   | 11%  |
| Randolph Street (east of Royal College Street)   | Eastbound  | 81            | 2   | 93      | 6   | 99      | 7   | 107     | 11  | 16                                   | 23   | 35   | 19%                             | 27%  | 42%  |
| Royal College Street (south of A503 Camden Road) | Northbound | 624           | 60  | 741     | 60  | 742     | 57  | 769     | 58  | 116                                  | 115  | 143  | 17%                             | 16%  | 20%  |
| A503 Camden Road (south of Royal College St)     | Northbound | 633           | 37  | 462     | 26  | 457     | 26  | 488     | 27  | -181                                 | -186 | -155 | -26%                            | -26% | -22% |
|  | Southbound | 931           | 59  | 886     | 55  | 879     | 55  | 920     | 54  | -49                                  | -56  | -16  | -5%                             | -5%  | -2%  |
| A400 Camden Street (south of Camden Gardens)     | Southbound | 991           | 53  | 953     | 56  | 947     | 55  | 1027    | 55  | -36                                  | -42  | 38   | -3%                             | -4%  | 3%   |
| A400 Kentish Town Road (south of Camden Gardens) | Northbound | 312           | 22  | 350     | 21  | 324     | 21  | 293     | 17  | 37                                   | 10   | -24  | 10%                             | 3%   | -7%  |
|  | Southbound | 394           | 22  | 447     | 24  | 442     | 23  | 485     | 24  | 54                                   | 49   | 92   | 13%                             | 12%  | 22%  |
| Hawley Road                                      | Northbound | 755           | 35  | 789     | 40  | 799     | 39  | 856     | 39  | 40                                   | 49   | 105  | 5%                              | 6%   | 13%  |

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| Location  | Direction  | Baseline flow |     |         |     |         |     |         |     | All vehicles actual change from 2012 |      |      | All vehicles % change from 2012 |      |      |
|---|------------|---------------|-----|---------|-----|---------|-----|---------|-----|--------------------------------------|------|------|---------------------------------|------|------|
|   |            | 2012          |     | 2021    |     | 2026    |     | 2041    |     | 2021                                 | 2026 | 2041 | 2021                            | 2026 | 2041 |
|   |            | All veh       | HGV | All veh | HGV | All veh | HGV | All veh | HGV |                                      |      |      |                                 |      |      |
| A502 Chalk Farm Road (west of Hawley Street)      | Northbound | 475           | 20  | 413     | 17  | 402     | 17  | 441     | 15  | -64                                  | -76  | -38  | -12%                            | -14% | -7%  |
|   | Southbound | 597           | 22  | 598     | 24  | 596     | 24  | 604     | 24  | 3                                    | 1    | 9    | 0%                              | 0%   | 1%   |
| Primrose Hill Road (south of B509 Adelaide Road)  | Northbound | 347           | 24  | 305     | 22  | 299     | 19  | 288     | 19  | -43                                  | -53  | -64  | -12%                            | -14% | -17% |
|   | Southbound | 763           | 42  | 765     | 46  | 767     | 46  | 795     | 46  | 5                                    | 7    | 35   | 1%                              | 1%   | 4%   |
| Avenue Road (south of B509 Adelaide Road)         | Northbound | 307           | 11  | 192     | 11  | 189     | 10  | 189     | 9   | -115                                 | -118 | -119 | -36%                            | -37% | -38% |
|   | Southbound | 950           | 21  | 93      | 1   | 95      | 1   | 100     | 1   | -878                                 | -876 | -870 | -90%                            | -90% | -90% |
| A41 Finchley Road (south of B509 Adelaide Road)   | Northbound | 895           | 54  | 405     | 46  | 394     | 42  | 374     | 35  | -498                                 | -514 | -541 | -50%                            | -51% | -54% |
|   | Southbound | 637           | 42  | 582     | 20  | 588     | 20  | 564     | 18  | -78                                  | -72  | -97  | -11%                            | -10% | -13% |
| Loudoun Road (south of Alexandra Place)           | Northbound | 133           | 2   | 438     | 3   | 420     | 6   | 498     | 12  | 306                                  | 291  | 374  | 226%                            | 215% | 277% |
|   | Southbound | 187           | 8   | 226     | 19  | 236     | 18  | 265     | 18  | 51                                   | 59   | 88   | 26%                             | 31%  | 45%  |
| A507 Abbey Road (south of B509 Belsize Road)      | Northbound | 197           | 4   | 230     | 5   | 221     | 5   | 235     | 5   | 34                                   | 25   | 39   | 16%                             | 12%  | 18%  |
|   | Southbound | 370           | 10  | 416     | 12  | 407     | 11  | 410     | 10  | 48                                   | 39   | 41   | 12%                             | 10%  | 10%  |
| A5 Kilburn High Road (south of B509 Belsize Road) | Northbound | 573           | 30  | 614     | 27  | 594     | 26  | 596     | 25  | 39                                   | 18   | 19   | 6%                              | 3%   | 3%   |
|   | Southbound | 803           | 39  | 920     | 55  | 912     | 53  | 929     | 52  | 133                                  | 123  | 139  | 15%                             | 14%  | 15%  |



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Table 41: Camden screenline traffic flows - PM peak hour (17:00 to 18:00)

| Location  | Direction  | Baseline flow |     |              |     |              |     |              |     | All vehicles actual change from 2012 |      |      | All vehicles % change from 2012 |      |      |
|---|------------|---------------|-----|--------------|-----|--------------|-----|--------------|-----|--------------------------------------|------|------|---------------------------------|------|------|
|   |            | 2012          |     | 2021         |     | 2026         |     | 2041         |     | 2021                                 | 2026 | 2041 | 2021                            | 2026 | 2041 |
|   |            | All vehicles  | HGV | All vehicles | HGV | All vehicles | HGV | All vehicles | HGV |                                      |      |      |                                 |      |      |
| A5203 Caledonian Road (south of Wheelwright Road) | Northbound | 560           | 5   | 554          | 5   | 548          | 5   | 557          | 5   | -4                                   | -11  | -2   | -1%                             | -2%  | 0%   |
|   | Southbound | 712           | 3   | 727          | 3   | 737          | 3   | 736          | 3   | 16                                   | 26   | 25   | 2%                              | 4%   | 3%   |
| A5200 York Way (north of Vale Road)               | Northbound | 430           | 21  | 364          | 20  | 347          | 19  | 359          | 19  | -67                                  | -85  | -73  | -15%                            | -18% | -16% |
|   | Southbound | 394           | 7   | 335          | 6   | 310          | 6   | 330          | 6   | -60                                  | -85  | -65  | -15%                            | -21% | -16% |
| A5202 St Pancras Way (north of Baynes Street)     | Southbound | 540           | 10  | 589          | 11  | 592          | 11  | 617          | 11  | 50                                   | 52   | 78   | 9%                              | 9%   | 14%  |
| Randolph Street (east of Royal College Street)    | Eastbound  | 241           | 3   | 285          | 3   | 292          | 3   | 288          | 3   | 44                                   | 51   | 47   | 18%                             | 21%  | 19%  |
| Royal College Street (south of A503 Camden Road)  | Northbound | 265           | 6   | 290          | 7   | 286          | 7   | 307          | 9   | 26                                   | 22   | 45   | 9%                              | 8%   | 16%  |
| A503 Camden Road (south of Royal College St)      | Northbound | 875           | 23  | 705          | 20  | 687          | 20  | 722          | 19  | -173                                 | -191 | -157 | -19%                            | -21% | -17% |
|   | Southbound | 658           | 20  | 619          | 21  | 616          | 21  | 673          | 20  | -38                                  | -40  | 16   | -5%                             | -6%  | 2%   |

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| Location   | Direction  | Baseline flow |     |              |     |              |     |              |     | All vehicles actual change from 2012 |      |      | All vehicles % change from 2012 |      |      |
|--|------------|---------------|-----|--------------|-----|--------------|-----|--------------|-----|--------------------------------------|------|------|---------------------------------|------|------|
|  |            | 2012          |     | 2021         |     | 2026         |     | 2041         |     | 2021                                 | 2026 | 2041 | 2021                            | 2026 | 2041 |
|  |            | All vehicles  | HGV | All vehicles | HGV | All vehicles | HGV | All vehicles | HGV |                                      |      |      |                                 |      |      |
| A400 Camden Street (south of Camden Gardens)     | Southbound | 763           | 18  | 795          | 17  | 774          | 20  | 788          | 17  | 32                                   | 15   | 25   | 4%                              | 2%   | 3%   |
| A400 Kentish Town Road (south of Camden Gardens) | Northbound | 428           | 11  | 392          | 15  | 387          | 14  | 403          | 14  | -31                                  | -37  | -21  | -7%                             | -8%  | -4%  |
|  | Southbound | 269           | 1   | 303          | 1   | 298          | 1   | 302          | 1   | 34                                   | 29   | 33   | 12%                             | 11%  | 12%  |
| Hawley Road                                      | Northbound | 509           | 13  | 540          | 12  | 531          | 15  | 589          | 10  | 29                                   | 24   | 76   | 5%                              | 4%   | 14%  |
| A502 Chalk Farm Road (west of Hawley Street)     | Northbound | 599           | 11  | 524          | 9   | 516          | 8   | 523          | 9   | -77                                  | -85  | -77  | -12%                            | -13% | -12% |
|  | Southbound | 278           | 1   | 274          | 1   | 269          | 5   | 277          | 1   | -4                                   | -5   | -2   | -1%                             | -2%  | -1%  |
| Primrose Hill Road (south of B509 Adelaide Road) | Northbound | 467           | 18  | 295          | 18  | 294          | 18  | 291          | 17  | -172                                 | -174 | -177 | -36%                            | -36% | -37% |
|  | Southbound | 478           | 13  | 667          | 16  | 656          | 12  | 682          | 15  | 191                                  | 176  | 205  | 39%                             | 36%  | 42%  |
| Avenue Road (south of B509 Adelaide Road)        | Northbound | 130           | 0   | 182          | 1   | 181          | 1   | 191          | 0   | 53                                   | 51   | 61   | 41%                             | 39%  | 46%  |
|  | Southbound | 673           | 13  | 80           | 9   | 75           | 9   | 80           | 9   | -596                                 | -601 | -596 | -87%                            | -88% | -87% |
| A41 Finchley Road (south of B509 Adelaide Road)  | Northbound | 866           | 34  | 404          | 35  | 370          | 34  | 359          | 35  | -461                                 | -495 | -506 | -48%                            | -52% | -53% |
|  | Southbound | 393           | 15  | 541          | 17  | 511          | 16  | 515          | 14  | 151                                  | 119  | 121  | 33%                             | 26%  | 27%  |

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| Location  | Direction  | Baseline flow |     |              |     |              |     |              |     | All vehicles actual change from 2012 |      |      | All vehicles % change from 2012 |      |      |
|---|------------|---------------|-----|--------------|-----|--------------|-----|--------------|-----|--------------------------------------|------|------|---------------------------------|------|------|
|   |            | 2012          |     | 2021         |     | 2026         |     | 2041         |     | 2021                                 | 2026 | 2041 | 2021                            | 2026 | 2041 |
|   |            | All vehicles  | HGV | All vehicles | HGV | All vehicles | HGV | All vehicles | HGV |                                      |      |      |                                 |      |      |
| Loudoun Road (south of Alexandra Place)           | Northbound | 194           | 2   | 541          | 2   | 561          | 2   | 585          | 2   | 347                                  | 367  | 391  | 177%                            | 187% | 199% |
|   | Southbound | 179           | 5   | 91           | 3   | 91           | 3   | 97           | 3   | -90                                  | -90  | -85  | -49%                            | -49% | -46% |
| A507 Abbey Road (south of B509 Belsize Road)      | Northbound | 339           | 4   | 348          | 3   | 342          | 3   | 346          | 3   | 7                                    | 1    | 6    | 2%                              | 0%   | 2%   |
|   | Southbound | 235           | 1   | 284          | 1   | 276          | 1   | 279          | 1   | 50                                   | 41   | 44   | 20%                             | 16%  | 17%  |
| A5 Kilburn High Road (south of B509 Belsize Road) | Northbound | 589           | 11  | 593          | 11  | 586          | 10  | 595          | 9   | 4                                    | -3   | 4    | 1%                              | 0%   | 1%   |
|   | Southbound | 613           | 7   | 652          | 6   | 620          | 5   | 666          | 7   | 37                                   | 5    | 52   | 5%                              | 1%   | 8%   |

- 3.2.81 The flow differences between the 2012 baseline and the 2021, 2026 and 2041 future baseline scenarios for the AM and PM peak hours, are shown in Figure 26 to Figure 31, with red bands denoting a flow increase and green a decrease. The figures indicate traffic growth increasing over time. By 2041, the greatest increases are on A501 Euston Road, A5 Edgware Road, A4200 Upper Woburn Place, A4200 Eversholt Street, A400 Gower Street (southbound), Montague Place (eastbound) and A503 Camden Road.
- 3.2.82 For assessment purposes, the heavy vehicles (HGV) description in the Table 38 to Table 41 includes both HGVs and buses. The graphical outputs from the CLoHAM modelling in Figure 26 to Figure 31 are shown in Passenger Car Units (PCUs) as is normal practice. A HGV is 2 PCU and a bus 2.5 PCU and therefore the overall vehicle numbers would be expected to be lower than the total PCUs.

Figure 26: Traffic flow changes - 2012 baseline vs 2021 future baseline - AM peak hour CLoHAM

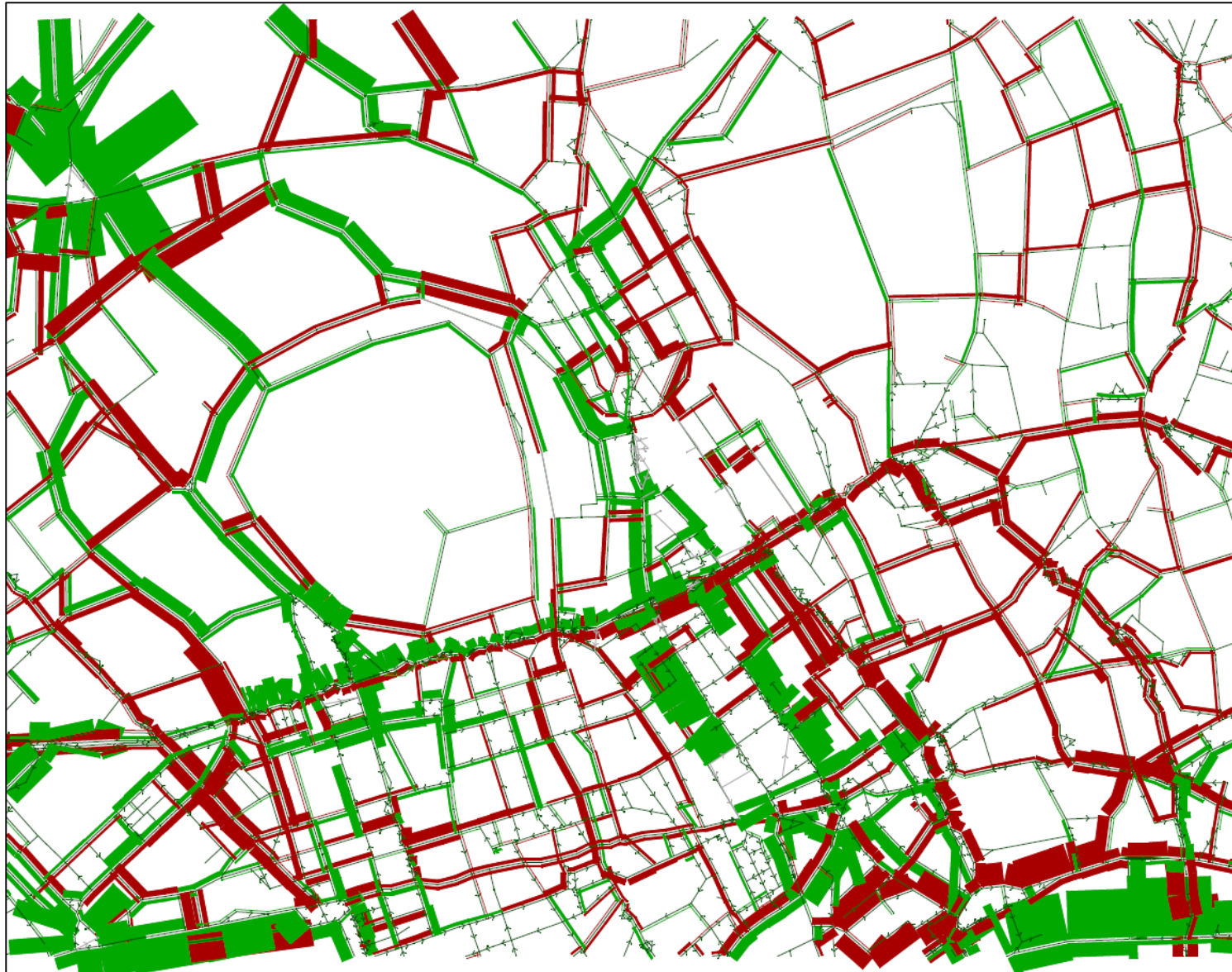


Figure 27: Traffic flow changes - 2012 baseline vs 2021 future baseline - PM peak hour CLoHAM

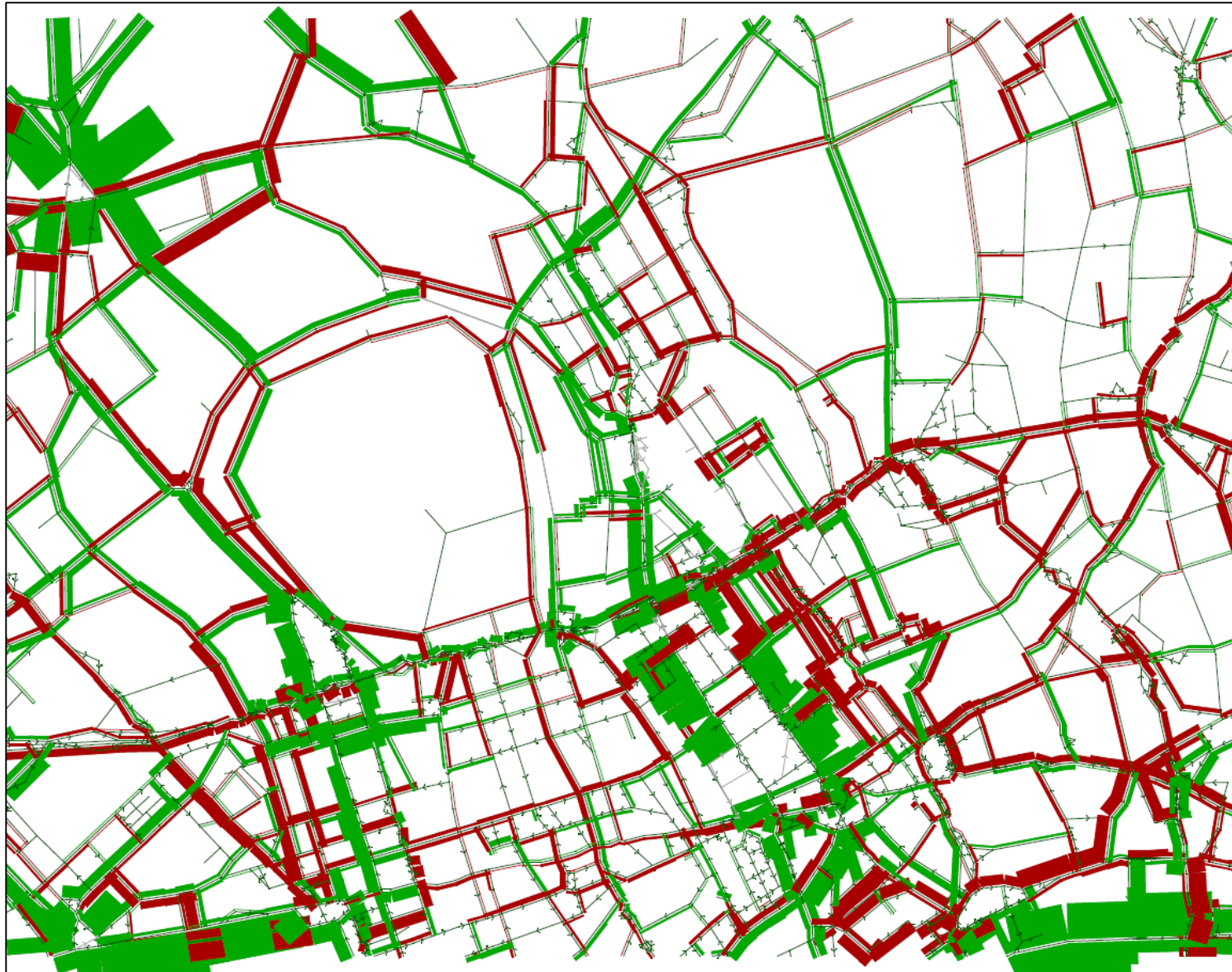


Figure 28: Traffic flow changes - 2012 baseline vs 2026 future baseline - AM peak hour CLoHAM

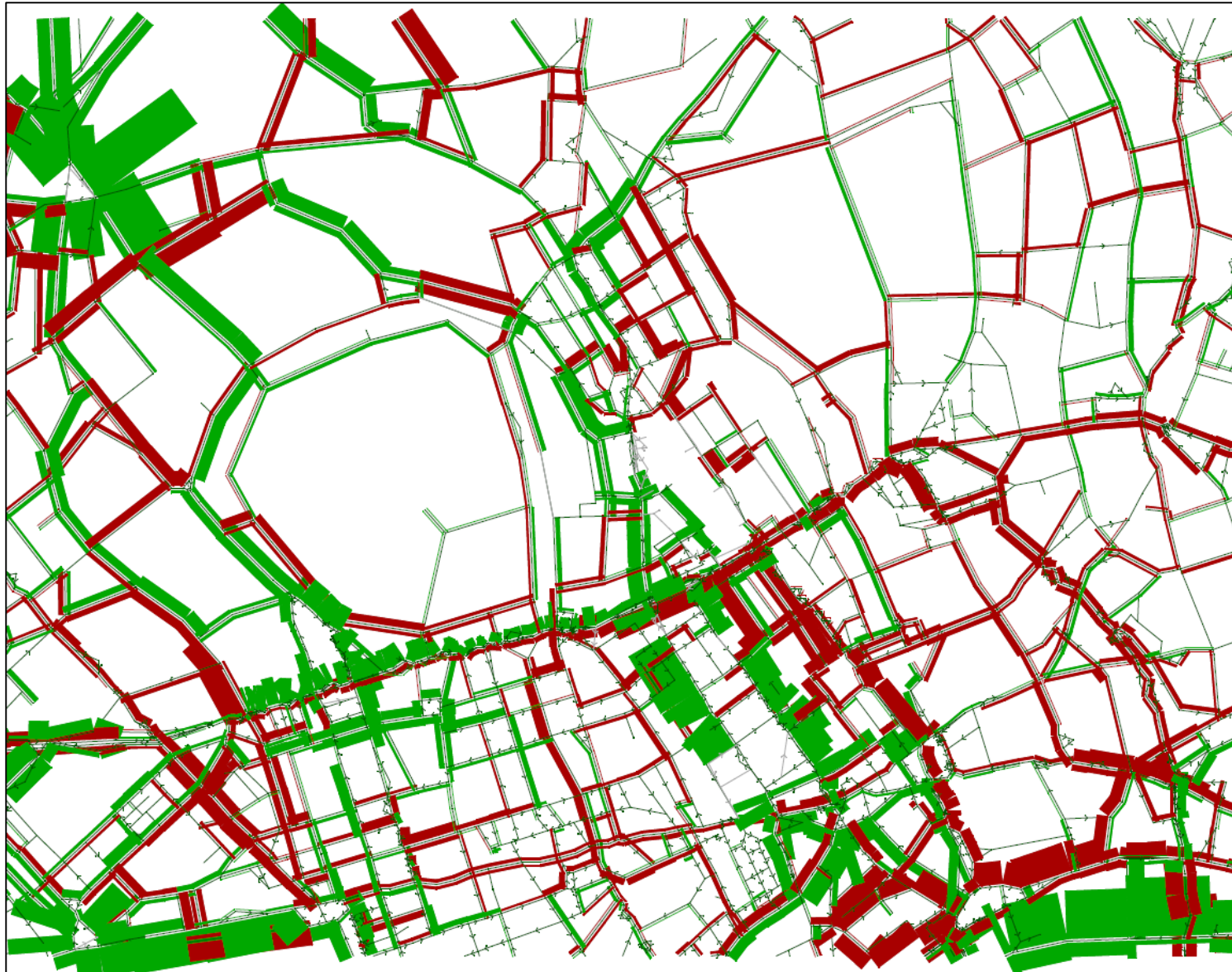


Figure 29: Traffic flow changes - 2012 baseline vs 2026 future baseline - PM peak hour CLoHAM

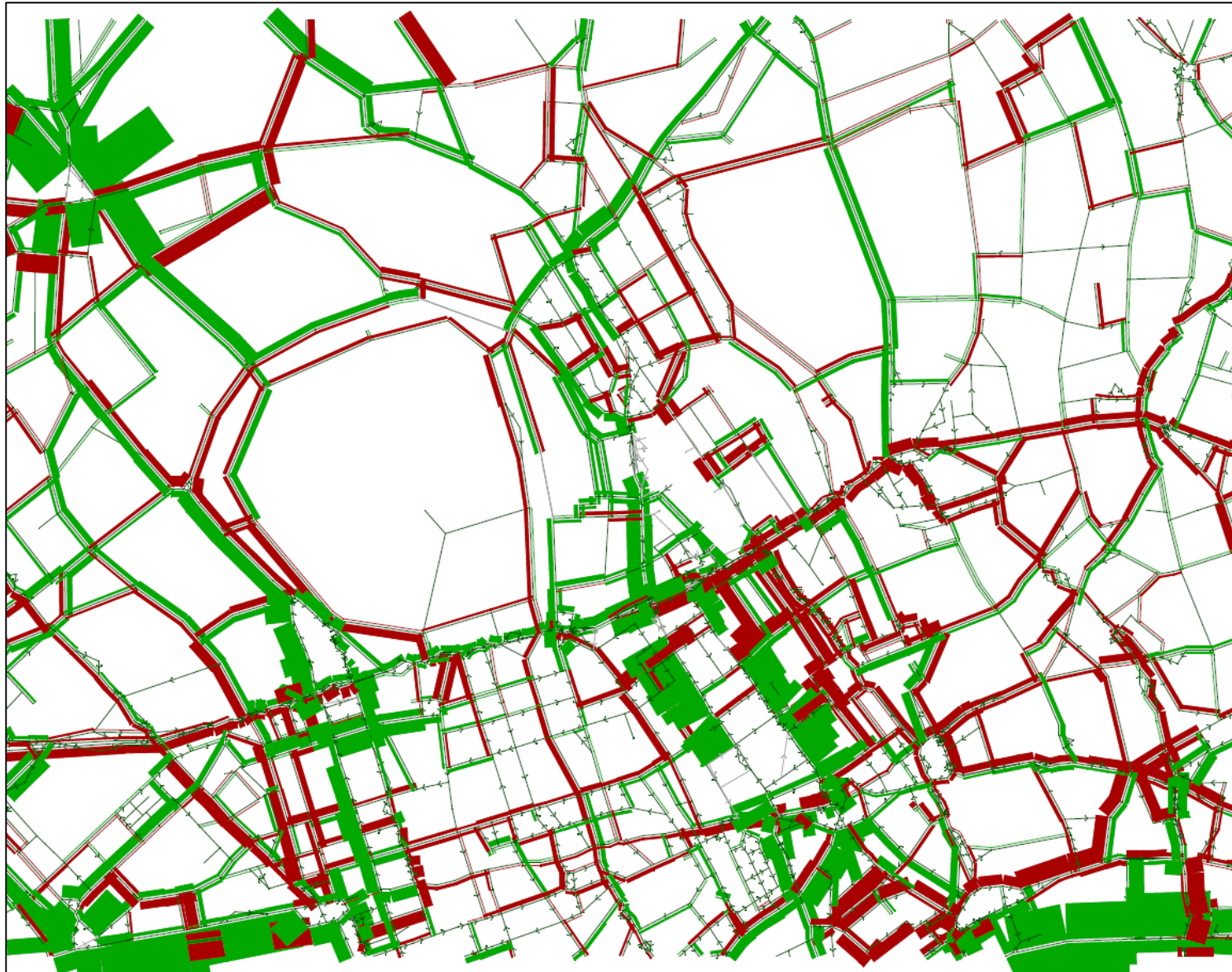




Figure 30: Traffic flow changes - 2012 baseline vs 2041 future baseline - AM peak hour CLoHAM

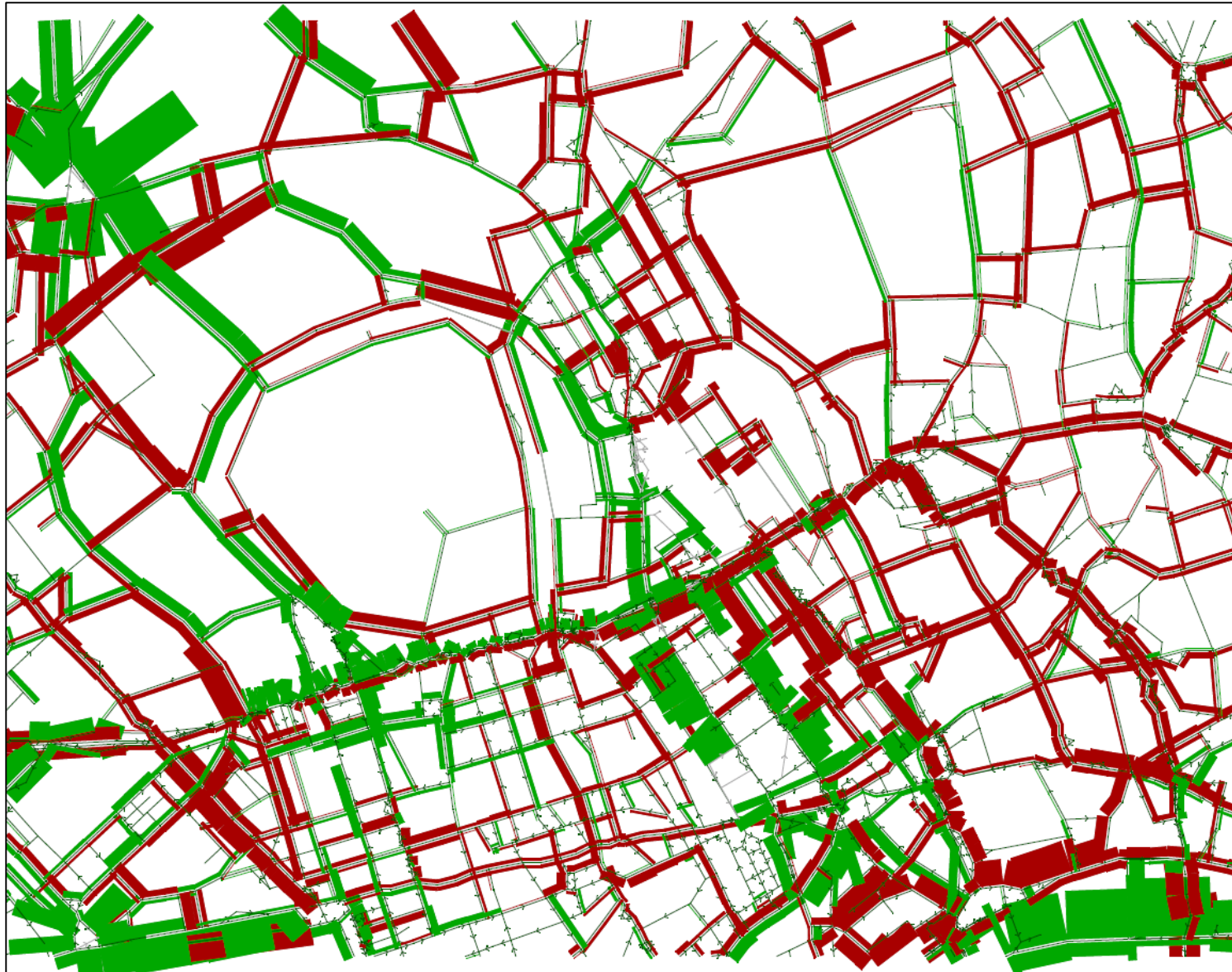
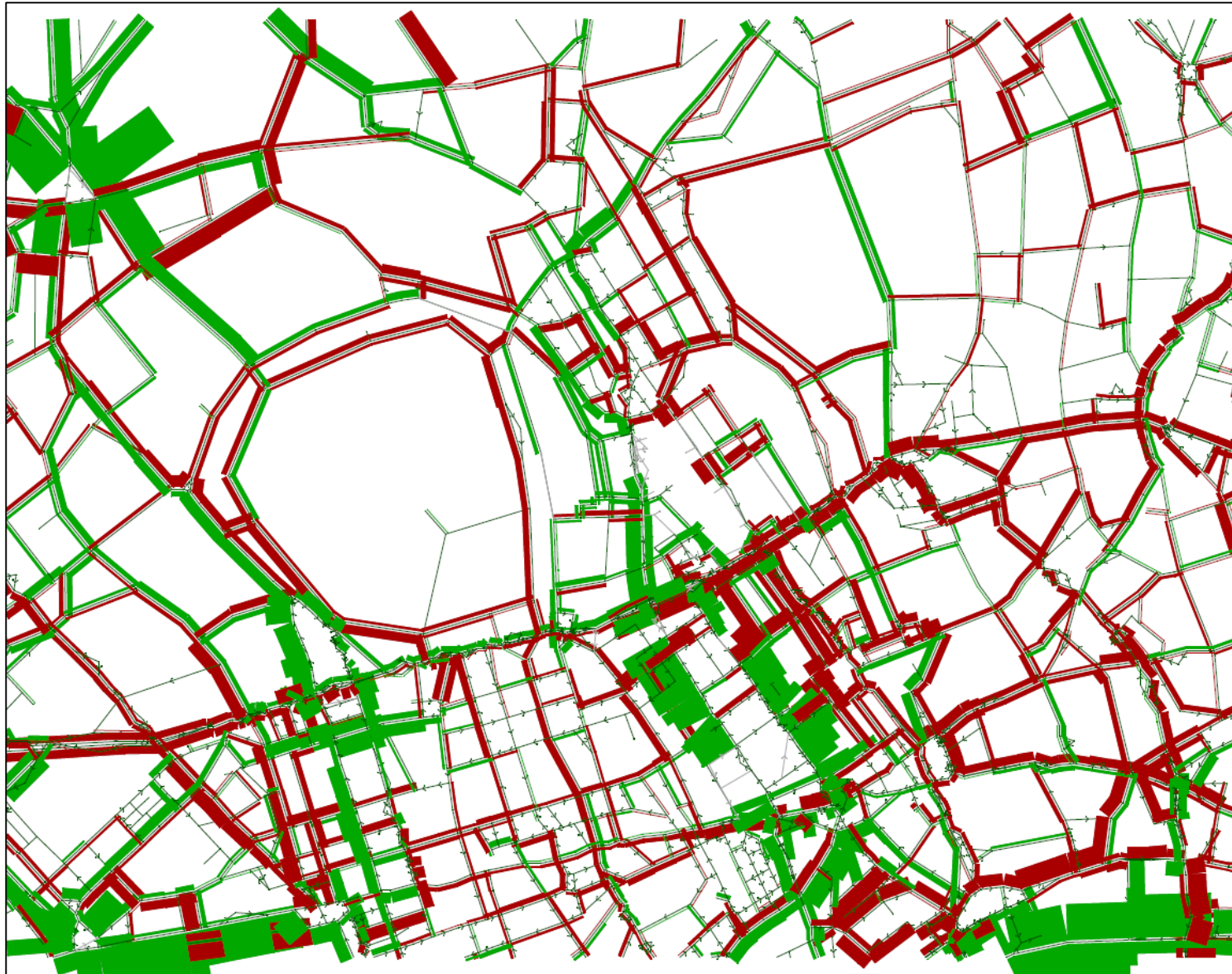


Figure 31: Traffic flow changes - 2012 baseline vs 2041 future baseline - PM peak hour CLoHAM



*Camden (CFA2) and Primrose Hill to Kilburn (Camden) (CFA3) strategic and local road network traffic flows for 2021 future baseline*

3.2.83 Traffic flows on strategic and local roads are set out in Table 42 and Table 43 for baseline (2012) and the construction baseline (2021) for additional links within CFA2 and CFA3.

Table 42: Camden screenline future baseline traffic flows - AM peak hour (08:00 to 09:00)

|   |            | 2012 baseline |     | 2021 baseline |     | % change     |      |
|---|------------|---------------|-----|---------------|-----|--------------|------|
|   |            | All vehicles  | HGV | All vehicles  | HGV | All vehicles | HGV  |
| A5203 Caledonian Road (south of Wheelwright Road) | Northbound | 675           | 8   | 657           | 8   | -3%          | 2%   |
|   | Southbound | 834           | 33  | 799           | 40  | -4%          | 22%  |
| A5200 York Way (north of Vale Road)               | Northbound | 294           | 24  | 257           | 24  | -13%         | -1%  |
|   | Southbound | 503           | 13  | 499           | 13  | -1%          | -4%  |
| A5202 St Pancras Way (north of Baynes Street)     | Southbound | 812           | 59  | 845           | 51  | 4%           | -14% |
| Randolph Street (east of Royal College Street)    | Eastbound  | 81            | 2   | 93            | 6   | 15%          | 171% |
| Royal College Street (south of Camden Rd)         | Northbound | 624           | 60  | 741           | 60  | 19%          | -1%  |
| A503 Camden Road (south of Royal College St)      | Northbound | 633           | 37  | 462           | 26  | -27%         | -29% |
|   | Southbound | 931           | 59  | 886           | 55  | -5%          | -6%  |
| A400 Camden Street (south of Camden Gardens)      | Southbound | 991           | 53  | 953           | 56  | -4%          | 4%   |
| A400 Kentish Town Road (south of Camden Gardens)  | Northbound | 312           | 22  | 350           | 21  | 12%          | -4%  |
|   | Southbound | 394           | 22  | 447           | 24  | 13%          | 9%   |
| Hawley Road                                       | Northbound | 755           | 35  | 789           | 40  | 5%           | 16%  |
| A502 Chalk Farm Road (west of Hawley Street)      | Northbound | 475           | 20  | 413           | 17  | -13%         | -13% |
|   | Southbound | 597           | 22  | 598           | 24  | 0%           | 7%   |
| Primrose Hill Road (south of Adelaide Road)       | Northbound | 347           | 24  | 305           | 22  | -12%         | -9%  |
|   | Southbound | 763           | 42  | 765           | 46  | 0%           | 10%  |

|   |            | 2012 baseline |     | 2021 baseline |     | % change     |      |
|---|------------|---------------|-----|---------------|-----|--------------|------|
|   |            | All vehicles  | HGV | All vehicles  | HGV | All vehicles | HGV  |
| Avenue Road (south of B509 Adelaide Road)         | Northbound | 307           | 11  | 192           | 11  | -37%         | -3%  |
|   | Southbound | 950           | 21  | 93            | 1   | -90%         | -97% |
| A41 Finchley Road (south of B503 Adelaide Road)   | Northbound | 895           | 54  | 405           | 46  | -55%         | -15% |
|   | Southbound | 637           | 42  | 582           | 20  | -9%          | -53% |
| Loudoun Road (south of Alexandra Place)           | Northbound | 133           | 2   | 438           | 3   | 229%         | 32%  |
|   | Southbound | 187           | 8   | 226           | 19  | 21%          | 146% |
| A507 Abbey Road (south of B509 Belsize Road)      | Northbound | 197           | 4   | 230           | 5   | 17%          | 33%  |
|   | Southbound | 370           | 10  | 416           | 12  | 13%          | 19%  |
| A5 Kilburn High Road (south of B509 Belsize Road) | Northbound | 573           | 30  | 614           | 27  | 7%           | -8%  |
|   | Southbound | 803           | 39  | 920           | 55  | 15%          | 40%  |

3.2.84 It can be seen from Table 42 that the changes in future baseline flows in the AM peak hour are, for the majority of links, relatively modest. The highest absolute changes are around A41 Finchley Road/Avenue Road/Loudoun Road and are a direct result of the TfL Swiss Cottage scheme. The remaining percentage increases in traffic are much lower at 10-20%.

Table 43: Camden screenline future baseline traffic flows - PM peak hour (17:00 to 18:00)

|   |            | 2012 baseline |     | 2021 baseline |     | % change     |     |
|---|------------|---------------|-----|---------------|-----|--------------|-----|
|   |            | All vehicles  | HGV | All vehicles  | HGV | All vehicles | HGV |
| A5203 Caledonian Road (south of Wheelwright Road) | Northbound | 560           | 5   | 554           | 5   | -1%          | 10% |
|   | Southbound | 712           | 3   | 727           | 3   | 2%           | -1% |
| A5200 York Way (north of Vale Road)               | Northbound | 430           | 21  | 364           | 20  | -15%         | -6% |
|   | Southbound | 394           | 7   | 335           | 6   | -15%         | -5% |
| A5202 St Pancras Way (north of Baynes Street)     | Southbound | 540           | 10  | 589           | 11  | 9%           | 2%  |
| Randolph Street (east of Royal College Street)    | Eastbound  | 241           | 3   | 285           | 3   | 18%          | 4%  |

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|   |            | 2012 baseline |     | 2021 baseline |     | % change     |      |
|---|------------|---------------|-----|---------------|-----|--------------|------|
|   |            | All vehicles  | HGV | All vehicles  | HGV | All vehicles | HGV  |
| Royal College Street (south of Camden Rd)         | Northbound | 564           | 11  | 642           | 13  | 14%          | 19%  |
| A503 Camden Road (south of Royal College St)      | Northbound | 875           | 23  | 705           | 20  | -19%         | -15% |
|   | Southbound | 658           | 20  | 619           | 21  | -6%          | 6%   |
| A400 Camden Street (south of Camden Gardens)      | Southbound | 763           | 18  | 795           | 17  | 4%           | -4%  |
| A400 Kentish Town Road (south of Camden Gardens)  | Northbound | 428           | 11  | 392           | 15  | -8%          | 36%  |
|   | Southbound | 269           | 1   | 303           | 1   | 13%          | -4%  |
| Hawley Road                                       | Northbound | 509           | 13  | 540           | 12  | 6%           | 13%  |
| A502 Chalk Farm Road (west of Hawley Street)      | Northbound | 599           | 11  | 524           | 9   | -13%         | -18% |
|   | Southbound | 278           | 1   | 274           | 1   | -1%          | -6%  |
| Primrose Hill Road (south of Adelaide Road)       | Northbound | 467           | 18  | 295           | 18  | -37%         | -2%  |
|   | Southbound | 478           | 13  | 667           | 16  | 40%          | 15%  |
| Avenue Road (south of B509 Adelaide Road)         | Northbound | 130           | 0   | 182           | 1   | 40%          | 443% |
|   | Southbound | 673           | 13  | 80            | 9   | -88%         | -25% |
| A41 Finchley Road (south of B503 Adelaide Road)   | Northbound | 866           | 34  | 404           | 35  | -53%         | 1%   |
|   | Southbound | 393           | 15  | 541           | 17  | 38%          | 10%  |
| Loudoun Road (south of Alexandra Place)           | Northbound | 194           | 2   | 541           | 2   | 179%         | -9%  |
|   | Southbound | 179           | 5   | 91            | 3   | -49%         | -40% |
| A507 Abbey Road (south of B509 Belsize Road)      | Northbound | 339           | 4   | 348           | 3   | 3%           | -27% |
|   | Southbound | 235           | 1   | 284           | 1   | 21%          | 15%  |
| A5 Kilburn High Road (south of B509 Belsize Road) | Northbound | 589           | 11  | 593           | 11  | 1%           | 5%   |
|   | Southbound | 613           | 7   | 652           | 6   | 6%           | -22% |

3.2.85 Changes in future baseline flows in the PM peak hour are also, for the majority of links, relatively modest with both increases and decreases in traffic. The highest absolute

increase is on Loudoun Road in the northbound direction south of Alexandra Place (an increase of 347 vehicles from 2012 to 2021, representing a 179% increase on the 2012 flow). The remaining percentage increases in traffic are much lower at 10-20%. The change in traffic on A41 Finchley Road, Avenue Road and Loudoun Road are a consequence of changes to the layout of Swiss Cottage.

### **Euston - Station and Approach (CFA1) - future baseline junction performance 2026 and 2041**

- 3.2.86 The operation of the six key junctions which form the main access routes from the local road network to Euston station have been analysed for the 2026 and 2041 future baseline conditions. These junctions are:
- A501 Euston Road/Melton Street/Gordon Street;
  - A501 Euston Road / A4200 Upper Woburn Place / Euston Square;
  - A501 Euston Road / Churchway / Dukes Road;
  - A4200 Eversholt Street / Grafton Place / Euston bus station;
  - A400 Hampstead Road/Drummond Street; and
  - A400 Hampstead Road / Cardington Street.
- 3.2.87 The modelling results for the junction of A501 Euston Road with Melton Street and Gordon Street, A4200 Upper Woburn Place and Euston Square and Churchway and Dukes Road, as well as the junction of A4200 Eversholt Street with Grafton Place and the Euston bus station have been extracted from the A501 Euston Road (Region 008) TRANSYT model.
- 3.2.88 The 2014 baseline scenario for the junction of A400 Hampstead Road with Drummond Street has also been modelled in TRANSYT. The junction of A400 Hampstead Road with Cardington Street has been modelled in LINSIG for all baseline scenarios.
- 3.2.89 For all junctions, the 2014 baseline modelling has been undertaken using the traffic survey data obtained in the 2014 traffic surveys.
- 3.2.90 All results are provided in terms of degree of saturation (DOS) and mean maximum queue (MMQ) measured in PCU. The traffic flows for each of the junctions are also shown in PCUs.

#### *A501 Euston Road / Melton Street / Gordon Street*

- 3.2.91 Table 44 shows the 2014 baseline and the 2026 and 2041 future baseline operation of the A501 Euston Road junction with Melton Street and Gordon Street, during the weekday AM and PM peak hours. The junction has been modelled with a cycle time of 96 seconds. For the 2026 and 2041 future baseline scenarios, the signal timings have been optimised within the TRANSYT model to replicate a system of on-street adaptive control where signal timings are optimised to traffic flow. This is likely to use the on-street Split Cycle Offset Optimisation Tool (SCOOT).
- 3.2.92 Table 44 shows that, during the AM peak hour, capacity on the approaches to the junction reduces Gordon Street, on A501 Euston Road east and A501 Euston Road west between 2012 baseline and 2026 and 2041 future baseline scenarios. For all of

these approaches, the DoS increases to over 90% in both 2026 and 2041. However, the level of queueing could be accommodated within the available link length.

- 3.2.93 During the PM peak hour, capacity on the approaches to the junction reduces on Gordon Street and A501 Euston Road west between 2014 baseline and 2026 and 2041 future baseline scenarios. On Gordon Street, the DoS increases to over 90% in both 2026 and 2041, while on A501 Euston Road, the DoS increases to over 90% on the offside lane in 2016 and the nearside (bus) lane in 2014. However, the level of queueing could be accommodated within the available link length.
- 3.2.94 Relative to the 2014 baseline scenario, the available capacity at the junction is reduced in both the 2026 and 2041 future baseline scenarios for both the AM and PM peak hours.

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Table 44: A501 Euston Road/Melton Street/Gordon Street peak hour flows, DOS and queue lengths (PCU)

| Peak hour    | Approach (from)       | Movement     | 2014 baseline |     |           | 2026 future baseline |      |           | 2041 future baseline |      |           |
|--------------|-----------------------|--------------|---------------|-----|-----------|----------------------|------|-----------|----------------------|------|-----------|
|              |                       |              | Flow (PCU)    | DoS | Max queue | Flow (PCU)           | DoS  | Max queue | Flow (PCU)           | DoS  | Max queue |
| AM peak hour | Melton Street         | Ahead, right | 223           | 76% | 7         | 313                  | 76%  | 8         | 313                  | 80%  | 8         |
|              | Melton Street         | Left, ahead  | 332           | 63% | 8         | 569                  | 69%  | 12        | 480                  | 59%  | 9         |
|              | A501 Euston Road east | Ahead        | 1,125         | 58% | 7         | 1,616                | 99%  | 38        | 1,694                | 97%  | 37        |
|              | A501 Euston Road east | Ahead        | 423           | 35% | 2         | 548                  | 54%  | 4         | 475                  | 44%  | 3         |
|              | Gordon Street         | Left, ahead  | 332           | 79% | 10        | 519                  | 97%  | 21        | 519                  | 100% | 26        |
|              | A501 Euston Road west | Left, ahead  | 1,295         | 64% | 24        | 1,682                | 100% | 63        | 1,738                | 101% | 71        |
|              | A501 Euston Road west | Left, ahead  | 553           | 44% | 9         | 576                  | 56%  | 12        | 600                  | 57%  | 12        |
| PM peak hour | Melton Street         | Left, ahead  | 221           | 72% | 7         | 369                  | 89%  | 13        | 375                  | 87%  | 12        |
|              | Melton Street         | Ahead, right | 242           | 43% | 5         | 343                  | 39%  | 6         | 359                  | 38%  | 6         |
|              | A501 Euston Road east | Left, ahead  | 628           | 34% | 4         | 800                  | 64%  | 19        | 888                  | 70%  | 23        |
|              | A501 Euston Road east | Ahead        | 407           | 35% | 3         | 456                  | 60%  | 11        | 486                  | 62%  | 12        |
|              | Gordon Street         | Left, ahead  | 389           | 85% | 12        | 629                  | 96%  | 24        | 641                  | 101% | 31        |
|              | A501 Euston Road west | Left, ahead  | 972           | 50% | 16        | 1,297                | 98%  | 46        | 1,388                | 102% | 64        |
|              | A501 Euston Road west | Left, ahead  | 636           | 53% | 12        | 597                  | 75%  | 15        | 689                  | 84%  | 19        |



*A501 Euston Road / A4200 Upper Woburn Place / Euston Square*

- 3.2.95 Table 45 shows the 2014 baseline and the 2026 and 2041 future baseline operation of the A501 Euston Road junction with A4200 Upper Woburn Place and Euston Square (A4200 Eversholt Street), in the weekday AM and PM peak hour. The junction has been modelled using TRANSYT with a cycle time of 96 seconds for both the AM and PM peak hours. It should also be noted that for the 2026 and 2041 future baseline scenarios, the signal timings have been optimised within the TRANSYT model to replicate the likely on-street optimisation process using SCOOT.
- 3.2.96 Table 45 shows that during the AM peak hour of the 2026 future baseline scenario, the approach to the junction along A501 Euston Road west has a DoS over 90%. A number of other approaches to the junction have a DoS between 80% and 90%. However, the level of queueing can be accommodated within the available link length. For the PM peak hour, all approaches to the junction have a DoS lower than 85% with the exception of the approach to the junction along A501 Euston Road West which has a DoS of 86%. The queue of 11 PCU can be accommodated within the available link length.
- 3.2.97 For the 2041 future baseline scenario, during the AM peak hour, the approaches to the junction along A501 Euston Road east and A501 Euston Road west have a DoS of 94%. This is the highest recorded at the junction during this scenario. For the PM peak hour of the 2041 future baseline scenario, the DoS on all approaches to the junction is lower than 85% with the exception of the approach to the junction along A501 Euston Road West which has a DoS of 86%. The queue of 11 PCU can be accommodated within the available link length.
- 3.2.98 Relative to the 2014 baseline scenario, the available capacity at the junction is reduced in both the 2026 and 2041 future baseline scenarios for both the AM and PM peak hours.

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Table 45: A501 Euston Road/A4200 Upper Woburn Place/Euston Square peak hour flows, DOS and queue lengths (PCU)

| Peak hour    | Approach (from)          | Movement    | 2014 baseline |     |           | 2026 future baseline |     |           | 2041 future baseline |     |           |
|--------------|--------------------------|-------------|---------------|-----|-----------|----------------------|-----|-----------|----------------------|-----|-----------|
|              |                          |             | Flow (PCU)    | DoS | Max queue | Flow (PCU)           | DoS | Max queue | Flow (PCU)           | DoS | Max queue |
| AM peak hour | Euston Square            | Ahead       | 257           | 55% | 7         | 476                  | 87% | 7         | 527                  | 88% | 7         |
|              | A501 Euston Road east    | Ahead       | 1,019         | 57% | 23        | 1,389                | 86% | 33        | 1,476                | 94% | 40        |
|              | A501 Euston Road east    | Left, ahead | 536           | 62% | 14        | 703                  | 90% | 19        | 625                  | 83% | 14        |
|              | A4200 Upper Woburn Place | Left, ahead | 229           | 49% | 6         | 435                  | 81% | 13        | 491                  | 81% | 14        |
|              | A4200 Upper Woburn Place | Left, ahead | 190           | 54% | 6         | 311                  | 77% | 9         | 312                  | 68% | 9         |
|              | A501 Euston Road west    | Right       | 291           | 83% | 10        | 366                  | 94% | 14        | 366                  | 94% | 14        |
|              | A501 Euston Road west    | Ahead       | 1,414         | 54% | 3         | 1,810                | 72% | 10        | 1,871                | 78% | 26        |
| PM peak hour | Euston Square            | Ahead       | 174           | 32% | 3         | 245                  | 45% | 3         | 308                  | 50% | 4         |
|              | A501 Euston Road east    | Ahead       | 580           | 35% | 10        | 733                  | 45% | 12        | 823                  | 55% | 12        |
|              | A501 Euston Road east    | Left, ahead | 512           | 64% | 10        | 559                  | 71% | 10        | 573                  | 79% | 10        |
|              | A4200 Upper Woburn Place | Left, ahead | 258           | 48% | 6         | 440                  | 82% | 13        | 456                  | 75% | 12        |
|              | A4200 Upper Woburn Place | Ahead       | 162           | 40% | 4         | 234                  | 58% | 6         | 365                  | 79% | 11        |
|              | A501 Euston Road west    | Right       | 175           | 50% | 5         | 316                  | 86% | 11        | 323                  | 86% | 11        |
|              | A501 Euston Road west    | Ahead       | 1,400         | 57% | 7         | 1,794                | 72% | 34        | 1,805                | 75% | 32        |

*A501 Euston Road / Churchway / Dukes Road*

- 3.2.99 Table 46 shows the existing operation of the A501 Euston Road junction with Churchway and Dukes Road, in the weekday AM and PM peak hour. The junction has been modelled using TRANSYT with a cycle time of 96 seconds for both the AM and PM peak hours. It should also be noted that for the 2026 and 2041 future baseline scenarios, the signal timings have been optimised within the TRANSYT model to replicate the likely on-street optimisation process using SCOOT.
- 3.2.100 The results in Table 46 show that, for the AM peak hour, the DoS on the Churchway approach to the junction increases from 79% in the 2014 baseline to 92% and 94% in the 2026 and 2041 future baseline scenarios respectively. The DoS on A501 Euston Road east also increases from 55% in the 2014 baseline to 96% in the 2026 future baseline scenario (and 83% in the 2041 future baseline scenario). However, on both approaches, the level of queueing could be accommodated within the available link length.
- 3.2.101 For the PM peak hour, the DoS remains the same or improves on Churchway between the 2014 baseline scenario and the 2026 and 2041 future baseline scenarios with a reduction in the DoS from 94% to 91% (in both future baseline scenarios). All other approaches operate with the DoS lower than 85% in both the 2026 and 2041 future baseline scenarios. However, the DoS on the approach along A501 Euston Road west increases from 62% in the 2014 baseline to 90% and 86% in the 2026 and 2041 future baseline scenarios respectively.
- 3.2.102 Relative to the 2014 baseline scenario, the available capacity at the junction is reduced in both the 2026 and 2041 future baseline scenarios, for both the AM and PM peak hours.

*A4200 Eversholt Street / Grafton Place / Euston bus station*

- 3.2.103 Table 47 shows the existing operation of the A4200 Eversholt Street junction with Grafton Way and Euston bus station, in the weekday AM and PM peak hours. The junction has been modelled using TRANSYT with a cycle time of 96 seconds for both the AM and PM peak hours. It should also be noted that for the 2026 and 2041 future baseline scenarios, the signal timings have been optimised within the TRANSYT model to replicate the likely on-street optimisation process using SCOOT.
- 3.2.104 During the AM peak hour for the 2026 future baseline scenario, the DoS increases to over 90% on the Grafton Place, A4200 Eversholt Street and Euston bus station approaches to the junction, with the DoS increasing to over 100% on the Grafton Place and Euston bus station approaches during the 2041 future baseline scenario.
- 3.2.105 During the PM peak hour for the 2026 future baseline scenario, the DoS on all approaches to the junction is below 90%. However, for the 2041 future baseline scenario, the DoS increases to 100% or over 100% on the Euston Square and Euston bus station approaches to the junction.
- 3.2.106 Relative to the 2014 baseline scenario, the available capacity at the junction is reduced in both the 2026 and 2041 future baseline scenarios, for both the AM and PM peak hours.

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Table 4.6: A501 Euston Road/Churchway/Dukes Road peak hour flows, DOS and queue lengths (PCU)

| Peak hour    | Approach (from)                  | Movement           | 2014 baseline |     |           | 2026 future baseline |     |           | 2041 future baseline |      |           |
|--------------|----------------------------------|--------------------|---------------|-----|-----------|----------------------|-----|-----------|----------------------|------|-----------|
|              |                                  |                    | Flow (PCU)    | DoS | Max queue | Flow (PCU)           | DoS | Max queue | Flow (PCU)           | DoS  | Max queue |
| AM peak hour | Churchway                        | Left, ahead, right | 207           | 79% | 7         | 137                  | 92% | 10        | 236                  | 94%  | 10        |
|              | A501 Euston Road east            | Ahead, right       | 437           | 93% | 13        | 174                  | 79% | 6         | 389                  | 95%  | 15        |
|              | A501 Euston Road east            | Left, ahead        | 710           | 55% | 6         | 1,278                | 96% | 27        | 1,186                | 83%  | 16        |
|              | A501 Euston Road east (bus lane) | Ahead              | 553           | 42% | 4         | 796                  | 59% | 10        | 778                  | 54%  | 9         |
|              | Dukes Road                       | Left, ahead, right | 20            | 4%  | 0         | 30                   | 4%  | 0         | 20                   | 9%   | 1         |
|              | A501 Euston Road west            | Left, ahead        | 1,432         | 73% | 17        | 1,966                | 85% | 17        | 1,973                | 105% | 109       |
| PM peak hour | Churchway                        | Left, ahead, right | 214           | 94% | 10        | 263                  | 94% | 11        | 239                  | 91%  | 10        |
|              | A501 Euston Road east            | Ahead, right       | 301           | 58% | 4         | 256                  | 92% | 11        | 238                  | 88%  | 6         |
|              | A501 Euston Road east            | Left, ahead        | 376           | 28% | 2         | 549                  | 43% | 8         | 649                  | 50%  | 10        |
|              | A501 Euston Road east bus lane   | Ahead              | 552           | 41% | 3         | 628                  | 49% | 9         | 635                  | 49%  | 9         |
|              | Dukes Road                       | Left, ahead, right | 18            | 8%  | 0         | 20                   | 7%  | 0         | 20                   | 8%   | 0         |
|              | A501 Euston Road west            | Left, ahead        | 1,385         | 62% | 9         | 1,927                | 90% | 43        | 2,004                | 86%  | 45        |

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Table 47: A4200 Eversholt Street/Grafton Place/Euston Bus Station peak hour flows, DOS and queue lengths (PCU)

| Peak hour    | Approach (from)        | Movement           | 2014 baseline |     |           | 2026 future baseline |      |           | 2041 future baseline |      |           |
|--------------|------------------------|--------------------|---------------|-----|-----------|----------------------|------|-----------|----------------------|------|-----------|
|              |                        |                    | Flow (PCU)    | DoS | Max queue | Flow (PCU)           | DoS  | Max queue | Flow (PCU)           | DoS  | Max queue |
| AM peak hour | A4200 Eversholt Street | Left, ahead, right | 255           | 53% | 5         | 460                  | 94%  | 17        | 501                  | 96%  | 21        |
|              | Grafton Place          | Left, ahead, right | 154           | 67% | 5         | 259                  | 96%  | 13        | 285                  | 110% | 24        |
|              | Euston Square          | Left, ahead, right | 299           | 44% | 7         | 507                  | 74%  | 11        | 556                  | 76%  | 13        |
|              | Euston bus station     | Left, ahead, right | 186           | 77% | 6         | 223                  | 108% | 19        | 222                  | 117% | 26        |
| PM peak hour | A4200 Eversholt Street | Left, ahead, right | 206           | 43% | 5         | 293                  | 72%  | 9         | 354                  | 73%  | 10        |
|              | Grafton Place          | Left, ahead, right | 150           | 60% | 4         | 248                  | 82%  | 9         | 256                  | 95%  | 12        |
|              | Euston Square          | Left, ahead, right | 319           | 45% | 8         | 506                  | 83%  | 7         | 707                  | 103% | 32        |
|              | Euston bus station     | Left, ahead, right | 174           | 84% | 7         | 208                  | 86%  | 8         | 207                  | 100% | 13        |

*A400 Hampstead Road/Drummond Street*

- 3.2.107 Table 48 shows the existing operation of the A400 Hampstead Road junction with Drummond Street, in the weekday AM and PM peak hour. The junction has been modelled using TRANSYT with a cycle time of 96 seconds for both the AM and PM peak hours. It should also be noted that for the 2026 and 2041 future baseline scenarios, the signal timings have been optimised within the TRANSYT model to replicate the likely on-street optimisation process using SCOOT.
- 3.2.108 The results in Table 48 show that for both the AM and PM peak hours for the 2014, 2026 and 2041 baseline scenarios, the junction of A400 Hampstead Road and Drummond Street will operate with spare capacity on all approaches. Any queueing experienced will be accommodated within the available link lengths.
- 3.2.109 These results indicate that the junction operation is acceptable.

*A400 Hampstead Road / Cardington Street*

- 3.2.110 Table 49 shows the existing operation of the A400 Hampstead Road junction with Cardington Street, in the weekday AM and PM peak hour. The junction was modelled using LINSIG with a cycle time of 72 seconds. It should also be noted that for the 2026 and 2041 future baseline scenarios, the signal timings have been optimised within the TRANSYT model to replicate the likely on-street optimisation process using SCOOT.
- 3.2.111 The results show that for the AM peak hour, for the 2026 and 2041 baseline scenarios, the approach to the junction along A400 Hampstead Road south would operate with a DoS over 100%, with a high level of queueing. All other approaches would operate with a DoS lower than 90%.
- 3.2.112 For the PM peak hour, the junction will operate with adequate spare capacity on all approaches to the junction for the 2014 baseline scenario and the 2026 and 2041 future baseline scenarios. The DoS on all approaches is well below 85% and the maximum queue recorded 11 PCU on the A400 Hampstead Road south approach to the junction (for the 2026 and 2041 future baseline scenarios), a decrease from 10 PCU when compared with the 2012 baseline scenario.

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Table 48: A400 Hampstead Road/Drummond Street peak hour flows, DOS and queue lengths (PCU)

| Peak hour    | Approach (from)           | Movement           | 2014 baseline |     |           | 2026 future baseline |     |           | 2041 future baseline |     |           |
|--------------|---------------------------|--------------------|---------------|-----|-----------|----------------------|-----|-----------|----------------------|-----|-----------|
|              |                           |                    | Flow (PCU)    | DoS | Max queue | Flow (PCU)           | DoS | Max queue | Flow (PCU)           | DoS | Max queue |
| AM peak hour | A400 Hampstead Road north | Left, ahead        | 464           | 47% | 8         | 684                  | 61% | 12        | 817                  | 63% | 13        |
|              | A400 Hampstead Road north | Ahead              | 258           | 27% | 4         | 180                  | 22% | 3         | 122                  | 14% | 1         |
|              | Drummond Street east      | Left, ahead, right | 151           | 52% | 4         | 305                  | 51% | 4         | 330                  | 64% | 5         |
|              | A400 Hampstead Road south | Left, ahead        | 412           | 21% | 7         | 494                  | 22% | 2         | 473                  | 18% | 2         |
|              | Drummond Street west      | Left, ahead        | 94            | 34% | 2         | 88                   | 28% | 2         | 90                   | 27% | 2         |
| PM peak hour | A400 Hampstead Road north | Left, ahead        | 403           | 41% | 7         | 340                  | 34% | 6         | 344                  | 38% | 6         |
|              | A400 Hampstead Road north | Ahead              | 163           | 17% | 2         | 132                  | 20% | 2         | 114                  | 19% | 2         |
|              | Drummond Street east      | Left, ahead, right | 300           | 49% | 4         | 194                  | 34% | 4         | 212                  | 28% | 3         |
|              | A400 Hampstead Road south | Left, ahead        | 692           | 36% | 8         | 601                  | 37% | 6         | 574                  | 35% | 6         |
|              | Drummond Street west      | Left, ahead        | 146           | 49% | 4         | 157                  | 35% | 4         | 154                  | 30% | 3         |

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Table 49: A400 Hampstead Road/Cardington Street peak hour flows, DOS and queue lengths (PCU)

| Peak hour    | Approach (from)           | Movement     | 2014 baseline |     |           | 2026 future baseline |      |           | 2041 future baseline |      |           |
|--------------|---------------------------|--------------|---------------|-----|-----------|----------------------|------|-----------|----------------------|------|-----------|
|              |                           |              | Flow (PCU)    | DoS | Max queue | Flow (PCU)           | DoS  | Max queue | Flow (PCU)           | DoS  | Max queue |
| AM peak hour | A400 Hampstead Road north | Ahead        | 844           | 61% | 9         | 754                  | 53%  | 7         | 828                  | 61%  | 9         |
|              | A400 Hampstead Road north | Left, ahead  | 429           | 33% | 3         | 715                  | 52%  | 7         | 783                  | 60%  | 8         |
|              | Cardington Street         | Left, right  | 199           | 59% | 3         | 159                  | 88%  | 6         | 168                  | 74%  | 5         |
|              | A400 Hampstead Road south | Ahead, right | 467           | 36% | 4         | 595                  | 127% | 75        | 562                  | 125% | 42        |
| PM peak hour | A400 Hampstead Road north | Left, ahead  | 575           | 47% | 6         | 468                  | 38%  | 5         | 501                  | 41%  | 5         |
|              | A400 Hampstead Road north | Ahead        | 338           | 29% | 3         | 426                  | 36%  | 4         | 451                  | 39%  | 5         |
|              | Cardington Street         | Left, right  | 208           | 61% | 5         | 210                  | 62%  | 5         | 214                  | 63%  | 5         |
|              | A400 Hampstead Road south | Ahead, right | 794           | 63% | 10        | 837                  | 66%  | 11        | 837                  | 66%  | 11        |



### Camden (CFA2) and Primrose Hill to Kilburn (Camden) (CFA3) junction performance 2021

3.2.113 The following sections consider the performance of key junctions in the 2021 baseline scenario compared to the 2012 baseline, which is the period most relevant to the assessment of construction impacts. The results have been extracted from the 2012 and 2021 CLoHAM SATURN models and the traffic flows and maximum queues for each of the junctions are shown in PCUs.

#### *Royal College Street / A503 Camden Road*

3.2.114 Table 50 shows the results of the 2012 and 2021 baseline modelling of the junction of A503 Camden Road with Royal College Street. The model shows that, overall, the amount of traffic through this junction decreases, and hence, changes in junction performance are expected in 2021. The overall operation of the junction improves as a consequence of the decrease in traffic, but with the change in travel patterns the queue on A503 Camden Road in the southbound direction increases from 13 vehicles to 18 in the AM peak hour.

Table 50: CFA2 Camden - forecast baseline performance at Royal College Street / A503 Camden Road (signalised)

|                                 | 2012        |            |                  | 2021        |            |                  |
|---------------------------------|-------------|------------|------------------|-------------|------------|------------------|
| <b>AM peak (08:00 to 09:00)</b> | <b>Flow</b> | <b>RFC</b> | <b>Max queue</b> | <b>Flow</b> | <b>RFC</b> | <b>Max queue</b> |
| A503 Camden Road (SB)           | 891         | 71%        | 13               | 842         | 67%        | 18               |
| Royal College Street (NB)       | 698         | 64%        | 4                | 814         | 64%        | 4                |
| A503 Camden Road (NB)           | 704         | 49%        | 5                | 522         | 36%        | 6                |
| <b>PM peak (17:00 to 18:00)</b> | <b>Flow</b> | <b>RFC</b> | <b>Max queue</b> | <b>Flow</b> | <b>RFC</b> | <b>Max queue</b> |
| A503 Camden Road (SB)           | 587         | 47%        | 1                | 562         | 45%        | 1                |
| Royal College Street (NB)       | 589         | 59%        | 1                | 669         | 53%        | 2                |
| A503 Camden Road (NB)           | 933         | 69%        | 5                | 760         | 56%        | 7                |

#### *A400 Kentish Town Road / Hawley Road*

3.2.115 Table 51 shows the results of the 2012 and 2021 baseline modelling of the junction of A400 Kentish Town Road with Hawley Road. The model shows small changes in traffic flows, and hence junction performance, are expected in 2021. The junction operates with minimal queues on all arms.

Table 51: CFA2 Camden - forecast baseline performance at A400 Kentish Town Road / Hawley Road (signalised)

|                                 | 2012        |            |                  | 2021        |            |                  |
|---------------------------------|-------------|------------|------------------|-------------|------------|------------------|
| <b>AM peak (08:00 to 09:00)</b> | <b>Flow</b> | <b>RFC</b> | <b>Max queue</b> | <b>Flow</b> | <b>RFC</b> | <b>Max queue</b> |
| A400 Kentish Town Road (SB)     | 638         | 49%        | 1                | 652         | 46%        | 2                |
| A400 Kentish Town Road (NB)     | 353         | 50%        | 4                | 390         | 56%        | 6                |

|                                 | 2012        |            |                  | 2021        |            |                  |
|---------------------------------|-------------|------------|------------------|-------------|------------|------------------|
| A502 Hawley Road                | 884         | 47%        | 2                | 888         | 46%        | 5                |
| <b>PM peak (17:00 to 18:00)</b> | <b>Flow</b> | <b>RFC</b> | <b>Max queue</b> | <b>Flow</b> | <b>RFC</b> | <b>Max queue</b> |
| A400 Kentish Town Road (SB)     | 489         | 32%        | 1                | 471         | 28%        | 1                |
| A400 Kentish Town Road (NB)     | 459         | 53%        | 3                | 426         | 49%        | 5                |
| A502 Hawley Road                | 631         | 44%        | 5                | 707         | 49%        | 6                |

*A400 Camden High Street / A4200 Parkway*

3.2.116 Table 52 shows the results of the 2012 and 2021 baseline modelling of the junction of A503 A400 Camden High Street and A4200 Parkway. The model shows a reduction in traffic flows and hence an improvement in junction performance are expected in 2021. The junction still operates with queues on both arms.

Table 52: CFA2 Camden - forecast baseline performance at A400 Camden High Street / A4200 Parkway (signalised)

|                                 | 2012        |            |                  | 2021        |            |                  |
|---------------------------------|-------------|------------|------------------|-------------|------------|------------------|
| <b>AM peak (08:00 to 09:00)</b> | <b>Flow</b> | <b>RFC</b> | <b>Max queue</b> | <b>Flow</b> | <b>RFC</b> | <b>Max queue</b> |
| A400 Camden High Street (NB)    | 719         | 33%        | 6                | 568         | 27%        | 7                |
| A4200 Parkway                   | 804         | 66%        | 4                | 786         | 51%        | 6                |
| <b>PM peak (17:00 to 18:00)</b> | <b>Flow</b> | <b>RFC</b> | <b>Max queue</b> | <b>Flow</b> | <b>RFC</b> | <b>Max queue</b> |
| A400 Camden High Street (NB)    | 895         | 34%        | 4                | 730         | 30%        | 9                |
| A4200 Parkway                   | 992         | 96%        | 3                | 884         | 77%        | 4                |

*B509 Adelaide Road / Primrose Hill Road*

3.2.117 Table 53 shows the results of the modelling of the 2012 and 2021 baseline for the junction of B509 Adelaide Road with Primrose Hill Road. The model shows small changes in traffic flows, and hence junction performance, are expected in 2021. The junction operates within its capacity during both peak hours and with a small level of queueing on all arms.

Table 53: CFA3 Primrose Hill to Kilburn (Camden) - forecast baseline performance at B509 Adelaide Road / Primrose Hill Road (signalised)

|                                 | 2012        |            |                  | 2021        |            |                  |
|---------------------------------|-------------|------------|------------------|-------------|------------|------------------|
| <b>AM peak (08:00 to 09:00)</b> | <b>Flow</b> | <b>RFC</b> | <b>Max queue</b> | <b>Flow</b> | <b>RFC</b> | <b>Max queue</b> |
| Primrose Hill Road (SB)         | 557         | 67%        | 1                | 645         | 84%        | 5                |
| B509 Adelaide Road (WB)         | 340         | 29%        | 2                | 313         | 25%        | 2                |
| Primrose Hill Road (NB)         | 384         | 47%        | 1                | 345         | 52%        | 3                |
| B509 Adelaide Road (EB)         | 863         | 55%        | 1                | 889         | 52%        | 5                |

|                                 | 2012        |            |                  | 2021        |            |                  |
|---------------------------------|-------------|------------|------------------|-------------|------------|------------------|
| <b>PM peak (17:00 to 18:00)</b> | <b>Flow</b> | <b>RFC</b> | <b>Max queue</b> | <b>Flow</b> | <b>RFC</b> | <b>Max queue</b> |
| Primrose Hill Road (SB)         | 420         | 45%        | 2                | 561         | 67%        | 5                |
| B509 Adelaide Road (WB)         | 333         | 33%        | 1                | 325         | 32%        | 3                |
| Primrose Hill Road (NB)         | 490         | 61%        | 1                | 320         | 32%        | 1                |
| B509 Adelaide Road (EB)         | 593         | 36%        | 1                | 733         | 46%        | 1                |

*B509 Adelaide Road / A502 Haverstock Hill*

3.2.118 Table 54 shows the results of the modelling of the B509 Adelaide Road with A502 Haverstock Hill for the 2012 and 2021 baseline. The model shows a substantial reduction in traffic on A502 Haverstock Hill and in overall traffic passing through the junction and hence junction performance improves in 2021. The junction operates within its capacity during both peak hours, but with queues on the B509 Adelaide Road arm.

Table 54: CFA3 Primrose Hill to Kilburn (Camden) - forecast baseline performance at B509 Adelaide Road / A502 Haverstock Hill (signalised)

|                                 | 2012        |            |                  | 2021        |            |                  |
|---------------------------------|-------------|------------|------------------|-------------|------------|------------------|
| <b>AM peak (08:00 to 09:00)</b> | <b>Flow</b> | <b>RFC</b> | <b>Max queue</b> | <b>Flow</b> | <b>RFC</b> | <b>Max queue</b> |
| A502 Haverstock Hill            | 223         | 15%        | 0                | 31          | 2%         | 0                |
| A502 Chalk Farm Road            | 516         | 40%        | 2                | 457         | 37%        | 3                |
| B509 Adelaide Road              | 387         | 27%        | 1                | 480         | 34%        | 5                |
| <b>PM peak (17:00 to 18:00)</b> | <b>Flow</b> | <b>RFC</b> | <b>Max queue</b> | <b>Flow</b> | <b>RFC</b> | <b>Max queue</b> |
| A502 Haverstock Hill            | 137         | 10%        | 0                | 28          | 2%         | 0                |
| A502 Chalk Farm Road            | 602         | 43%        | 2                | 551         | 42%        | 3                |
| B509 Adelaide Road              | 379         | 25%        | 0                | 406         | 27%        | 3                |

*A502 Haverstock Hill / England's Lane*

3.2.119 Table 55 shows the results of modelling of the Haverstock Hill/England's Lane junction. This shows reductions in traffic flows on A502 Haverstock Hill in the southbound direction with increases on A502 Haverstock Hill in the northbound direction and England's Lane; but, overall, there is a reduction in traffic passing through the junction. However, the junction performance worsens as a consequence. Both A502 Haverstock Hill arms operate over practical capacity in the AM and PM peak hours and England's Lane operates over capacity in the PM peak hour. Those arms that are over capacity do not have substantial queues forming on them.

Table 55: CFA3 Primrose Hill to Kilburn (Camden) - forecast baseline performance at A502 Haverstock Hill / England's Lane (signalised)

|                                 | 2012 |     |           | 2021 |      |           |
|---------------------------------|------|-----|-----------|------|------|-----------|
|                                 | Flow | RFC | Max queue | Flow | RFC  | Max queue |
| <b>AM peak (08:00 to 09:00)</b> |      |     |           |      |      |           |
| A502 Haverstock Hill (SB)       | 542  | 85% | 1         | 132  | 102% | 0         |
| A502 Haverstock Hill (NB)       | 536  | 87% | 2         | 580  | 101% | 3         |
| England's Lane                  | 239  | 73% | 0         | 291  | 99%  | 1         |
| <b>PM peak (17:00 to 18:00)</b> |      |     |           |      |      |           |
| A502 Haverstock Hill (SB)       | 443  | 55% | 0         | 155  | 103% | 0         |
| A502 Haverstock Hill (NB)       | 469  | 68% | 3         | 551  | 93%  | 3         |
| England's Lane                  | 172  | 48% | 0         | 214  | 65%  | 1         |

*B509 Adelaide Road / Avenue Road*

3.2.120 Table 56 shows the results of the 2012 and 2021 baseline modelling at the junction of B509 Adelaide Road with Avenue Road. Due to changes in the layout of Swiss Cottage there will be a decrease in capacity at this junction. This is forecast to result in changes in traffic flows at this junction and, overall, the amount of traffic passing through decreases. This decrease in traffic flows results in B509 Adelaide Road in the eastbound direction and Avenue Road in the northbound direction operating over capacity in the AM peak hour, and the eastbound arm of B509 Adelaide Road operating over capacity in the PM peak hour.

Table 56: CFA3 Primrose Hill to Kilburn (Camden) - forecast baseline performance at B509 Adelaide Road / Avenue Road (signalised)

|                                 | 2012  |     |           | 2021 |      |           |
|---------------------------------|-------|-----|-----------|------|------|-----------|
|                                 | Flow  | RFC | Max queue | Flow | RFC  | Max queue |
| <b>AM peak (08:00 to 09:00)</b> |       |     |           |      |      |           |
| Avenue Road (SB)                | 2,535 | 63% | 1         | 16   | 4%   | 0         |
| B509 Adelaide Road (WB)         | 890   | 95% | 2         | 618  | 101% | 5         |
| Avenue Road (NB)                | 317   | 45% | 2         | 202  | 96%  | 2         |
| St Johns Wood Park              | 106   | 14% | 0         | 118  | 18%  | 0         |
| B509 Adelaide Road (EB)         | -     | -   | -         | 832  | 46%  | 12        |

|                          | 2012  |     |           | 2021 |      |           |
|--------------------------|-------|-----|-----------|------|------|-----------|
| PM peak (17:00 to 18:00) | Flow  | RFC | Max queue | Flow | RFC  | Max queue |
| Avenue Road (SB)         | 1,951 | 49% | 1         | 16   | 4%   | 0         |
| B509 Adelaide Road (WB)  | 820   | 73% | 3         | 618  | 100% | 5         |
| Avenue Road (NB)         | 130   | 31% | 0         | 183  | 87%  | 1         |
| St Johns Wood Park       | 41    | 5%  | 0         | 38   | 5%   | 0         |
| B509 Adelaide Road (EB)  | -     | -   | -         | 757  | 42%  | 6         |

*A41 Finchley Road / Avenue Road*

3.2.121 Table 57 provides the results of the 2012 and 2021 baseline modelling for the junction of A41 Finchley Road with Avenue Road. As part of the changes to Swiss Cottage there have been substantial changes to the layout of this junction which has reduced the overall capacity of the junction. Whilst the consequence of this will be a decrease in traffic passing through the junction, the reduced capacity is forecast to worsen junction performance, with all arms over capacity in the AM peak hour and College Crescent over capacity in the PM peak hour.

Table 57: CFA3 Primrose Hill to Kilburn (Camden) - forecast baseline performance at A41 Finchley Road / Avenue Road (signalised)

|                          | 2012 |     |           | 2021 |      |           |
|--------------------------|------|-----|-----------|------|------|-----------|
| AM peak (08:00 to 09:00) | Flow | RFC | Max queue | Flow | RFC  | Max queue |
| A41 Finchley Road (SB)   | 1346 | 70% | 1         | 796  | 95%  | 2         |
| College Crescent         | 745  | 28% | 1         | 275  | 105% | 0         |
| A41 Finchley Road (NB)   | 2214 | 77% | 7         | 693  | 101% | 6         |
| PM peak (17:00 to 18:00) | Flow | RFC | Max queue | Flow | RFC  | Max queue |
| A41 Finchley Road (SB)   | 836  | 56% | 0         | 699  | 83%  | 1         |
| College Crescent         | 809  | 30% | 0         | 283  | 106% | 0         |
| A41 Finchley Road (NB)   | 1953 | 40% | 4         | 692  | 79%  | 3         |

*Boundary Road / A41 Finchley Road*

3.2.122 Table 58 shows the results of the 2012 and 2021 baseline modelling for the A41 Finchley Road with Boundary Road. The model shows small changes in traffic flows and hence junction performance are expected in 2021. The junction operates within its capacity during both peak hours.

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Table 58: CFA3 Primrose Hill to Kilburn (Camden) - forecast baseline performance at Boundary Road / A41 Finchley Road (signalised)

|                                 | 2012 |     |           | 2021 |     |           |
|---------------------------------|------|-----|-----------|------|-----|-----------|
|                                 | Flow | RFC | Max queue | Flow | RFC | Max queue |
| <b>AM peak (08:00 to 09:00)</b> |      |     |           |      |     |           |
| A41 Finchley Road (SB)          | 729  | 36% | 4         | 652  | 29% | 13        |
| A41 Finchley Road (NB)          | 848  | 35% | 9         | 747  | 37% | 5         |
| Boundary Road (EB)              | 225  | 49% | 1         | 136  | 30% | 1         |
| <b>PM peak (17:00 to 18:00)</b> |      |     |           |      |     |           |
| A41 Finchley Road (SB)          | 458  | 22% | 1         | 608  | 28% | 7         |
| A41 Finchley Road (NB)          | 929  | 38% | 3         | 825  | 42% | 3         |
| Boundary Road (EB)              | 123  | 27% | 0         | 95   | 21% | 0         |

### *Boundary Road / Loudoun Road*

3.2.123 Table 59 shows the 2012 and 2021 baseline modelling results of the junction of Boundary Road with Loudoun Road. The model shows small changes in traffic flows and hence junction performance are expected in 2021. The junction operates within its capacity during both peak hours.

Table 59: CFA3 Primrose Hill to Kilburn (Camden) - forecast baseline performance at Boundary Road / Loudoun Road (signalised)

|                                 | 2012 |     |           | 2021 |     |           |
|---------------------------------|------|-----|-----------|------|-----|-----------|
|                                 | Flow | RFC | Max queue | Flow | RFC | Max queue |
| <b>AM peak (08:00 to 09:00)</b> |      |     |           |      |     |           |
| Loudoun Road (SB)               | 194  | 19% | 1         | 245  | 21% | 1         |
| Boundary Road (WB)              | 70   | 2%  | 0         | 378  | 24% | 3         |
| Loudoun Road (NB)               | 158  | 13% | 1         | 123  | 10% | 1         |
| Boundary Road (EB)              | 198  | 7%  | 0         | 245  | 8%  | 1         |
| <b>PM peak (17:00 to 18:00)</b> |      |     |           |      |     |           |
| Loudoun Road (SB)               | 184  | 17% | 0         | 94   | 8%  | 0         |
| Boundary Road (WB)              | 99   | 5%  | 0         | 428  | 34% | 3         |
| Loudoun Road (NB)               | 96   | 7%  | 0         | 98   | 9%  | 1         |
| Boundary Road (EB)              | 189  | 6%  | 0         | 184  | 6%  | 0         |

### *Accidents and safety*

- 3.2.124 A full network safety analysis has been undertaken for 2014 in the baseline assessment within this report. It is generally accepted that with increased traffic flows alongside an increase in pedestrian and cyclist activity on-street, the risk of accidents is always present. Therefore, accident risk reviews are an on-going remit to reduce accidents and risk. Based on the changes to the highway network, changes in traffic flows and travel demands on the future baseline network, the level of risk identified in 2014 baseline are still relevant.

### 3.3 Euston- Station and Approach (CFA1) construction impact assessment

#### Euston- Station and Approach (CFA1) revised scheme construction description

- 3.3.1 The Euston construction programme commences in 2016 and will be completed in 2033. The first part of the high speed station will be completed in 2026 for the opening of Phase One of high speed services. The second part of the high speed station will be completed in 2033 for the planned opening of Phase Two of high speed services. Certain advance works, mainly utility diversions and enabling works on the existing railway, are planned to start in 2016, subject to any necessary agreements and consents.
- 3.3.2 The base year for the assessment of the construction impacts has been chosen at 2021 to provide an assessment of the future year demand based on the London Transportation Studies (LTS) model to 2021 as a representation year. The forecast changes resulting from the revised scheme have then been overlaid on 2021, with, as relevant, overlapping activities considered (in both area of importance and timing) in combination. Where an assessment for a construction year has been used as a baseline other than 2021 has been undertaken, this has been defined.
- 3.3.3 The construction programme at Euston is complex and will be subject to further detailed refinement. The programme has been designed as two main construction stages to take account of the operational needs of the conventional railway and station. These constraints include:
- the need to maintain 16 operational platforms for conventional rail services up until opening of Phase One of HS2 in 2026, with 11 operational platforms for conventional services from 2026 onwards;
  - maintenance of pedestrian flows for access to conventional station and LU services;
  - maintained bus station operations;
  - temporary taxi arrangements;
  - local traffic management; and
  - conventional station logistics.
- 3.3.4 There will be ongoing changes to passenger routes through and around the existing conventional station and in the vicinity of the high speed station works to meet the requirements for phased construction of the revised scheme. Construction sequencing will be managed to provide for pedestrian movements through and around the works.

#### *Construction activity and phasing*

- 3.3.5 A complete description of the works associated with the revised scheme in the Euston - Station and Approach (CFA1) area is provided in Section 2 of the Environmental Statement, Volume 2, Report 1.



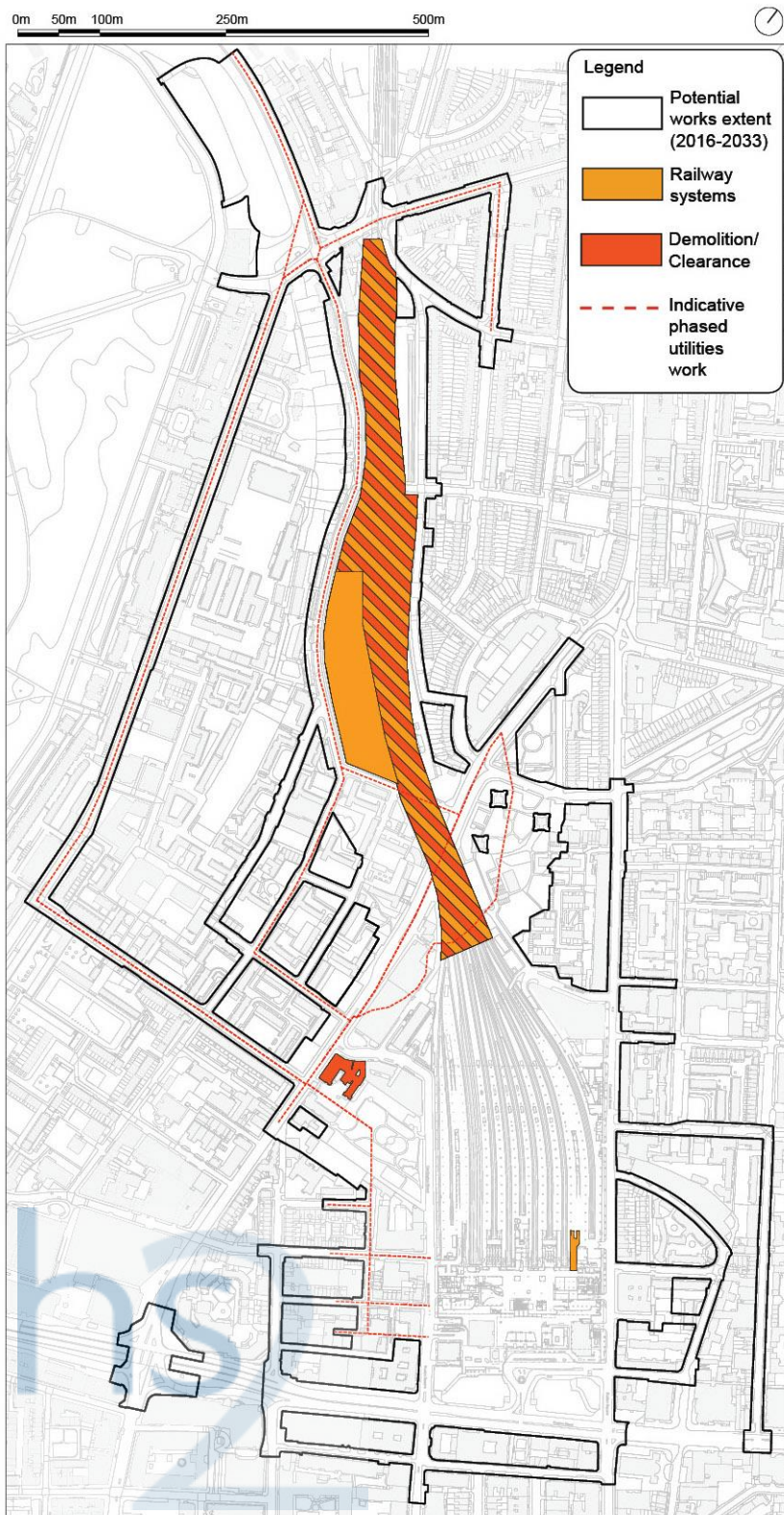
3.3.6 The construction works will be carried out throughout the site for the majority of the construction period. The overall programme has been outlined on a year by year basis. Table 60 shows programme milestones for the duration of the construction works.

Table 60: Key construction programme milestones

| Area     | Activity  | Date    |
|----------|---|---------|
| General  | Commence main enabling works                                  | Q3 2016 |
| General  | Commence NR enabling works                                    | Q4 2016 |
| General  | Commence HS main works (demolition and construction)          | Q4 2016 |
| Station  | Close basement car park and transfer taxis to West Gardens    | Q3 2017 |
| Approach | Commence portal/dive under construction                       | Q3 2017 |
| Approach | Arrival of first Tunnel Boring Machine (TBM) at Euston portal | Q2 2022 |
| Approach | Complete A400 Hampstead Road overbridge construction          | Q3 2023 |
| Station  | Re-locate taxis to A4200 Eversholt Street                     | Q1 2023 |
| Station  | Complete Euston Square sub-surface link                       | Q4 2026 |
| Station  | Relocate taxis to west side of the station                    | Q4 2026 |
| Station  | Complete and open first six HS platforms (for Phase 1)        | Q4 2026 |
| Station  | Complete and open second five HS platforms (for Phase 2)      | Q4 2033 |
| Station  | Relocate taxis to north side of the station (final location)  | Q4 2033 |
| Station  | Complete linear bus station                                   | Q4 2033 |

3.3.7 Figure 32 shows the extent of the early start enabling works to be undertaken during 2016. This includes widespread utility and service diversions and the commencement of railway systems enabling works. No long-term temporary or permanent road or public right of way closures are planned during this phase of construction. However, some local temporary diversions or realignments may be required on footways. These will be discussed and agreed with LBC and TfL prior to their implementation.

Figure 32: 2016 construction works



3.3.8 Figure 33 to Figure 35 show the extent of the main construction works that will be undertaken during the years 2017, 2018 and 2019 respectively.

Figure 33: 2017 construction works

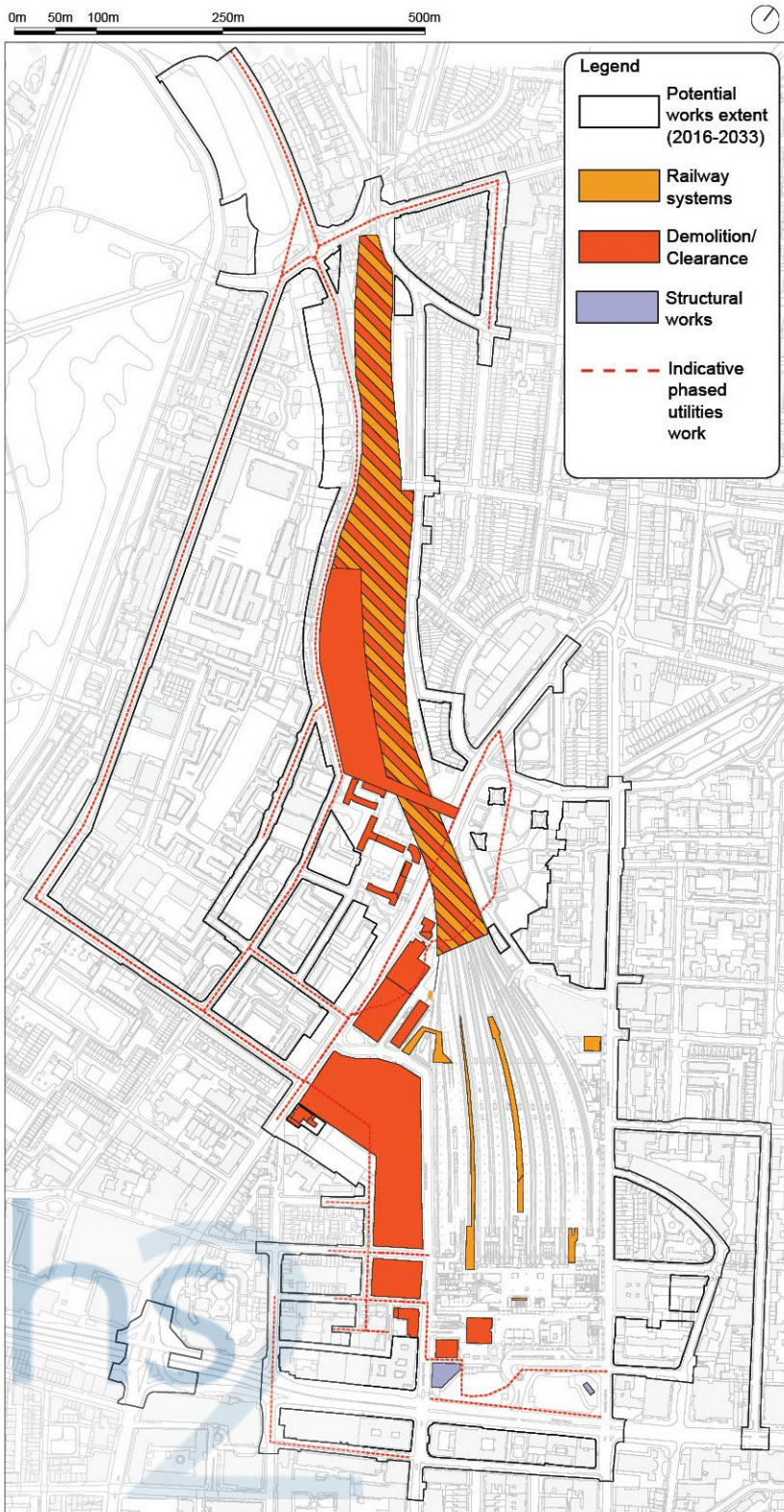


Figure 34: 2018 construction works

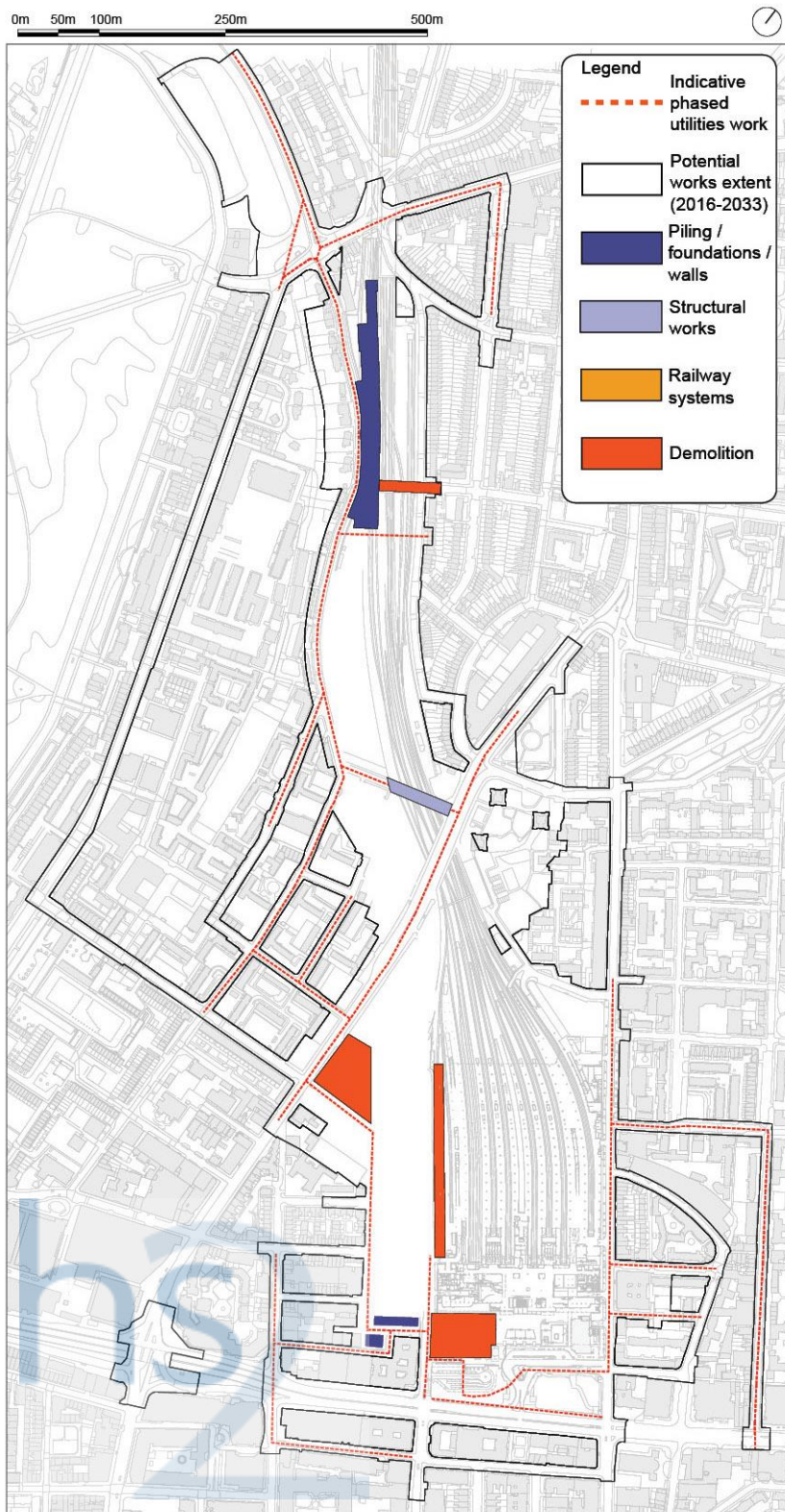
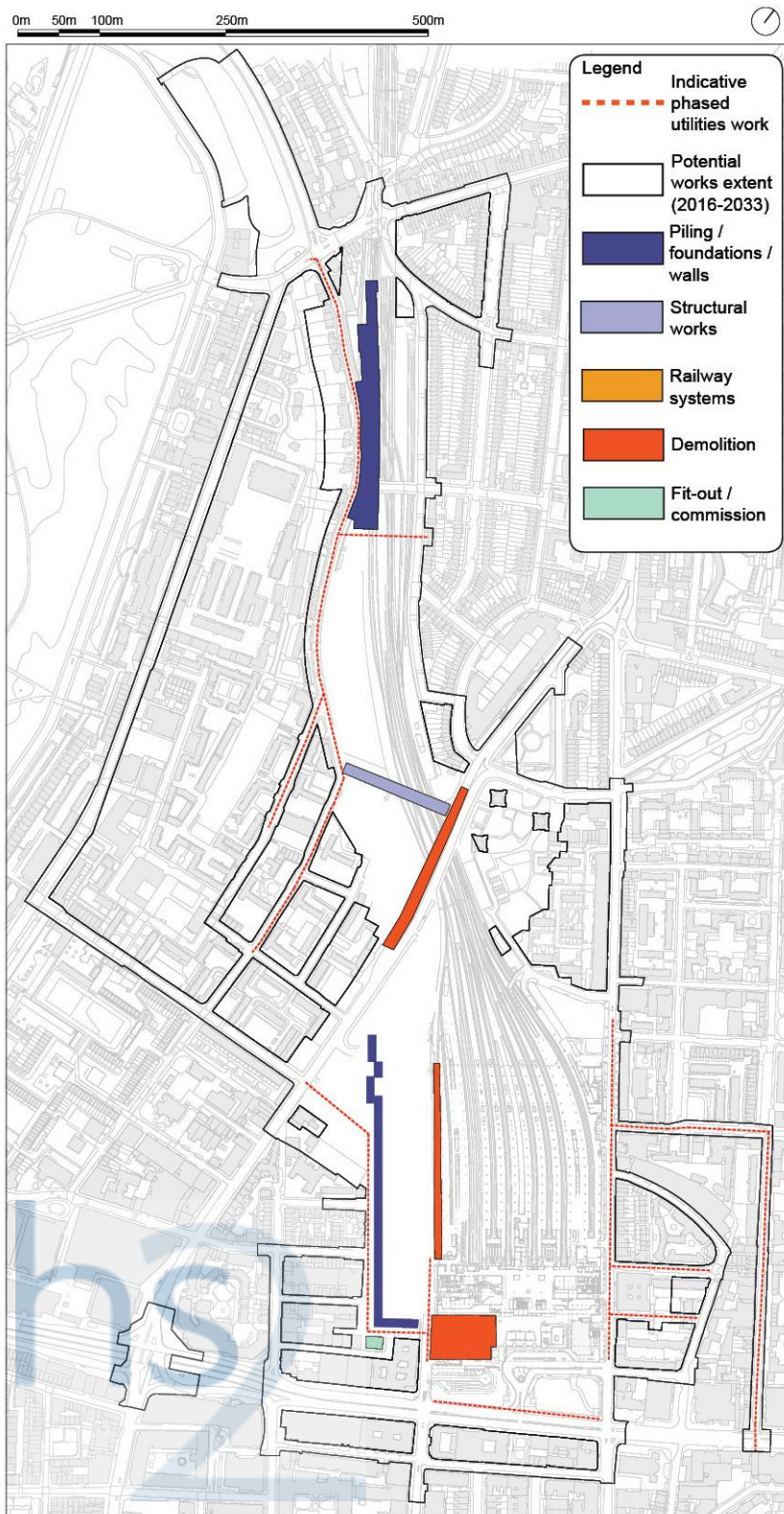


Figure 35: 2019 construction works.



3.3.9 During the years 2017, 2018 and 2019 of construction, the following changes to the local highway network will occur:

- permanent closure of Cardington Street and Melton Street;
- relocation of taxis from the existing basement to Euston Square Gardens (west);
- closure of Granby Terrace overbridge to vehicular traffic, cyclists and pedestrians;
- closure of Mornington Street overbridge to vehicular traffic and cyclists, while pedestrian access will be maintained via a temporary utilities bridge; and
- temporary realignment of A400 Hampstead Road and reduction to a two lane highway with one lane in each direction.

3.3.10 Widespread utility works and service diversions may also result in some temporary traffic management measures on certain roads to accommodate the works.

3.3.11 Figure 36 to Figure 39 show the extent of the construction works that will be undertaken during 2020, 2021, 2022 and 2023 respectively. During these years, the following changes to the local highway network will occur:

- commencement of A501 Euston Road utility works and service diversions;
- continued temporary realignment of A400 Hampstead Road with one lane in each direction;
- permanent closure of Varndell Street junction with A400 Hampstead Road to vehicular traffic;
- completion of reconstructed Mornington Street overbridge and reopening to traffic;
- completion of the realigned Granby Terrace overbridge and reopening to construction traffic only; and
- relocation of taxi facility to temporary location on A4200 Eversholt Street.

Figure 36: 2020 construction works

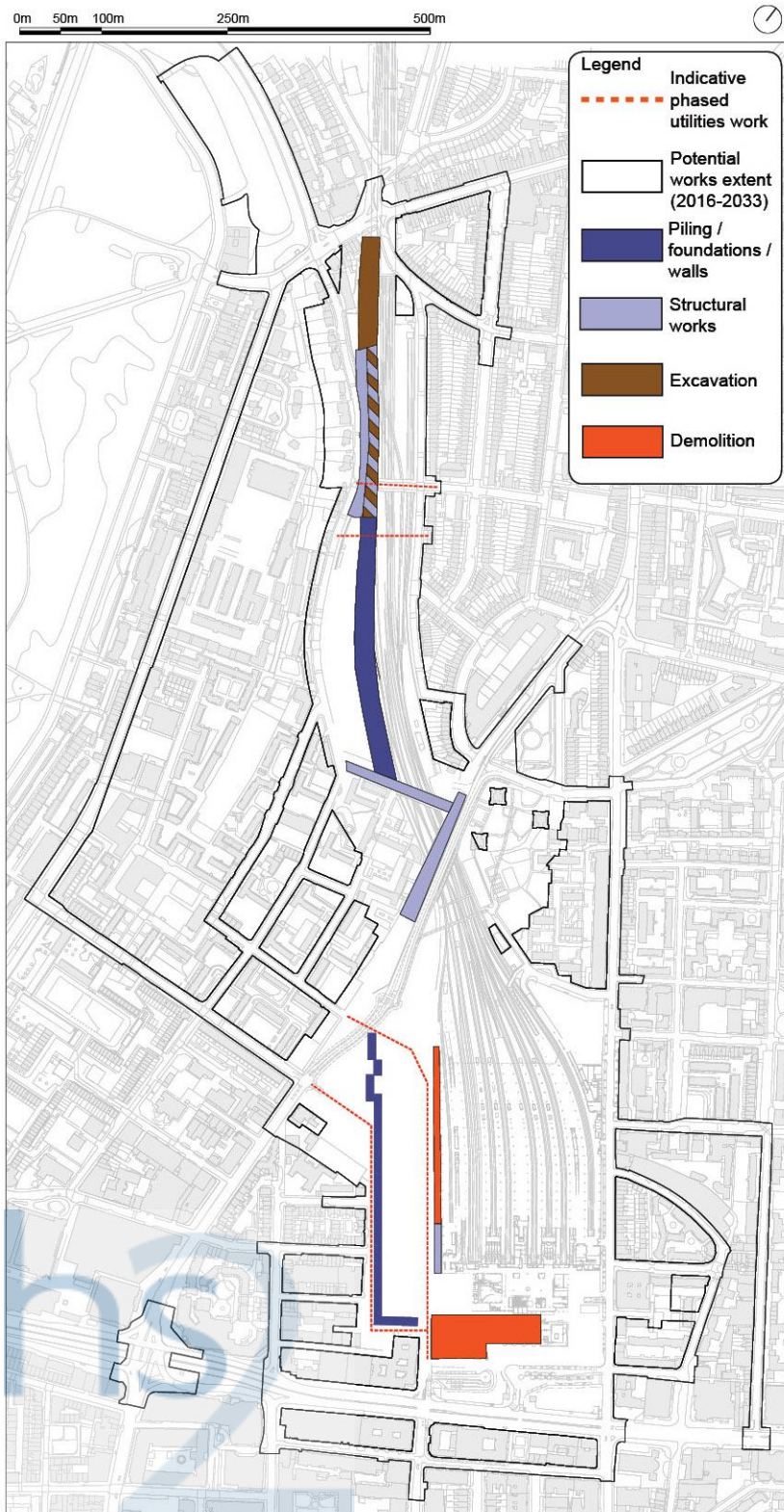


Figure 37: 2021 construction works

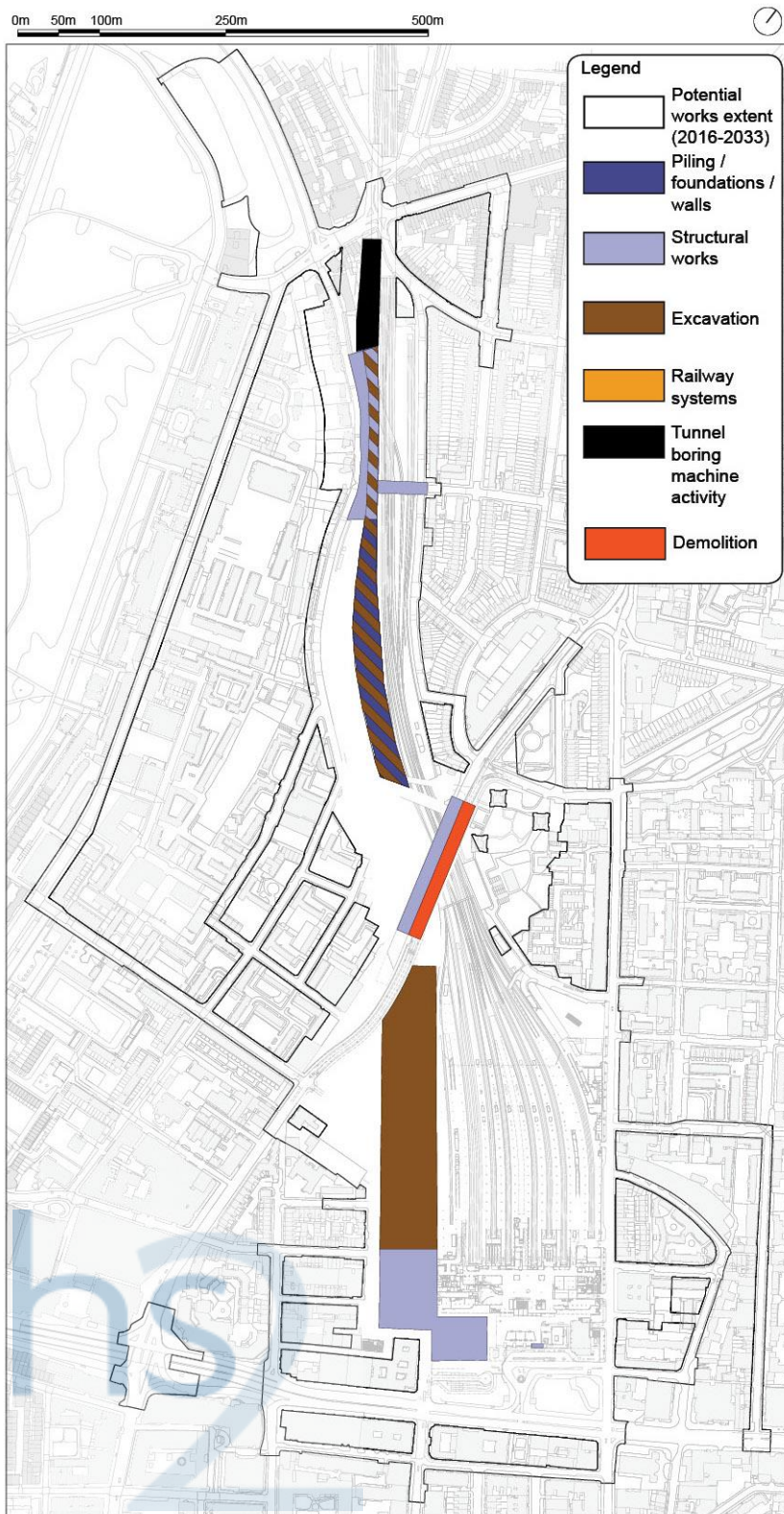




Figure 38: 2022 construction works

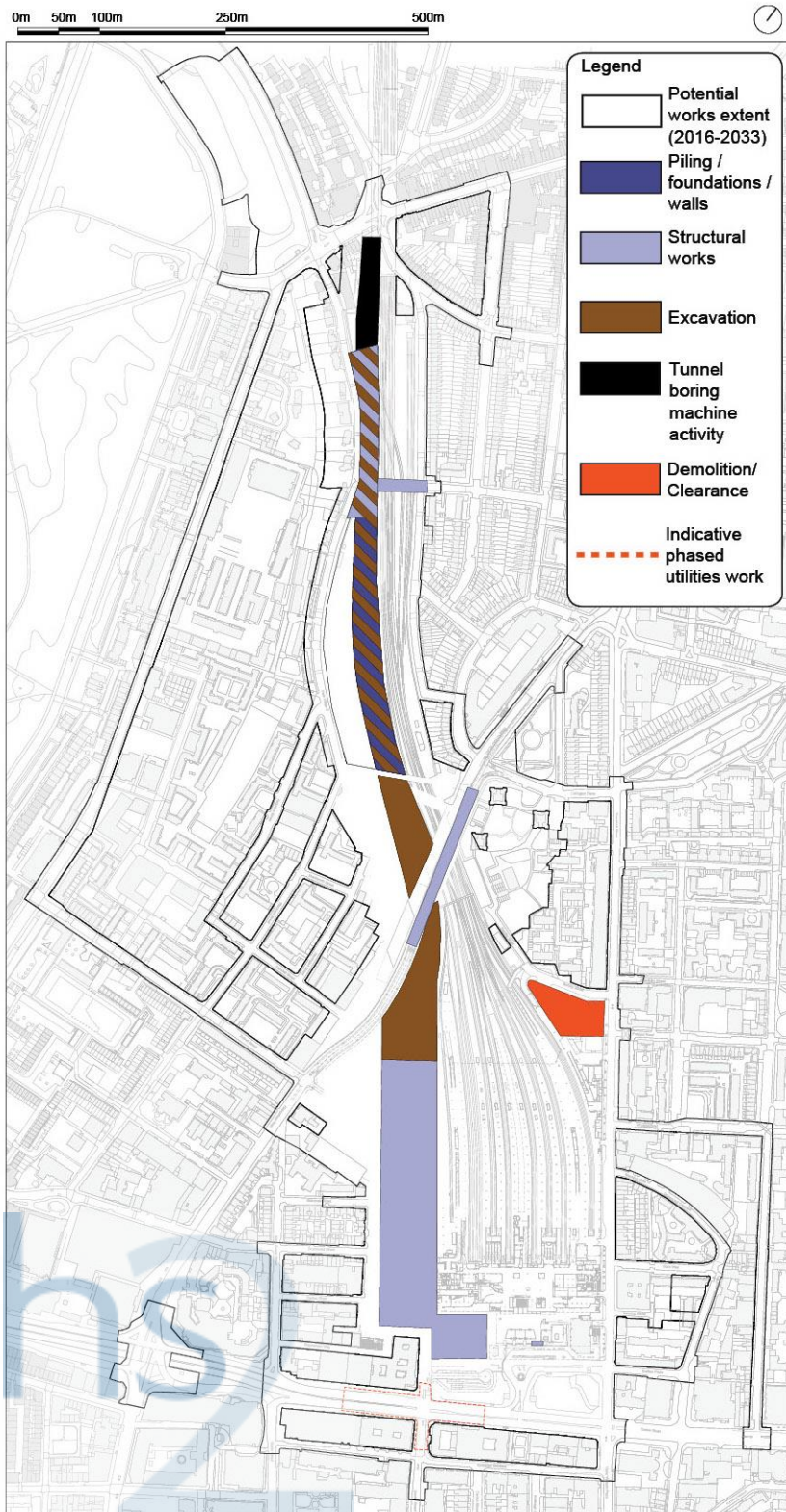
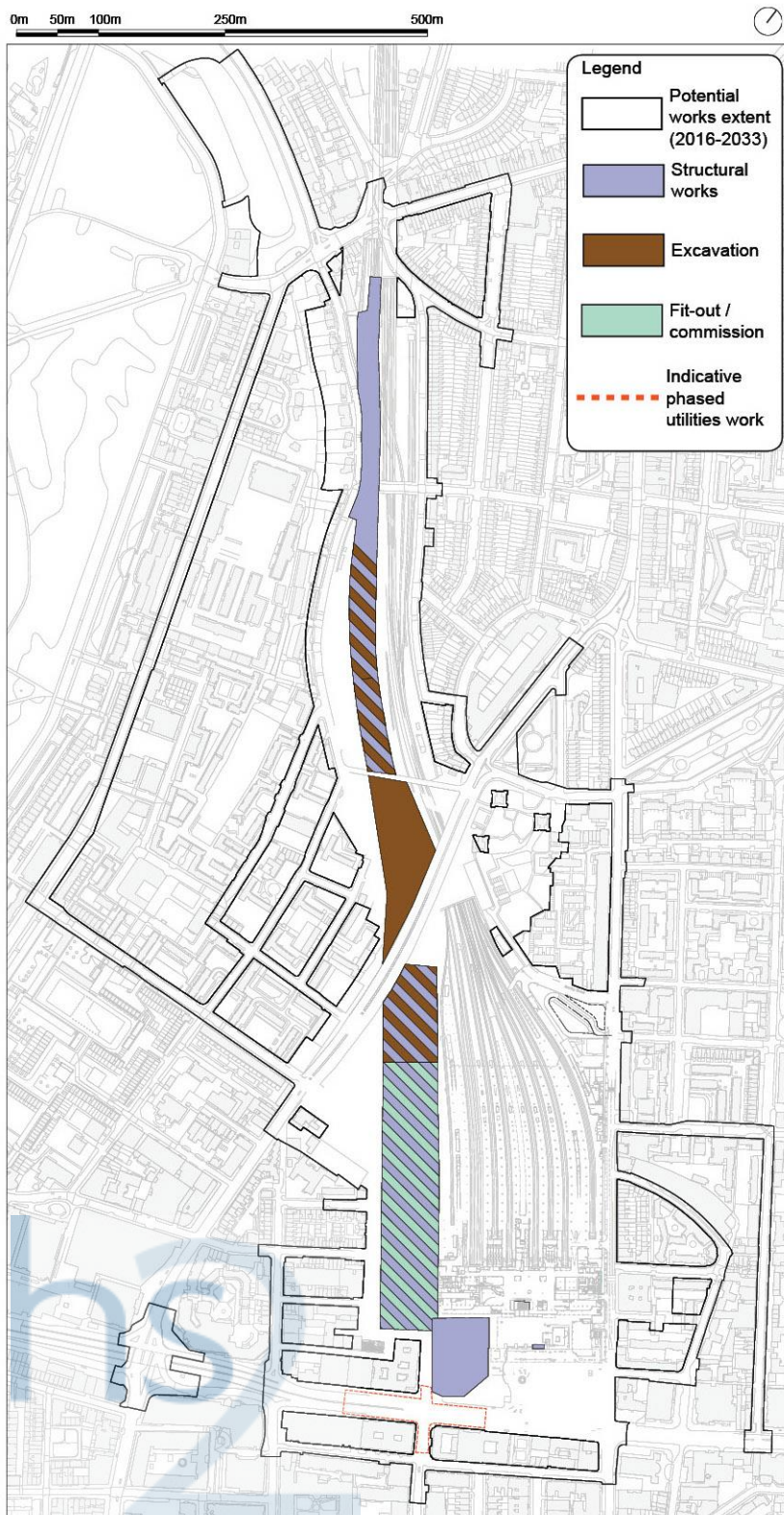


Figure 39: 2023 construction works



3.3.12 Figure 40 to Figure 42 show the extent of the construction works that will be undertaken during 2024, 2025 and 2026 respectively.

Figure 40: 2024 construction works



Figure 41: 2025 construction works

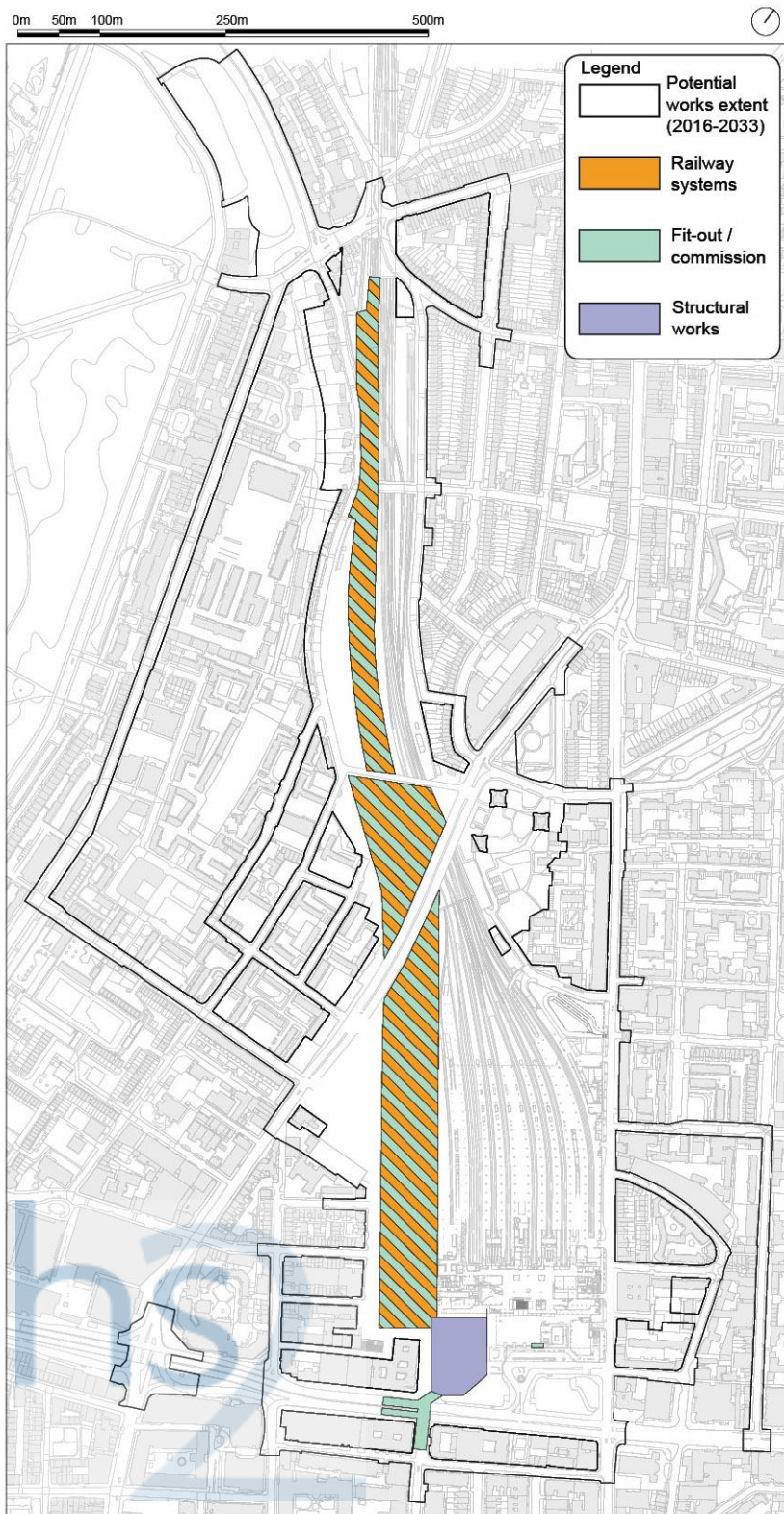
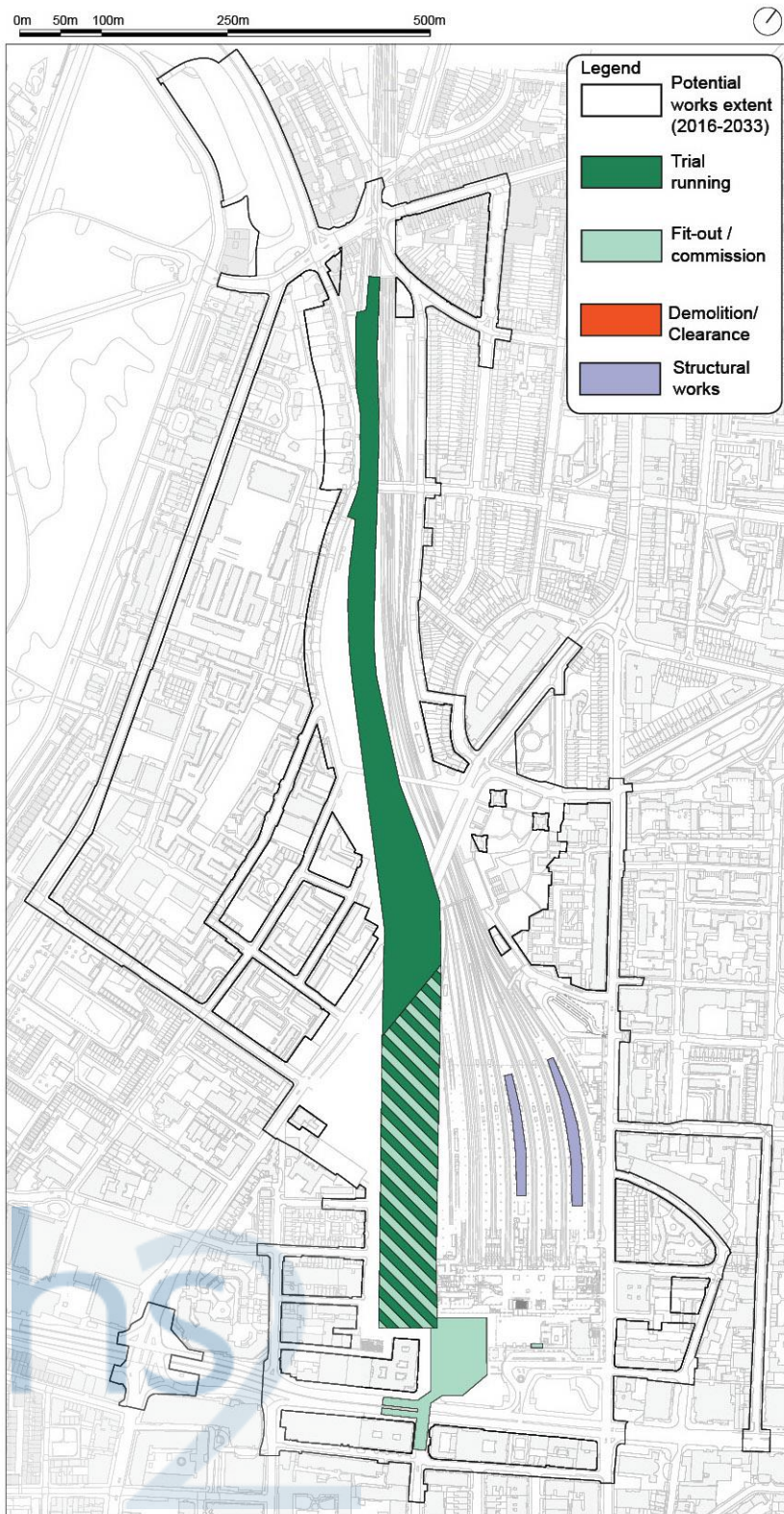


Figure 42: 2026 construction works



- 3.3.13 During years 2024, 2025 and 2026 of the construction programme, the following changes to the local highway network will occur:
- reopening of Granby Terrace overbridge to all traffic;
  - permanent closure of Gordon Street between A501 Euston Road and Endsleigh Gardens;
  - construction of the sub-surface pedestrian route beneath A501 Euston Road and provision of a Euston station connection to Gordon Street and Euston Square station;
  - reduction from three to two lanes in each direction along A501 Euston Road over approximately 120m, commencing some 30m east of Gordon Street, to facilitate the construction of the sub-surface pedestrian route; and
  - opening of New Cobourg Street providing access to the new taxi/private car drop-off and taxi pick-up facilities on the western side of Euston station.
- 3.3.14 Figure 43 to Figure 46 show the extent of the construction works that will be undertaken during 2027, 2028, 2029 and 2030 respectively. During this stage of the construction programme, all works on A501 Euston Road are complete.

Figure 43: 2027 construction works

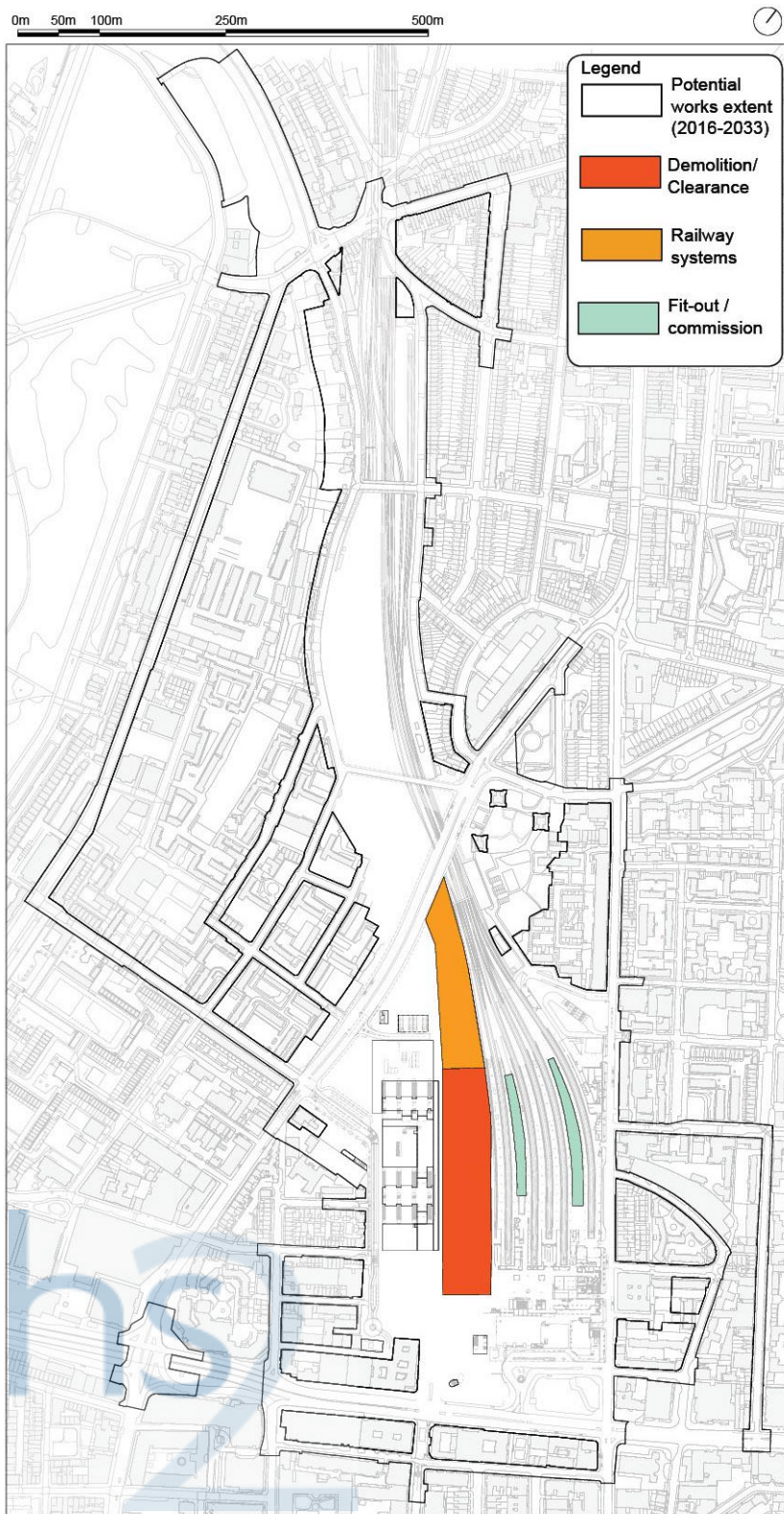


Figure 44: 2028 construction works

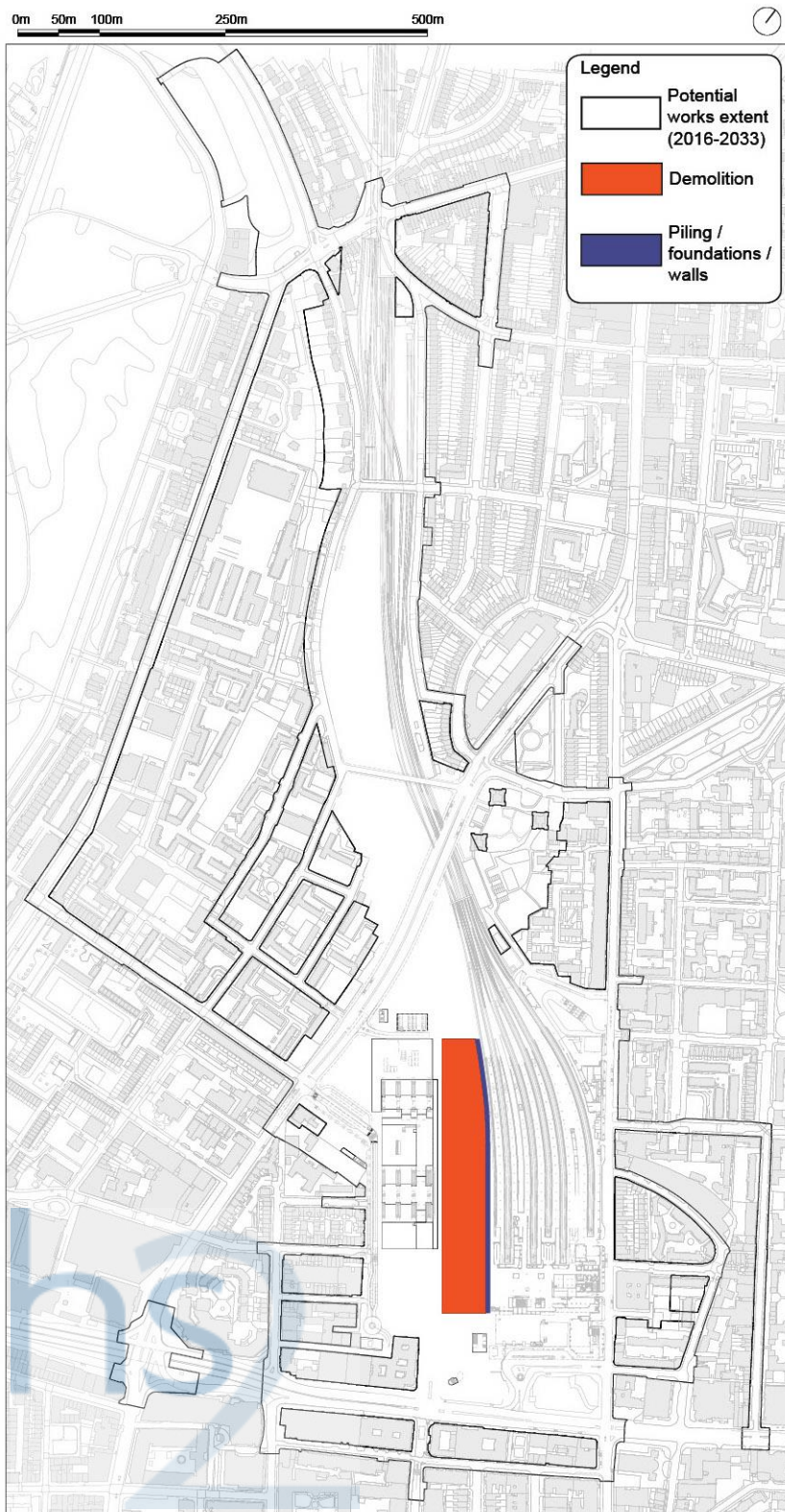




Figure 45: 2029 construction works

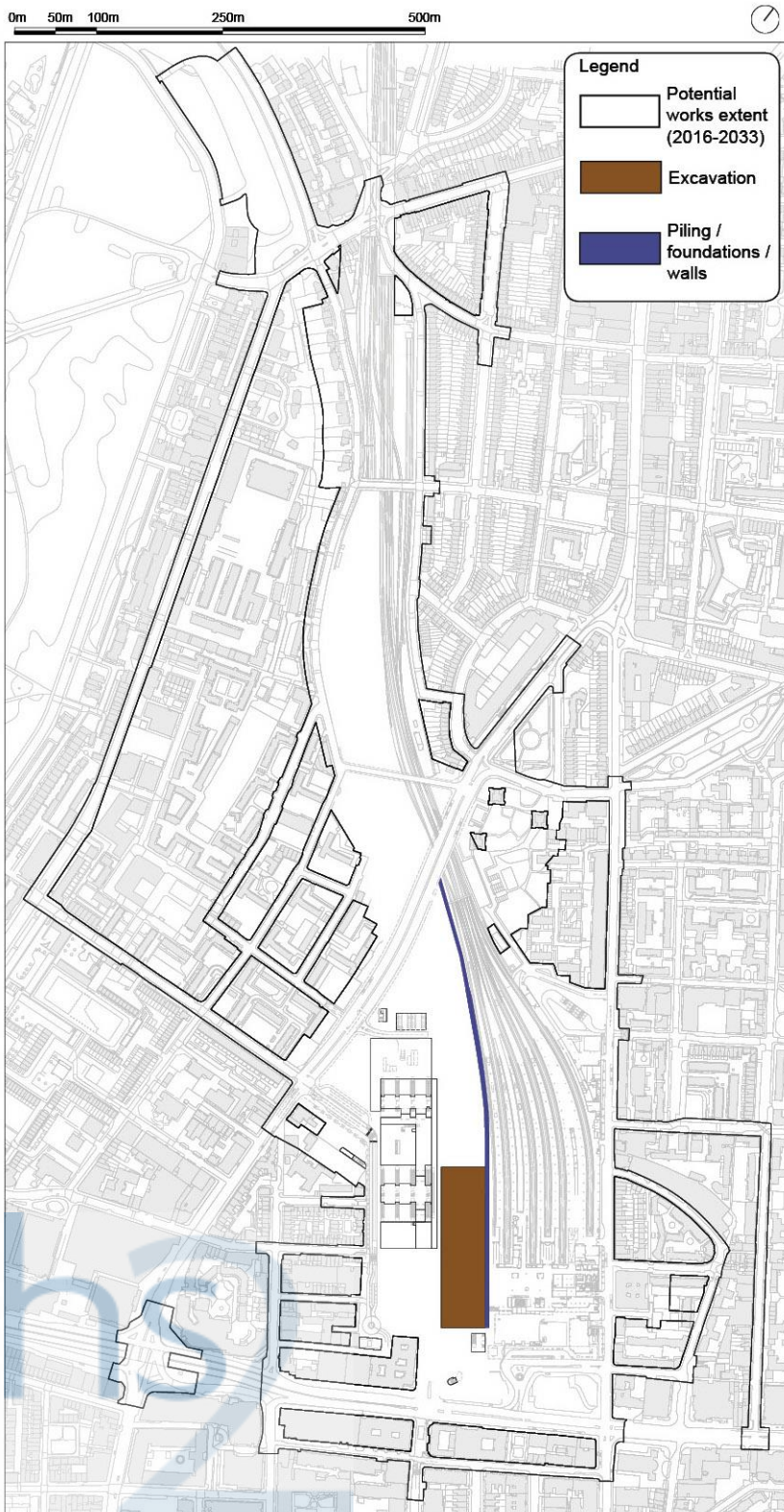
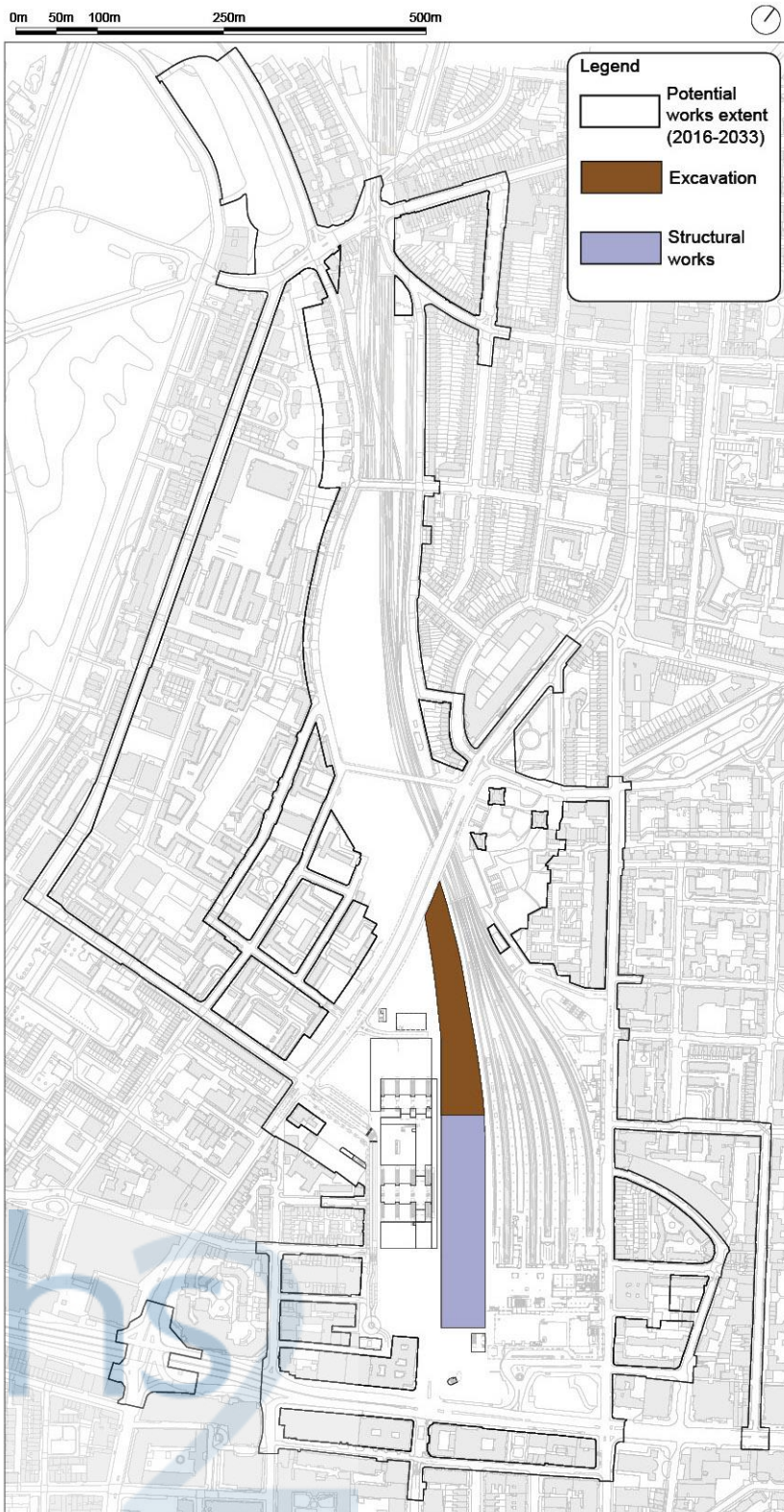


Figure 46: 2030 construction works



3.3.15 Figure 43 to Figure 46 show the extent of the construction works that will be undertaken during 2031, 2032 and 2033 respectively.

Figure 47: 2031 construction works

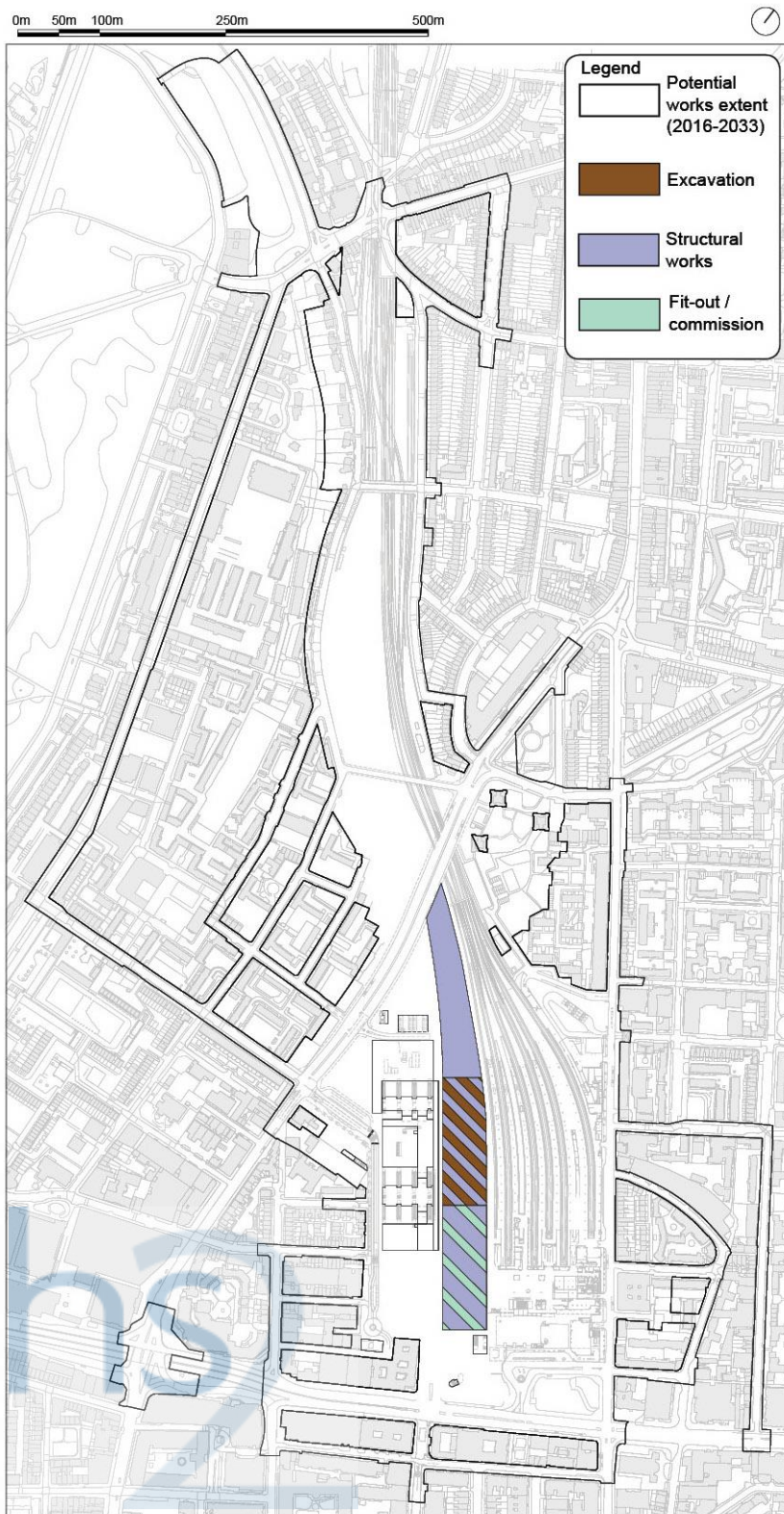


Figure 48: 2032 construction works

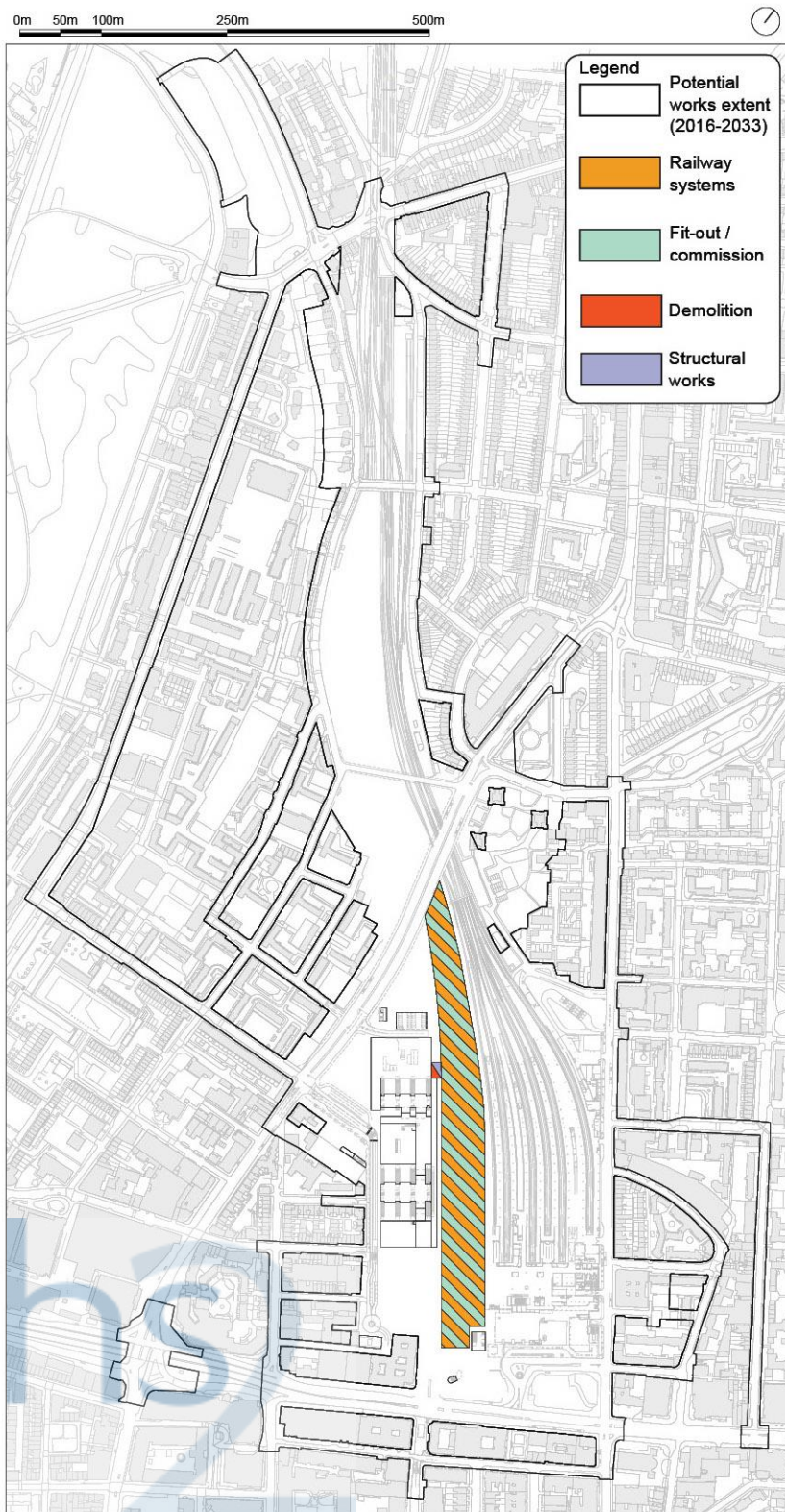
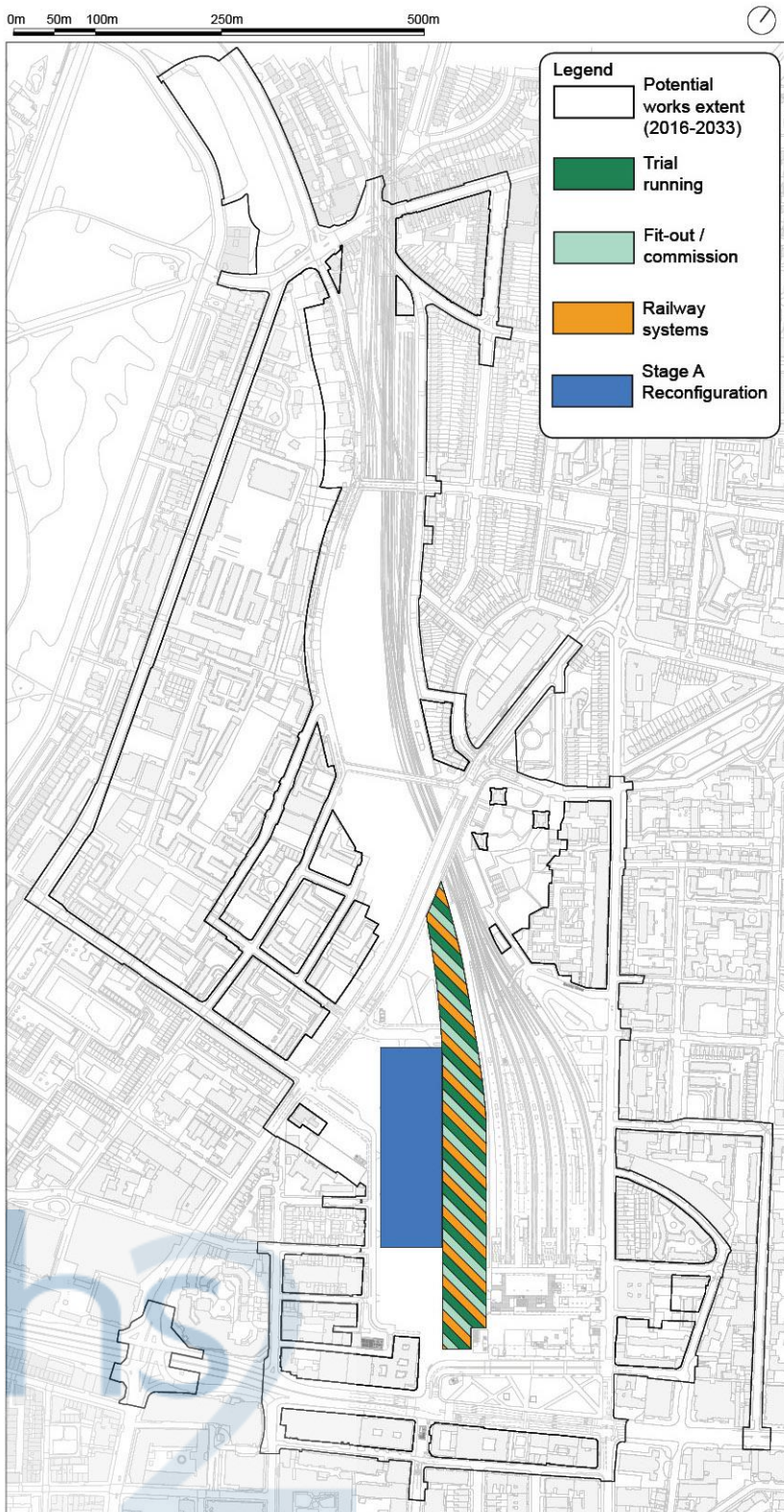


Figure 49: 2033 construction works



3.3.16 During the years 2031, 2032 and 2033, the new Euston bus station including a new access to this facility from the A501 Euston Road will be constructed. The existing bus station will remain in use during this period of construction and will be modified and extended when the new bus station is complete. No other changes to the highway network are proposed during these years of construction.

*Compounds and construction sites*

- 3.3.17 Typical vehicle trip generation for construction site compounds in the Euston area are described in Table 61. The locations of each of the compounds can be seen in Map CT-05-001.
- 3.3.18 There are 13 construction compounds in total comprising one main site and 12 satellite compounds. The main site compound is the National Temperance Hospital which will be accessed from A400 Hampstead Road. Details of the construction compounds, including the location and number of construction workers employed at each site, are provided in Section 2 of the Environmental Statement, Volume 2, Report 1.
- 3.3.19 The compounds will be in use at various stages of construction. For example, some compounds will only be in use during construction Stage A (2016 to 2026), some will change in size for use in construction Stage B1 (2027 to 2033), a small number of new compounds will be present in construction Stage B1 and a few will be present throughout construction (from 2016 to 2033).
- 3.3.20 The duration of when there will be busy transport activity at each site, is shown in Table 61. This represents the period when the daily construction traffic flows will be greater than 50% of the peak daily flows. Also shown, is the estimated number of daily vehicle trips during the peak month of activity; the lower end of the range shows the average number of trips and the upper end the peak flows. The assessment scenario has assumed the peak month for the combination of activities, i.e. not necessarily the peak activity at each individual site. For the purposes of this assessment, it is assumed that all construction activity will be undertaken by road. However, other options, including rail transport of excavated material, are being explored.

Table 61: Typical vehicle trip generation for construction site compounds in this area

| Compound type | Location                     | Main road access   | Indicative start set up date | Estimated duration of use  | Estimated period with busy vehicle movements (months) | Average daily combined two-way vehicle trips during busy period and within peak month of activity |           |
|---------------|------------------------------|--|------------------------------|--|---|---|-----------|
|               |                              |  |                              |  |   | Cars/LGV  | HGV       |
| Satellite     | Euston Square Gardens (west) | A501 Euston Road   | 2016                         | 18 years (2016-2033)   | 10 months   | 13 - 20   | 140 - 200 |
| Main          | National Temperance Hospital | A400 Hampstead Road  | 2016                         | 18 years (2016-2033)   | 27 months   | 30 - 50   | 300 - 450 |
| Satellite     | Granby Terrace overbridge    | A4201 Albany Street and A400 Hampstead Road via Robert Street/Stanhope Street and after end 2020 via Granby Terrace Bridge | 2016                         | 11 years (2016-2026) and then will reduce in size for construction Stage B1 (2027 to 2033) | 4 months  | 25-30   | 260-280   |

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| Compound type | Location                                 | Main road access   | Indicative start set up date | Estimated duration of use                 | Estimated period with busy vehicle movements (months) | Average daily combined two-way vehicle trips during busy period and within peak month of activity |           |
|---------------|--|--|------------------------------|---|---|---|-----------|
|               |  |  |                              |   |   | Cars/LGV  | HGV       |
| Satellite     | Mornington Street overbridge             | A400 Hampstead Road or A4201 Parkway via Mornington Terrace  | 2016                         | 5 years (2016-2020)                       | 14 months   | <10   | 20 - 30   |
|               | Mornington Terrace Sidings               |  | 2016                         | 12 years (2016-2027)                      |   |   |           |
| Satellite     | A400 Hampstead Road overbridge (north)   | A400 Hampstead Road  | 2016                         | 11 years (2016-2026)                      | 15 months   | <10   | 30-40     |
| Satellite     | A400 Hampstead Road overbridge (south)   | A4200 Eversholt Street via Barnby Street or A200 Hampstead Road  | 2016                         | 18 years (2016-2033)                      | 2 months  | <10   | 16        |
| Satellite     | Royal Mail NW1 delivery office           | A4200 Eversholt Street via Barnby Street   | 2022                         | 12 years (2022-2033)                      | 5 months  | <10   | 40        |
| Satellite     | Euston Square Gardens (east)             | A4200 Eversholt Street   | 2016                         | 18 Years (2016-2033)                      | 13 months   | <10   | 20-36     |
| Satellite     | Gordon Street                            | A501 Euston Road   | 2017                         | 2 Years (2017-2018) & 6 years (2021-2026) | 3 months  | <10   | 20-30     |
| Satellite     | Lancing Street                           | A4200 Eversholt Street   | 2019                         | 7 years (2018-2024)                       | 12 months   | <10   | <10       |
| Satellite     | Carriage Shed and Park Village East Ramp | A4201 Albany Street and A400 Hampstead Road via Robert Street/Stanhope Street and after end 2020 via Granby Terrace Bridge | 2016                         | 11 years (2016-2026)                      | 23 months   | 10 - 20   | 160 - 250 |
| Satellite     | Park Village East (North)                | A4201 Parkway via north end of Park Village East   | 2018                         | 7 years (2018-2024)                       | 14 months   | <10 - 16  | 90 – 140  |

- 3.3.21 The location of each of the construction compounds is shown in Figure CT-05-001. The locations of the access points to each construction compound are described in Table 61.
- 3.3.22 Construction vehicle movements required to construct the revised scheme will include the delivery of plant and materials and movement of excavated materials. In the busiest month there are estimated to be approximately 800 combined two-way vehicle movements per day across the study area. The split of construction vehicles is expected to be 90% heavy goods vehicles (HGVs) and 10% light goods vehicles (LGV) and cars.

### *Construction lorry routes*

- 3.3.23 Site related vehicles will be identified in two categories:
- HGV: articulated lorries for plant and materials, truck mounted cranes for self-offloading deliveries, concrete trucks, bulk tipper and walking floor trucks, abnormal/oversize loads (i.e. over length, width or height); and
  - LGV: cars, pickups and small (transit type) tipper trucks and vans.
- 3.3.24 Road Rail Vehicles (RRV) will be used in the construction of works immediately adjacent to, or over, existing conventional NR assets.
- 3.3.25 Site deliveries via HGV vehicles will generally be limited to normal working hours. Large/exceptional concreting operations may require concrete to be delivered outside of normal hours. These will tend to occur over specific short durations within the construction programme.
- 3.3.26 RRV will generally be delivered and operated outside of normal working hours for works associated with the existing conventional railway. Material delivery and removal, for those works interfacing with conventional rail, will be carried out during the same periods.
- 3.3.27 A number of vehicle access points to the construction sites will be required and so the construction vehicle movements will be spread over a number of roads. The majority of construction traffic is expected to access the main compound at the National Temperance Hospital, the Granby Terrace overbridge satellite compound and Carriage Shed and Park Village East satellite compounds. The National Temperance Hospital main compound will be accessed from A400 Hampstead Road. Initially vehicle access to the Granby Terrace overbridge and Carriage shed and Park Village East satellite compounds will be from A400 Hampstead Road via Robert Street and Stanhope Street. On completion of Granby Terrace Bridge at the end of 2020 the bridge will reopen for construction traffic only enabling the majority of construction vehicles to access these compounds from A400 Hampstead Road via Granby Terrace. The bridge will then open to general traffic in mid-2023.
- 3.3.28 It is envisaged that concrete would be sourced locally wherever possible. It is anticipated that 10% of demolition waste will be required to go to landfill with the remaining 90% diverted elsewhere and recycled, where possible.



3.3.29 The construction vehicle routes that have been assumed for the purposes of the highway modelling are shown on Map TR-03-001 and described in Table 62. It is envisaged that the A41 and M1 motorway will be used as the HGV access and egress routes for transferring excavated material and contaminated waste to/from sites to the north of London. Smaller numbers of HGVs would access and egress the site from the east along the A13 (demolition material and concrete), the west along the A40 (demolition and concrete), the south (concrete) along A4200 Upper Woburn Place or A400 Gower Street, the far south (concrete) along the A501 Euston Road and A40 Westway (towards A3220 West Cross Route), and from A5200 York Way (concrete).

Table 62: Construction traffic routes to/from construction compounds

| Compound  | Origin/destination                              | Route  |
|---|---|--|
| National Temperance Hospital main compound<br><br>A400 Hampstead Road overbridge (south) satellite compound | A5200 York Way King's Cross                     | A400 Hampstead Road, A400 Camden High Street/Camden Street, A503 Camden Road, A5200 York Way   |
|   | West<br>Far west via the A40                    | A400 Hampstead Road, A501 Euston Road, A40 Westway   |
|   | South   | Southbound: A400 Hampstead Road, A501 Euston Road, A4201 Portland Place/Regent Street<br>Northbound: A400 Tottenham Court Road, A400 Hampstead Road  |
|   | Far south                                       | A400 Hampstead Road, A501 Euston Road, A40 Westway   |
|   | East<br>Far east via the A13                    | Westbound: A501 Pentonville Road, Swinton Street, A501 Gray's Inn Road, A501 Euston Road, A4200 Eversholt Street, A400 Lidlington Place, A400 Hampstead Road<br>Eastbound: A400 Hampstead Road, A501 Euston Road (westbound), B506 Great Portland Street, A4201 Albany Street, Osnaburgh Street, A501 Euston Road (eastbound), A501 Pentonville Road |
|   | Sites to the north of London via the A41 and M1 | A400 Hampstead Road, A501 Euston Road, A5 Edgware Road, A5205 St. John's Wood Road, A41 Finchley Road  |
| Carriage Shed and Park Village East satellite compound and Park Village East (north)                        | A5200 York Way King's Cross                     | Park Village East, Granby Terrace, A400 Hampstead Road, A400 Camden High Street/Camden Street, A503 Camden Road, A5200 York Way  |
|   | West  | Route to A400 Hampstead Road: Park Village East, Stanhope Street, Robert Street - onwards routes as per National Temperance Hospital compound  |
|   | South<br>Far south                              | Route from A400 Hampstead Road: A400 Hampstead Road, A400 Camden High Street, A503 Delancey Street, A4201 Parkway, Park Village East - routes to Hampstead Road as per National Temperance Hospital  |
|   | East  |  |
| Granby Terrace Overbridge   | A5200 York Way King's Cross                     | Stanhope Street, Varndell Street/Robert Street, A400 Hampstead Road, A400 Camden High Street/Camden Street, A503 Camden Road, A5200 York Way   |

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| Compound   | Origin/destination                              | Route  |
|--|---|--|
| satellite compound   | West<br>Far west via the A40                    | Stanhope Street, Varndell Street/Robert Street, A400 Hampstead Road, A501 Euston Road, A40 Westway   |
|  | South   | Southbound: Stanhope Street, Varndell Street/Robert Street, A400 Hampstead Road, A501 Euston Road, A4201 Portland Place/Regent Street<br>Northbound: A400 Tottenham Court Road, A400 Hampstead Road, Varndell Street/Robert Street, Stanhope Street  |
|  | Far south                                       | Stanhope Street, Varndell Street/Robert Street, A400 Hampstead Road, A501 Euston Road, A40 Westway   |
|  | East<br>Far east via the A13                    | Westbound: A501 Pentonville Road, Swinton Street, A501 Gray's Inn Road, A501 Euston Road, A4200 Eversholt Street, A400 Lidlington Place, A400 Hampstead Road, Varndell Street/Robert Street, Stanhope Street<br>Eastbound: Stanhope Street, Varndell Street/Robert Street, A400 Hampstead Road, A501 Euston Road (westbound), B506 Great Portland Street, A4201 Albany Street, Osnaburgh Street, A501 Euston Road (eastbound), A501 Pentonville Road |
|  | Sites to the north of London via the A41 and M1 | Stanhope Street, Varndell Street/Robert Street, A400 Hampstead Road, A501 Euston Road, A5 Edgware Road, A5205 St. John's Wood Road, A41 Finchley Road  |
| Mornington Street Bridge satellite compound<br>Mornington Terrace Sidings satellite compound | All   | Route to A400 Hampstead Road: Mornington Terrace, A503 Delancey Street, A503 Camden Road, A5200 York Way<br>Route from A400 Hampstead Road: Mornington Crescent, Clarkson Row - routes to A400 Hampstead Road as per National Temperance Hospital  |
| Euston Square Gardens (East) satellite compound  | A5200 York Way King's Cross                     | Grafton Place, Churchway, A501 Euston Road, A5200 York Way   |
|  | West<br>Far west via the A40                    | Grafton Place, Churchway, A501 Euston Road, A40 Westway  |
|  | South<br>Far south                              | Euston Square, A4200 Upper Woburn Place, Southampton Row   |
|  | East<br>Far east via the A13                    | Westbound: A501 Pentonville Road, Swinton Street, A501 Gray's Inn Road, A501 Euston Road, Churchway, Grafton Place<br>Eastbound: Grafton Place, Churchway, A501 Euston Road, A501 Pentonville Road   |

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| Compound  | Origin/destination                              | Route  |
|---|---|--|
|   | Sites to the north of London via the A41 and M1 | Grafton Place, Churchway, A501 Euston Road, A5 Edgware Road, A5205 St. John's Wood Road, A41 Finchley Road   |
| Royal Mail NW1 Delivery Office satellite compound | A5200 York Way King's Cross                     | A4200 Eversholt Street, Grafton Place, Churchway, A501 Euston Road, A5200 York Way   |
| Lancing Street satellite compound                 | West<br>Far west via the A40                    | A4200 Eversholt Street, Grafton Place, Churchway, A501 Euston Road, A40 Westway  |
|   | South<br>Far south                              | A4200 Eversholt Street, Euston Square, A4200 Upper Woburn Place, Southampton Row   |
|   | East<br>Far east via the A13                    | Westbound: A501 Pentonville Road, Swinton Street, A501 Gray's Inn Road, A501 Euston Road, Churchway, Grafton Place, A4200 Eversholt Street<br>Eastbound: A4200 Eversholt Street, Grafton Place, Churchway, A501 Euston Road, A501 Pentonville Road |
|   | Sites to the north of London via the A41 and M1 | A4200 Eversholt Street, Grafton Place, Churchway, A501 Euston Road, A5 Edgware Road, A5205 St. John's Wood Road, A41 Finchley Road   |
| Euston Square Gardens (West) satellite compound   | A5200 York Way King's Cross                     | Eastbound: A501 Euston Road, A5200 York Way<br>Westbound: A5200 York Way, Goods Way, Midland Road, A501 Euston Road  |
| Gordon Street satellite compound                  | West<br>Far west via the A40                    | A501 Euston Road, A40 Westway  |
|   | South   | Northbound: A400 Tottenham Court Road, A501 Euston Road<br>Southbound: A501 Euston Road, A400 Gower Street   |
|   | Far south                                       | Northbound: A40 Westway, A501 Euston Road<br>Southbound: A501 Euston Road, A400 Gower Street   |
|   | East  | Eastbound: A501 Euston Road, A501 Pentonville Road<br>Westbound: A501 Pentonville Road, Swinton Street, A501 Gray's Inn Road, A501 Euston Road   |
|   | Sites to the north of London via the A41 and M1 | A501 Euston Road, A5 Edgware Road, A5205 St. John's Wood Road, A41 Finchley Road   |

### *Construction traffic management, road closures and diversions*

3.3.30 The interventions on the highway network can be summarised into main works, utility works and other interventions. In addition, the cumulative impacts of the interventions in CFA3 Primrose Hill have been considered in the assessment of the highway network. A summary of the interventions is provided as follows:

- main works:
  - A400 Hampstead Road overbridge works;
  - Mornington Street overbridge works;
  - Granby Terrace overbridge works;
  - Park Village East closed in sections ; and
  - Euston underground link under A501 Euston Road (temporary bridge).
- utility works:
  - Cobourg Street;
  - Melton Street;
  - A4201 Parkway, A5205 Prince Albert Road, A4201 Albany Street and Robert Street (water), and A4200 Eversholt Street (water main diversion);
  - A501 Euston Road and Gower Street (2 narrow lanes) (power);
  - Euston LU connection (Melton Street area); and
  - Mornington Street overbridge closed.
- other interventions:
  - relocation of taxis from below station and close car park; and
  - demolition of the Ibis and Thistle hotels resulting in the loss of parking.
- CFA3, Primrose Hill intervention: Adelaide Road - closed section between Primrose Hill Road and A502 Chalk Farm Road due to tunnel vent shaft works.

### *Permanent road closures*

3.3.31 The revised scheme will result in permanent road closures, as a result of an enlarged station footprint, and permanent highway works, as set out in Table 63.

Table 63: Permanent road closures without replacement

| Location                                   | Description of closure   |
|--|--|
| Cardington Street                          | Permanently closed for its entire length/  |
| Melton Street (south of Cardington Street) | Permanently closed from the junction with Drummond Street to new bus station access. |

| Location   | Description of closure   |
|--|--|
| Stephenson Way (eastern end)                                 | Northern end permanently closed at the junction with Euston Street. Connection will be maintained with realigned Cobourg Street.                             |
| Drummond Street (eastern end)                                | Permanently closed between Cardington Street and Cobourg Street. Connection will be maintained with realigned Cobourg Street.                                |
| Euston Street (eastern end)                                  | Permanently closed between Cardington Street and Cobourg Street. Connection will be maintained with realigned Cobourg Street.                                |
| Varndell Street (eastern end)                                | Permanently closed to vehicles at the junction with A400 Hampstead Road, because of level changes. Pedestrian and cycle access may be maintained.            |
| Harrington Street (northern end)                             | Permanently closed at the junction with Granby Terrace.  |
| Hampstead Road (access road and not the A400 Hampstead Road) | A minor road called Hampstead Road which is not the A400 Hampstead Road, permanently closed between junction with Cardington Street and A400 Hampstead Road. |
| Bus station access   | Permanently closed from the junction with A501 Euston Road across Euston Square Gardens to the bus station.  |
| Gordon Street (northern end)                                 | Permanently closed to vehicles between A501 Euston Road and Endsleigh Gardens. Pedestrian and cycle access will be maintained.                               |

3.3-32 The revised scheme will result in permanent road closures with replacement, as a result of an enlarged station footprint, as set out in Table 64.

Table 64: Permanent road closures with replacement

| Location                  | Description of closure  | Approximate duration |
|---------------------------|---|----------------------|
| Cobourg Street            | Permanently closed for its entire length and rebuilt on a widened and extended alignment.   | 2016-2026            |
| A400 Hampstead Road       | Existing overbridge is to be demolished. Bridge to be rebuilt on an altered vertical alignment.   | 2019-2023            |
| Granby Terrace overbridge | Existing overbridge is to be demolished. Overbridge to be rebuilt on a slightly altered alignment. Granby Terrace overbridge will reopen for construction site use only in late-2020, then open to the public in late-2023. | 2017-2023            |

3.3-33 Generally, where roads will be affected by the construction of the revised scheme, the strategy to mitigate this will be to reduce disruption resulting from highway works by implementing well managed, phased construction involving either permanent or temporary realignments or temporary diversions.

3.3.34 Construction of the revised scheme will result in the temporary road closures shown in Table 65. The closure of roads will be as short a duration as practicable and arrangements will be made to provide satisfactory alternative access arrangements during closures.

Table 65: Long period temporary road closures

| Location                     | Description of closure   | Approximate duration   |
|------------------------------|--|------------------------|
| Mornington Street overbridge | To be demolished and rebuilt on its current alignment. A temporary shared utilities, pedestrian and cycle bridge will be installed during construction | 2018-2022              |
| Park Village East            | Closed to vehicles (except construction access) in sections between its junction with Parkway to about 30m south of Mornington Street Bridge           | 2016-2021              |
| A5205 Prince Albert Road     | Closed to vehicles at the junction with A4201 Parkway  | 2016-2017 <sup>8</sup> |
| Drummond Street              | Closed at the junction with Cobourg Street   | 2016-2026              |
| Euston Street                | Closed at the junction with Cobourg Street   | 2016-2026              |
| Starcross Street             | Closed at the junction with Cobourg Street   | 2016-2026              |
| Stephenson Way               | Closed from the junction with Euston Street for part of its length   | 2016-2026              |

### *Consolidation of construction phases for assessment*

3.3.35 The construction works will be undertaken throughout the site for the majority of the construction period. In order to assess the different combinations of advance works, utility diversions and construction lorry movements throughout the construction programme, the impacts have been considered for four distinct temporal phases:

- Scenario 1, 2017: this corresponds with a combination of advance works and utilities on the highway network together with around 24% of the peak construction traffic.
- Scenario 2, 2018: this corresponds with a different combination of advance works and utilities on the highway network together with around 49% of the peak construction traffic.
- Scenario 3A, 2020<sup>9</sup>: this corresponds with the main station works and accounts for the likely actual timing of the B509 Adelaide Road (CFA3) works with around 27% of the peak construction traffic.
- Scenario 3, 2023: this corresponds with the main station works and is, overall, the busiest scenario assessed for construction traffic related to the removal of excavated material. It also includes the short-term highway works at B509

<sup>8</sup> Closure will be from late-2016 to early-2017

<sup>9</sup> This is not reported in the ES but has been reported in the TA to ensure that the impacts of the B509 Adelaide Road closure are considered should it occur at a time when there is a relatively low level of construction traffic generated by the Euston works.

Adelaide Road (CFA3).

- Scenario 4, 2031: this corresponds with the peak construction traffic associated with construction Stage B1, post commencement of HS2 Phase One operation in 2026.

3.3.36 The impacts of the short-term highway works at B509 Adelaide Road (CFA3) for tunnel vent shaft works have been modelled in combination with the peak construction scenario (Scenario 3), to understand its impacts should it occur later than intended in the construction programme.

3.3.37 Table 66 sets out the highway interventions by scenario with each highway intervention included in at least one scenario. In this way, the assessment includes the impacts of all construction activities.

Table 66: Construction highway interventions by construction scenarios (2017 - 2031)

|  | Scenario 1 (2017) | Scenario 2 (2018) | Scenario 3A (2020) | Scenario 3 (2023) | Scenario 4 (2031) |
|--|-------------------|-------------------|--------------------|-------------------|-------------------|
| <b>Main works</b>  |                   |                   |                    |                   |                   |
| Gordon Street closed to general traffic  | No                | No                | Yes                | Yes               | Yes               |
| Euston station underground car park closed   | No                | Yes               | Yes                | Yes               | Yes               |
| Varndell Street closed to vehicles at A400 Hampstead Road  | No                | No                | Yes                | Yes               | Yes               |
| Eastern end of Starcross Street, Drummond Street, Euston Street and Stephenson Way closure at Cobourg Street | Yes               | Yes               | Yes                | Yes               | Yes               |
| Cardington Street closed to general traffic  | Yes               | Yes               | Yes                | Yes               | Yes               |
| Melton Street closed to general traffic  | Yes               | Yes               | Yes                | Yes               | Yes               |
| A400 Hampstead Road overbridge / A400 Hampstead Road temporary substitution and reduction to two lanes       | Yes               | Yes               | Yes                | Yes               | No                |
| Granby Terrace overbridge closed to general traffic <sup>10</sup>  | No                | Yes               | Yes                | Yes               | No                |
| Mornington Street overbridge closed  | No                | Yes               | Yes                | No                | No                |
| Park Village East closed   | Yes               | Yes               | Yes                | No                | No                |
| A501 Euston Road subway and Euston Square connection works   | No                | No                | No                 | Yes               | No                |

<sup>10</sup> Granby Terrace Bridge is due to close for demolition at the end of 2017

|   | Scenario 1 (2017) | Scenario 2 (2018) | Scenario 3A (2020) | Scenario 3 (2023) | Scenario 4 (2031) |
|---|-------------------|-------------------|--------------------|-------------------|-------------------|
| <b>Utilities</b>  |                   |                   |                    |                   |                   |
| Diversion of various services via A4201 Albany Street and Robert Street                         | Yes               | No                | No                 | No                | No                |
| Diversion of various services and closure of A5205 Prince Albert Road to general traffic        | Yes               | No                | No                 | No                | No                |
| Diversion of various services via Parkway   | No                | Yes               | No                 | No                | No                |
| Diversion of a sewer in A4200 Eversholt Street  | No                | Yes               | No                 | No                | No                |
| <b>Other</b>  |                   |                   |                    |                   |                   |
| Lorry holding area at ZSL London Zoo  | No                | Yes               | Yes                | Yes               | Yes               |
| Euston station taxi facility - relocation to Euston Square Gardens (west) and Endsleigh Gardens | No                | Yes               | Yes                | No                | No                |
| Euston station taxi facility - relocation to A4200 Eversholt Street                             | No                | No                | No                 | Yes               | No                |
| Euston station taxi facility - relocated to Cobourg Street                                      | No                | No                | No                 | No                | Yes               |
| CFA3, Primrose Hill intervention: Adelaide Road - closed section                                | No                | No                | Yes                | Yes               | No                |

- 3.3.38 A lorry holding area at ZSL London Zoo coach park has been assessed to support the Euston station construction works. Initial discussions have taken place with Royal Parks and the operation of the lorry holding area will be subject to ongoing investigation and consultation.
- 3.3.39 Drummond Street is identified as a construction route but will only be used for a small number of specific construction activities. This is shown on Map CT-05-001 (Volume 2, Map Book 1). The volume of trips will be small (expected to be less than 20 two-way vehicle trips per day) and will not generate any traffic impacts.
- 3.3.40 Initially vehicle access to the Granby Terrace overbridge and Carriage Shed and Park Village East satellite compounds will be from A400 Hampstead Road via Robert Street and Stanhope Street. On completion of Granby Terrace overbridge in mid-2020 the overbridge will reopen for construction traffic only, enabling the majority of construction vehicles to access these compounds from A400 Hampstead Road via Granby Terrace. The bridge will then open to general traffic in mid-2023.
- 3.3.41 There is an interaction with CFA2 and CFA3 in terms of lorry routeing and impacts of road closures. Where these activities affect adjacent CFAs, these are identified in this assessment for completeness, but the impacts are reported in the relevant CFA.



### **A400 Hampstead Road**

- 3.3.42 The A400 Hampstead Road overbridge currently carries a six lane road. Reconstruction will involve removing one half of the width and replacing it, before repeating for the other half. Throughout reconstruction it will be possible to keep two traffic lanes open (one lane of traffic open in each direction), plus facilities for pedestrians and cyclists. Facilities for cyclists will be maintained on-carriageway for the duration of the works. The temporary layouts for A400 Hampstead Road are shown in Figure 50 and Figure 51.
- 3.3.43 During stage 1 of the works, as shown in Figure 50, Mornington Crescent will be closed at its junction with A400 Hampstead Road. During stage 2 of the works, as shown in Figure 51, A400 Harrington Square will be reduced to one lane between A400 Lidlington Place and A400 Hampstead Road. Tw-way traffic flow would also be permitted on A400 Hampstead Road between Harrington Square (not A400 Harrington Square) and A400 Harrington Square.
- 3.3.44 The impact of the reduction in the number of lanes has been included in the highway modelling.

Figure 50: A400 Hampstead Road temporary diversion - stage 1

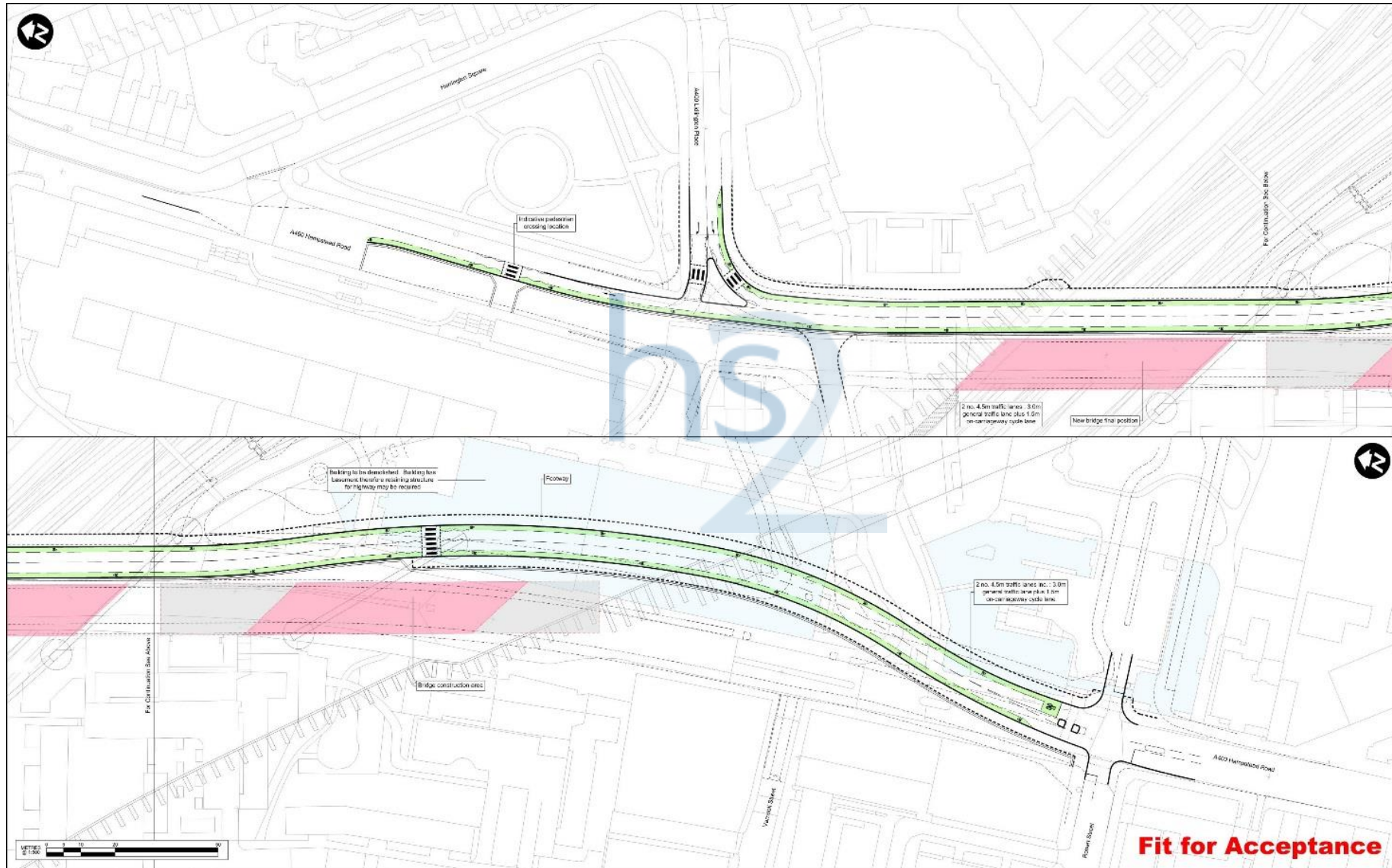
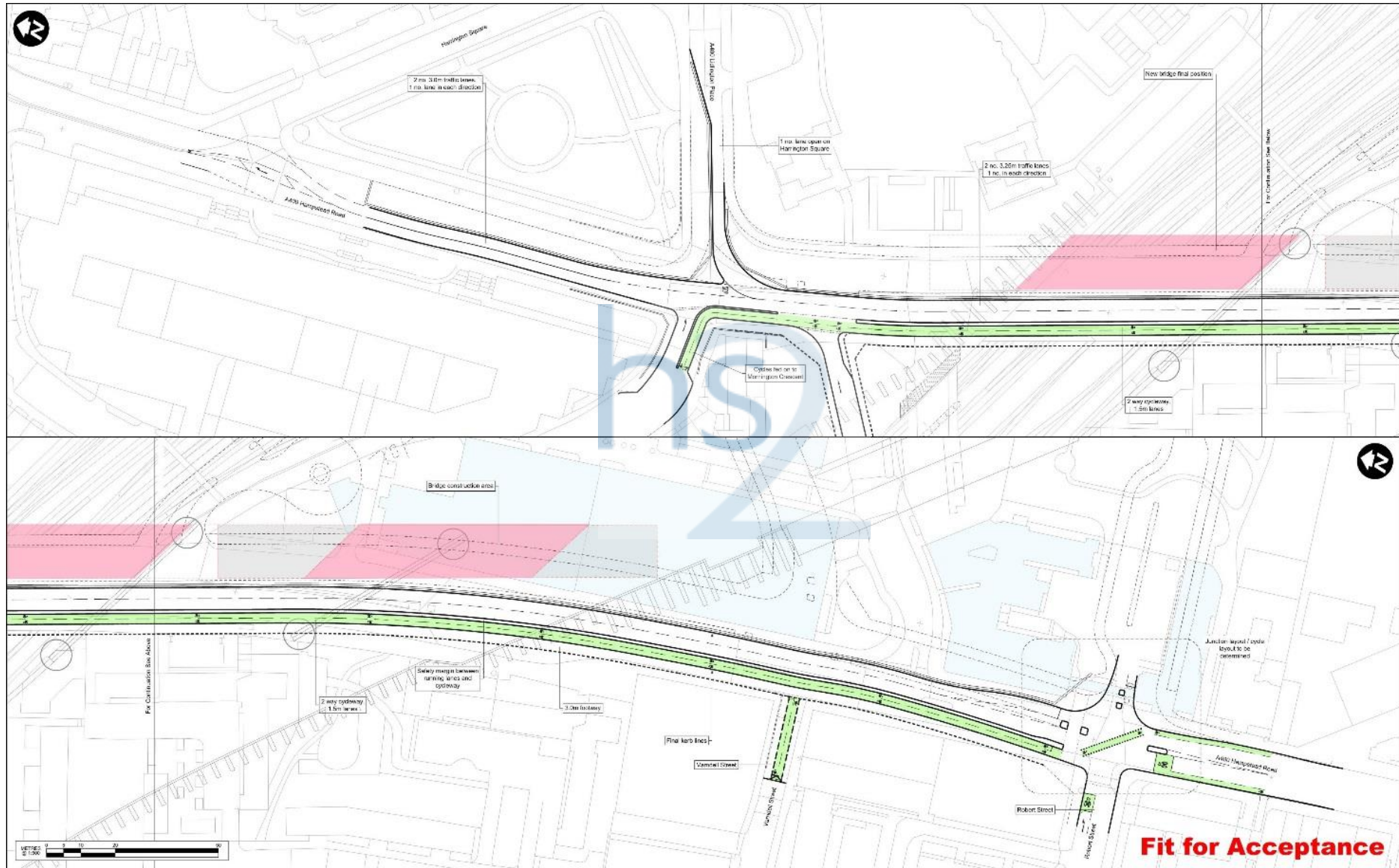


Figure 51: A400 Hampstead Road temporary diversion - stage 2



### **A501 Euston Road**

- 3.3.45 The construction works on A501 Euston Road will involve a number of stages and a series of traffic management measures will be put in place to control the traffic flow. These measures are shown in Figure 52 to Figure 59. The first four stages (shown in Figure 52-Figure 55) relate to the traffic management measures required during the utility works. The further four stages (shown in Figure 56 to Figure 59) relate to the traffic management measures required during the construction of the Euston Square sub-surface link.
- 3.3.46 The traffic management measures will ensure that for each stage of the construction works on A501 Euston Road, two lanes will be provided in each direction. The reduction in the number of available lanes, including the removal of the bus lanes (in both directions), has been included in the highway modelling assessments.

### **A4201 Parkway**

- 3.3.47 Traffic management measures will also be put in place during the diversions of utilities at A4201 Parkway. These measures are shown in Figure 60 and Figure 65. The traffic management measures will ensure that the construction works take place with disruption to vehicular traffic minimised. The reduction in the available number of lanes on A4201 Parkway has been included in the highway modelling assessments.

Figure 52: A501 Euston Road traffic management measures - stage 1

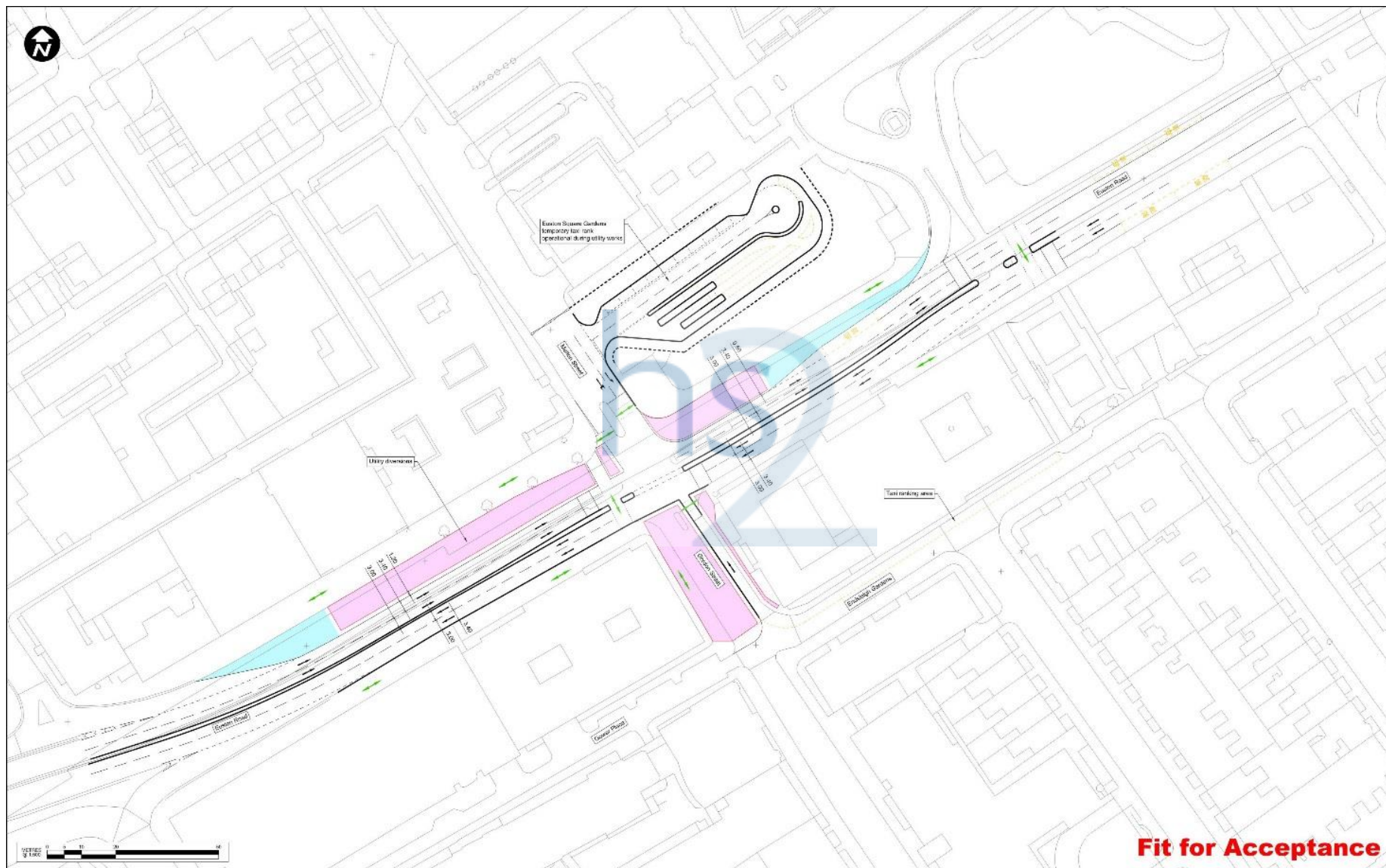


Figure 53: A501 Euston Road traffic management measures - stage 2

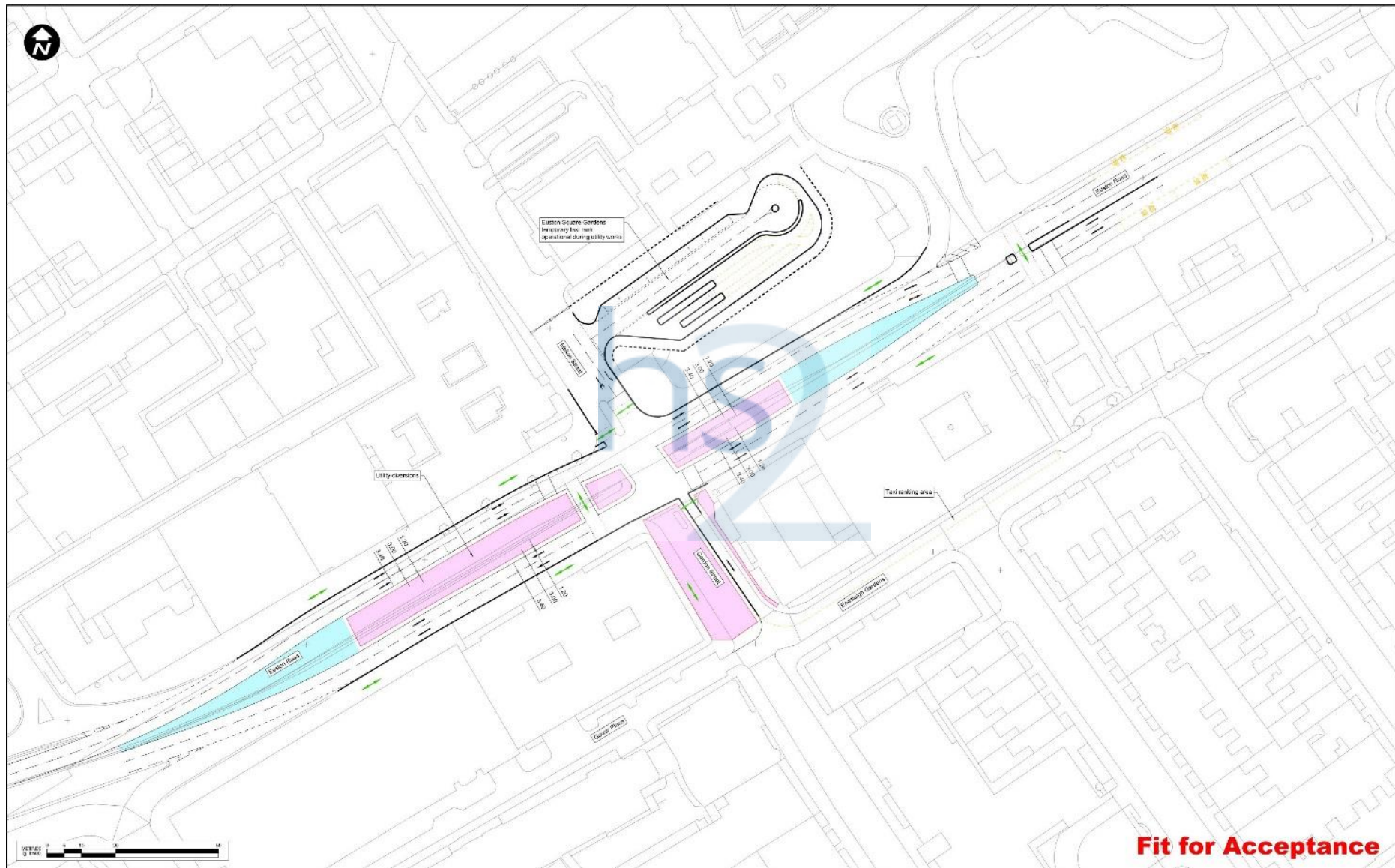


Figure 54: A501 Euston Road traffic management measures - stage 3

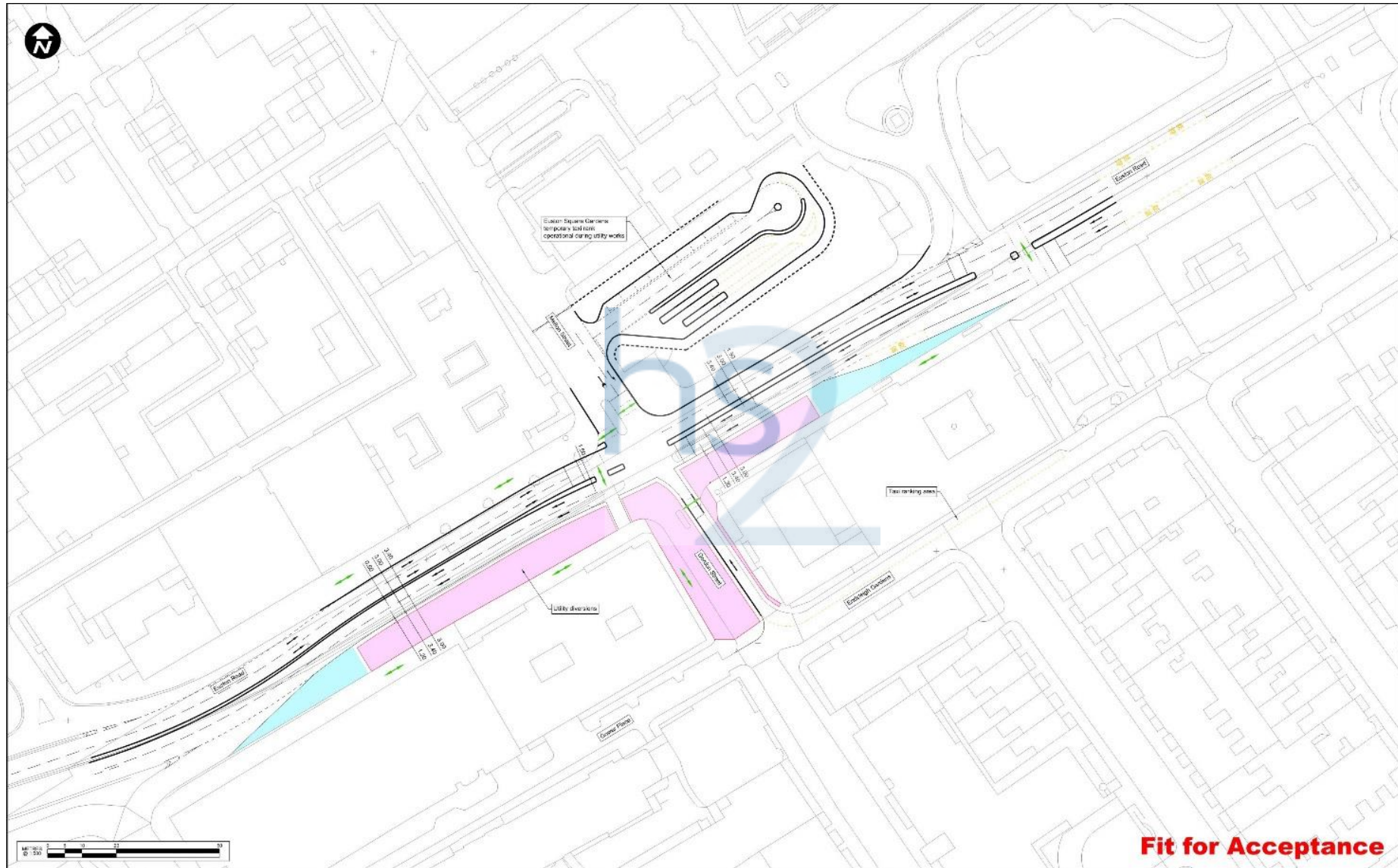


Figure 55: A501 Euston Road traffic management measures - stage 4

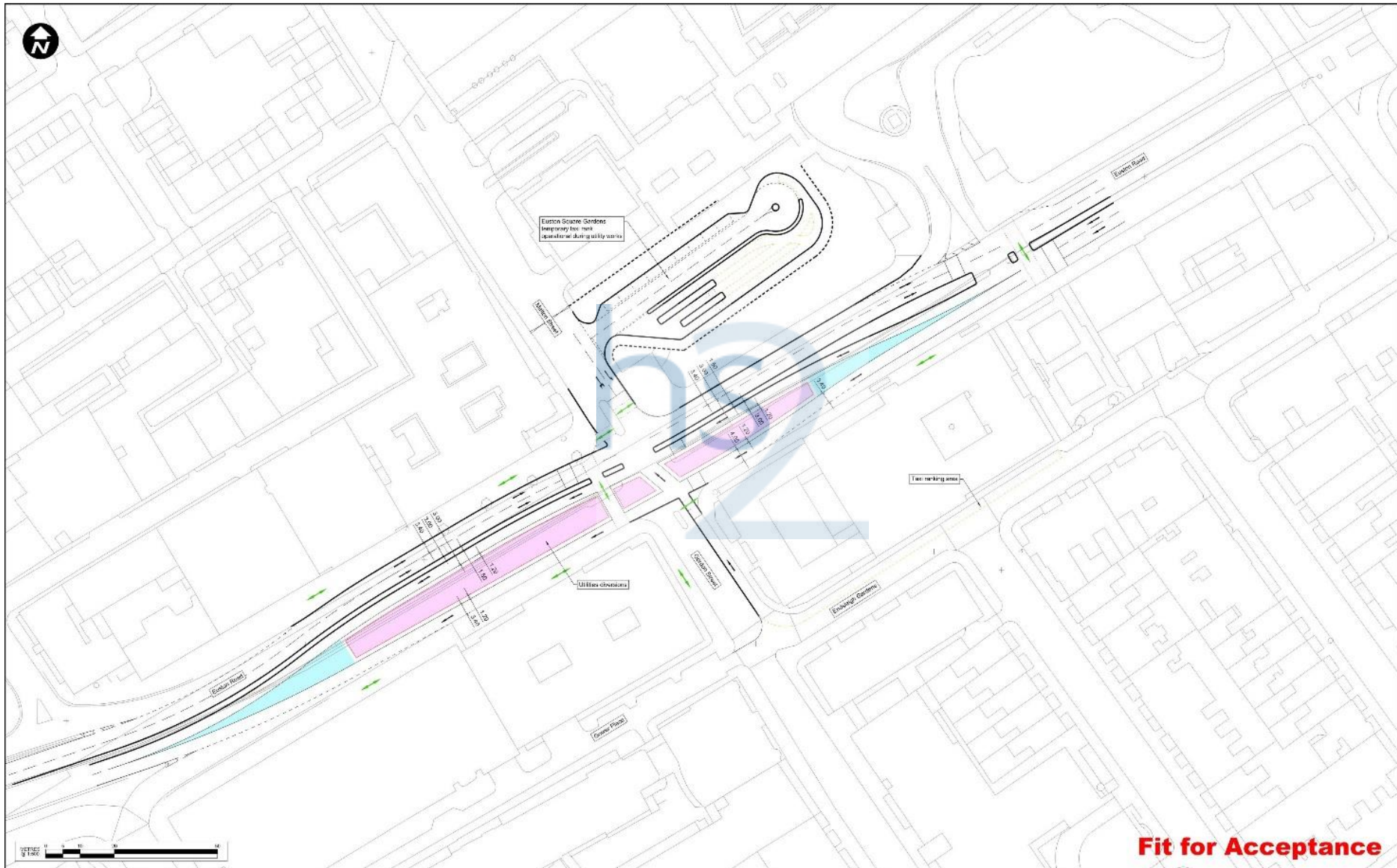




Figure 56: A501 Euston Road traffic management measures - stage 5

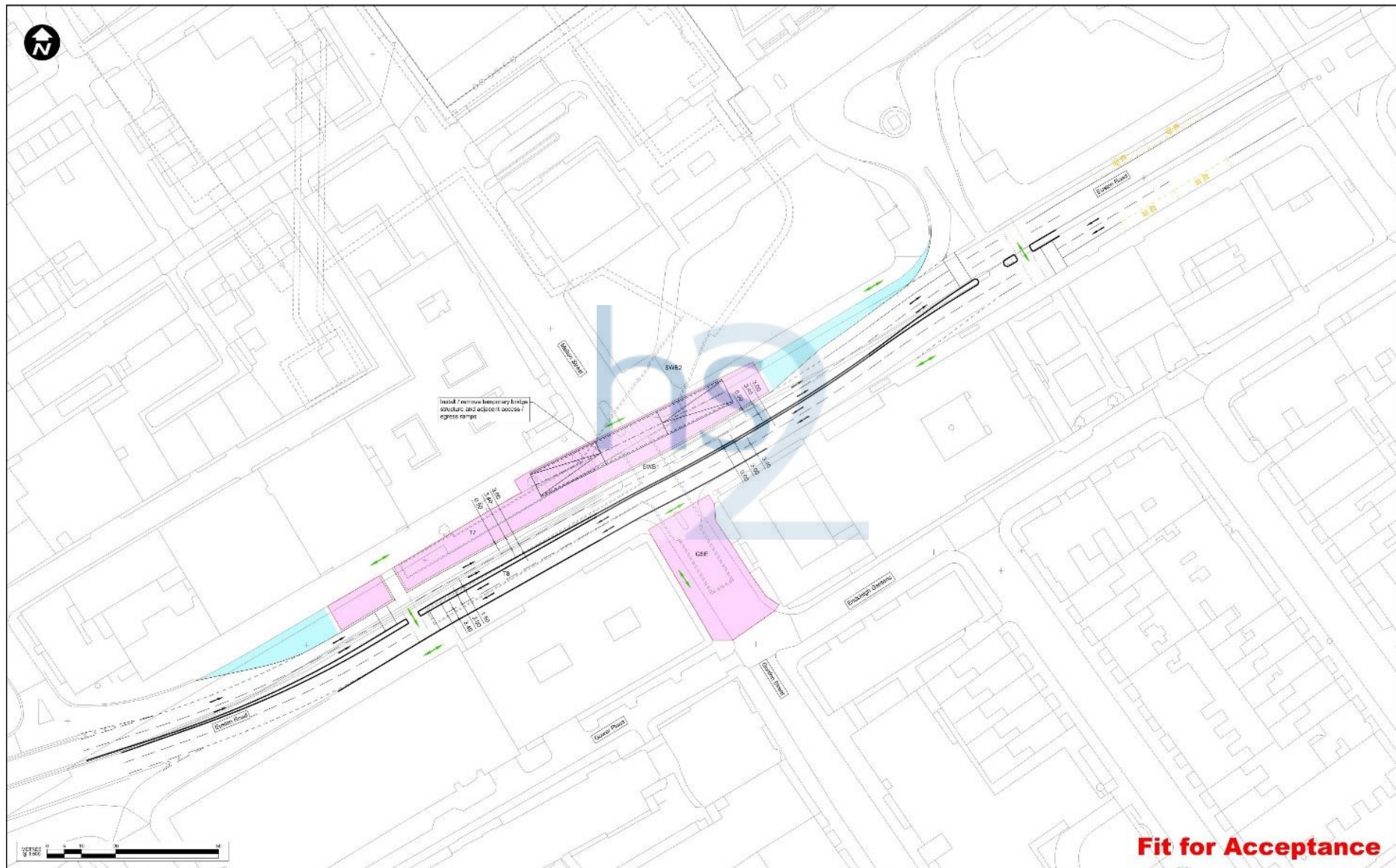
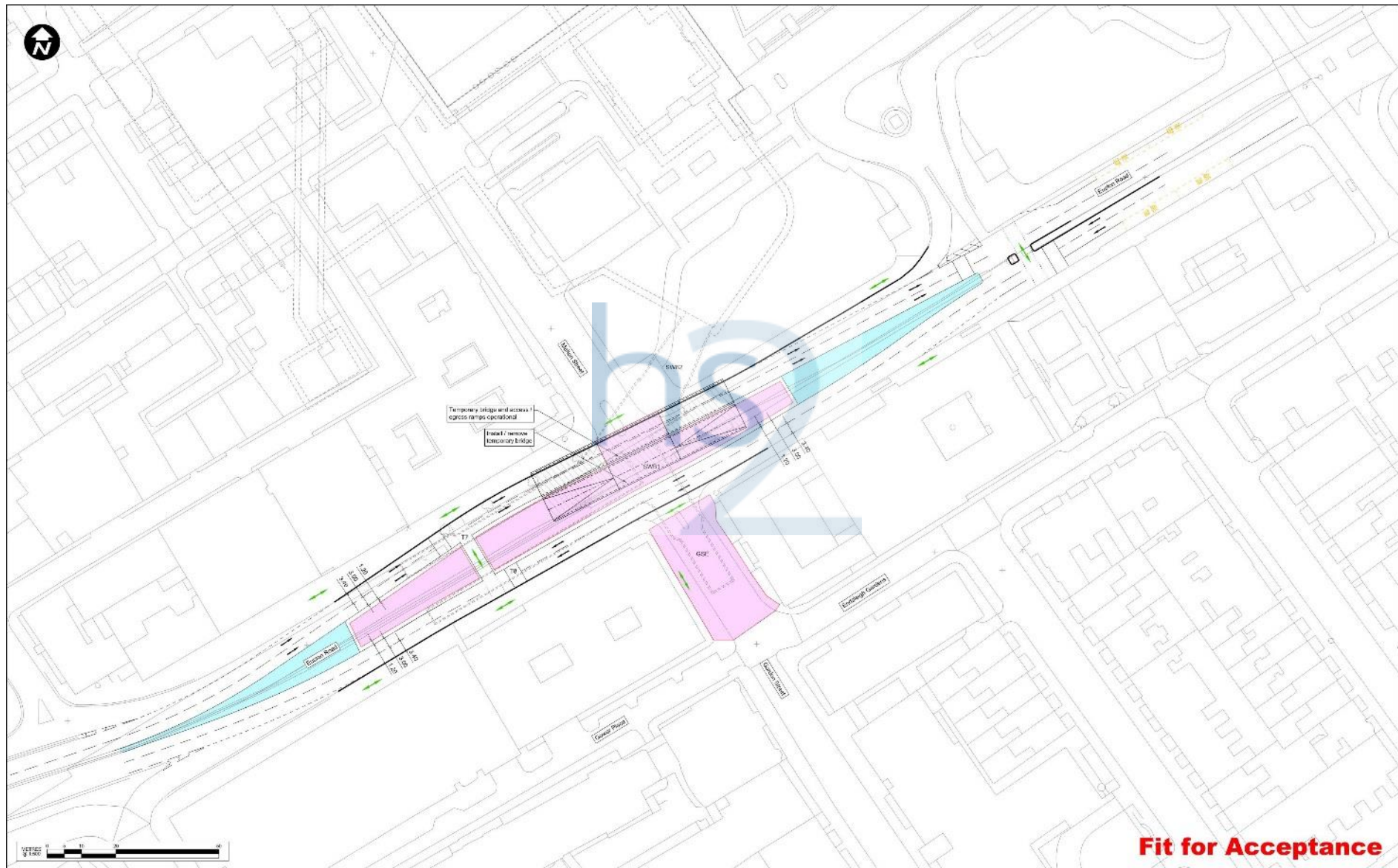


Figure 57: A501 Euston Road traffic management measures - stage 6



**Fit for Acceptance**

Figure 58: A501 Euston Road traffic management measures - stage 7

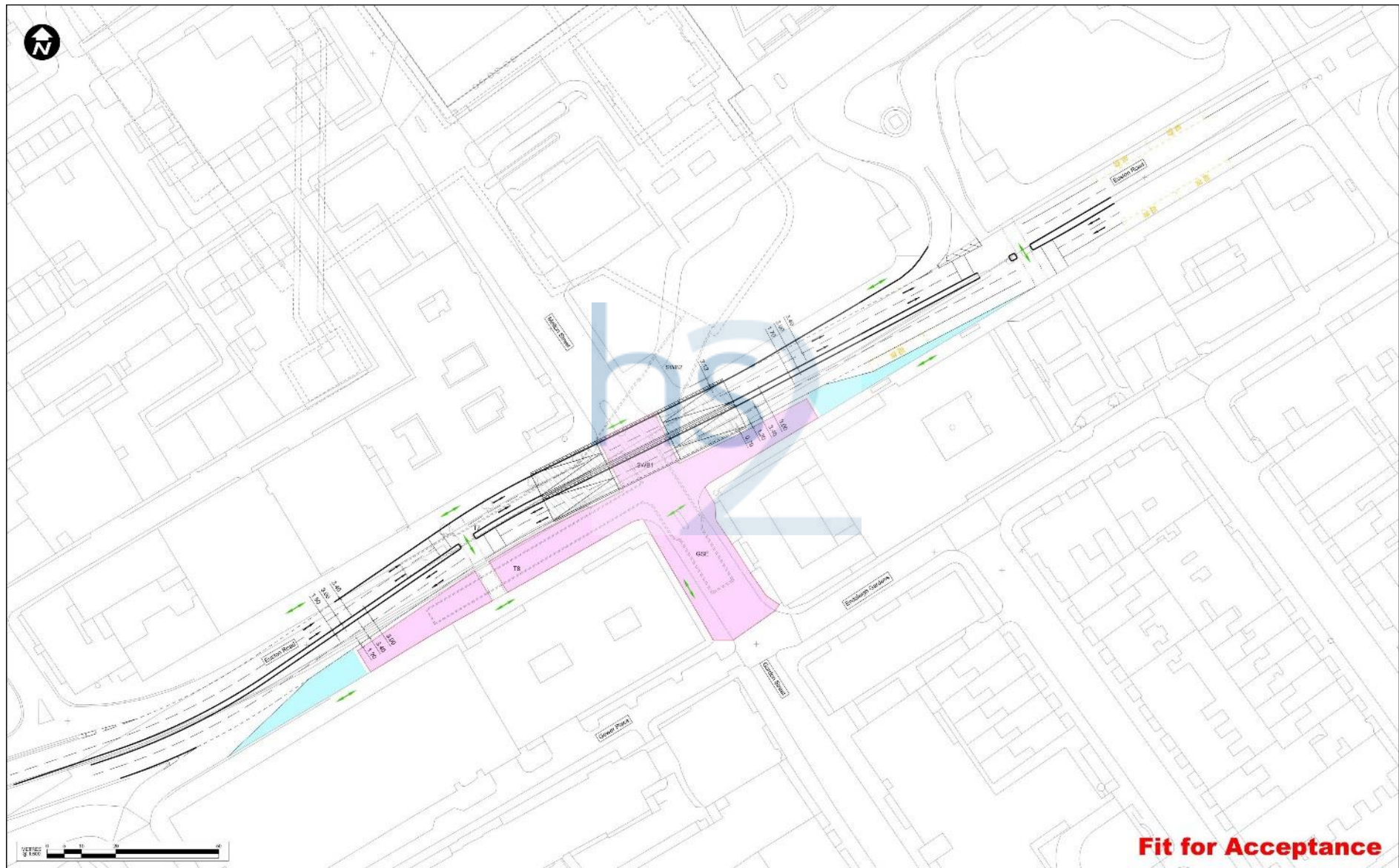


Figure 59: A501 Euston Road traffic management measures - stage 8

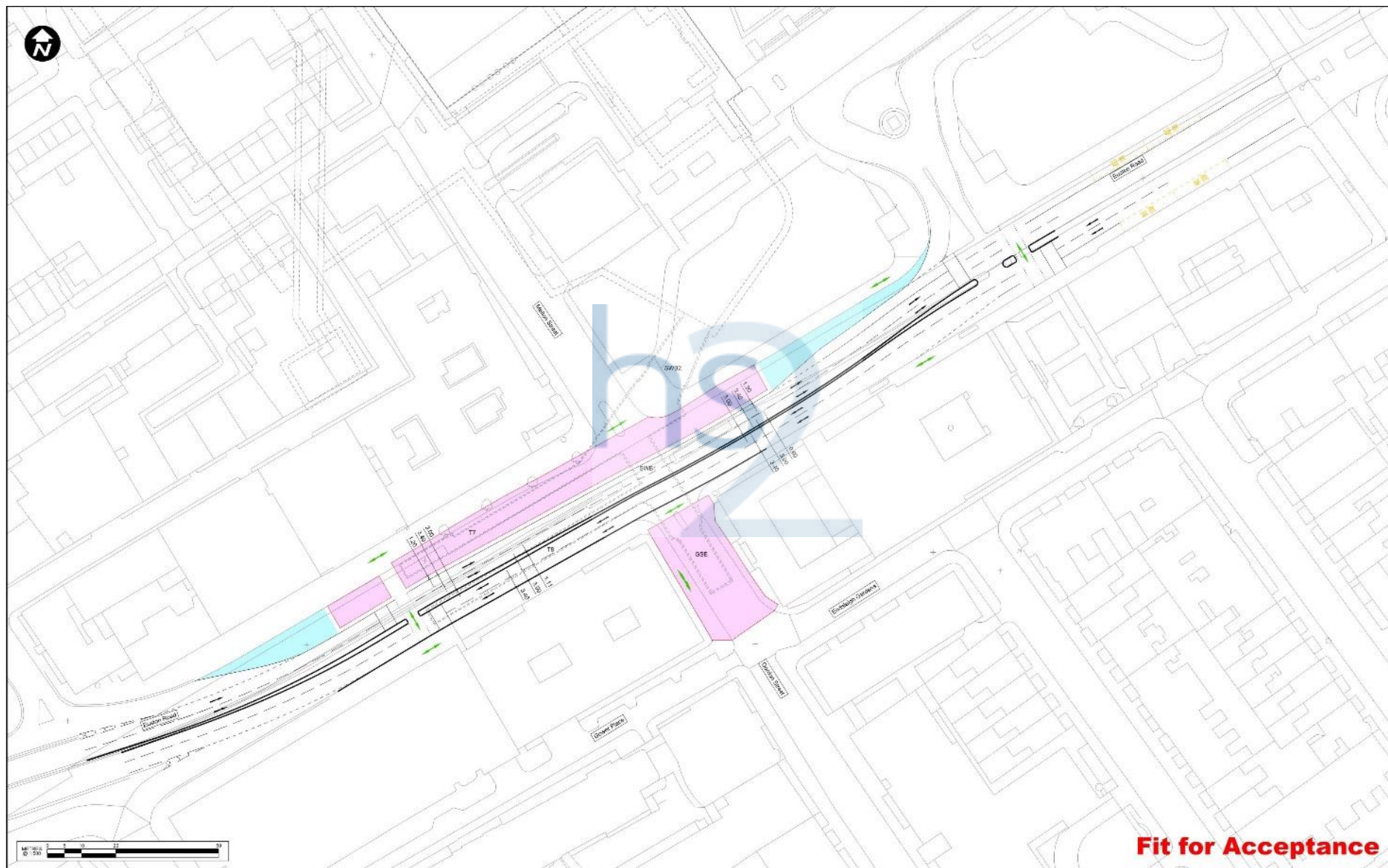
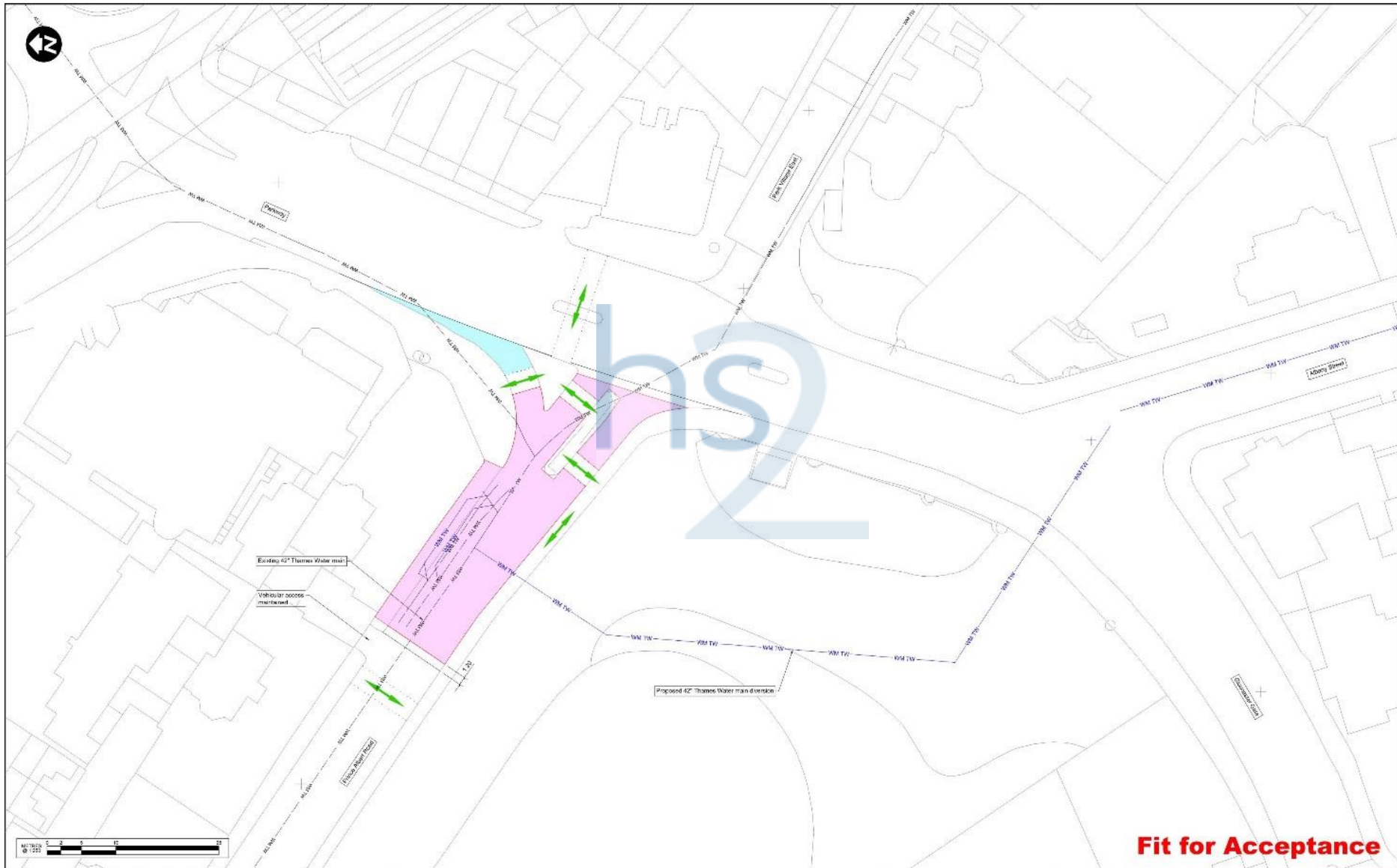


Figure 60: A4201 Parkway traffic management measures - stage 1



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Figure 61: A4201 Parkway traffic management measures - stage 2

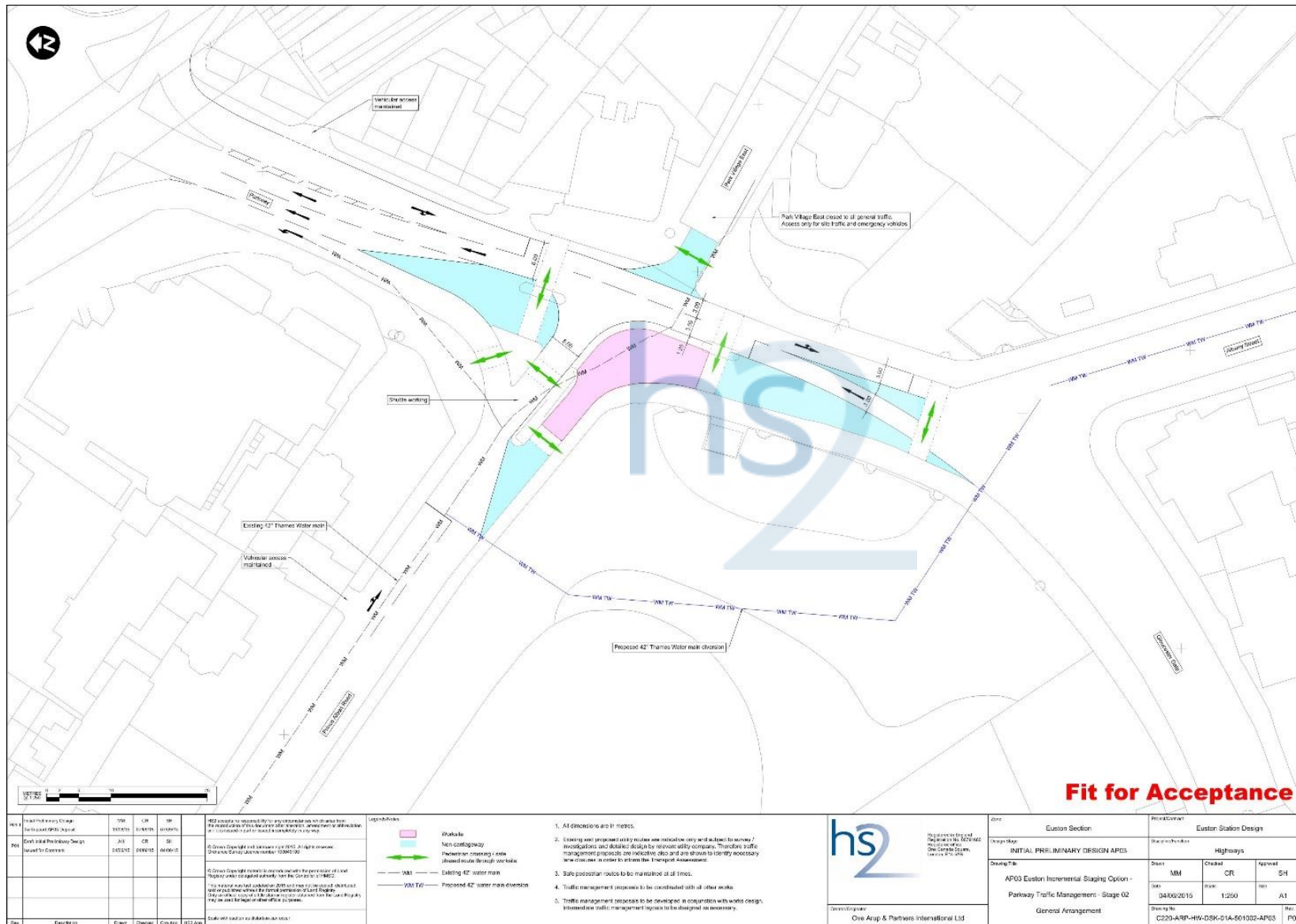


Figure 62: A4201 Parkway traffic management measures - stage 3

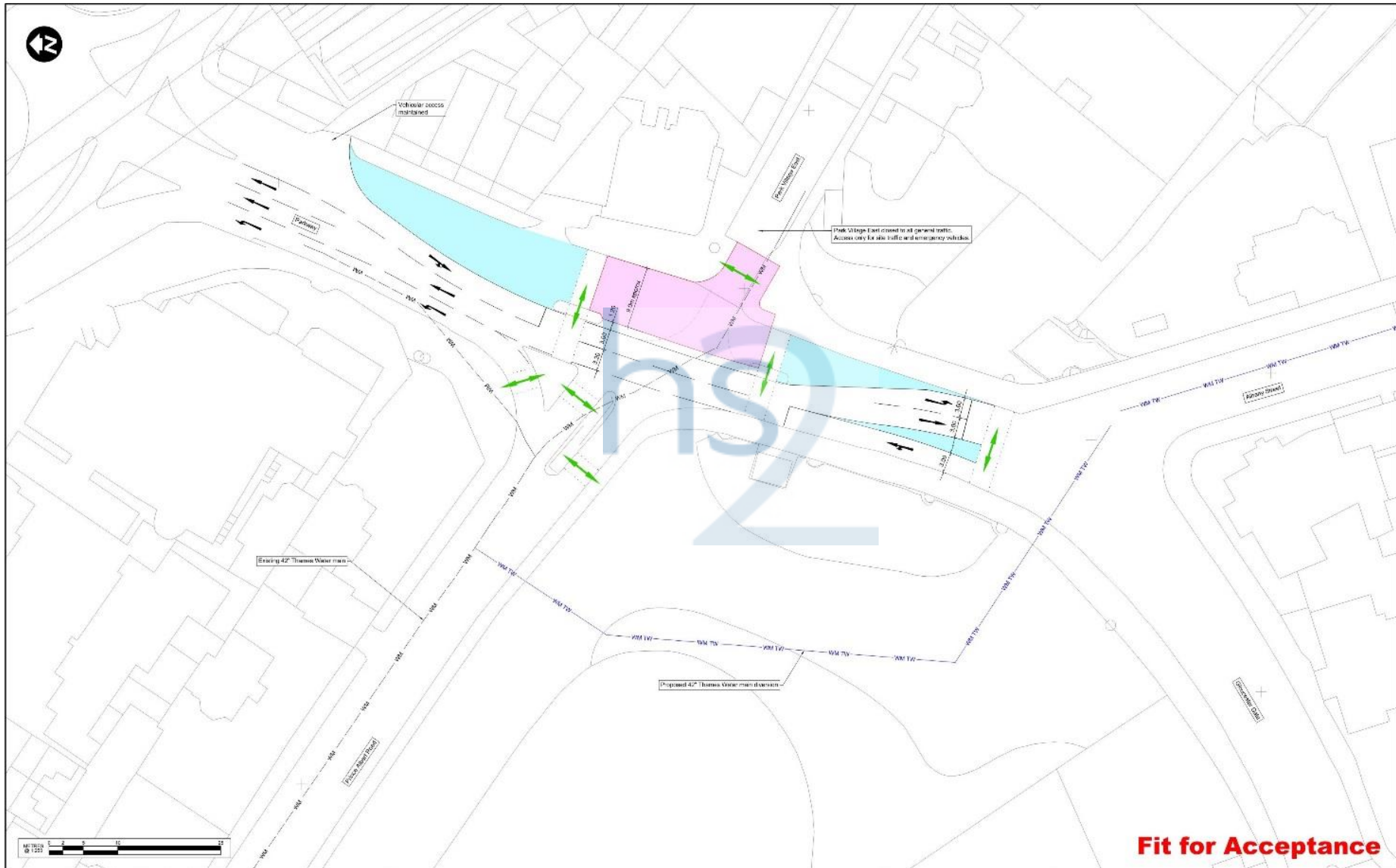


Figure 63: A4201 Parkway traffic management measures - stage 4

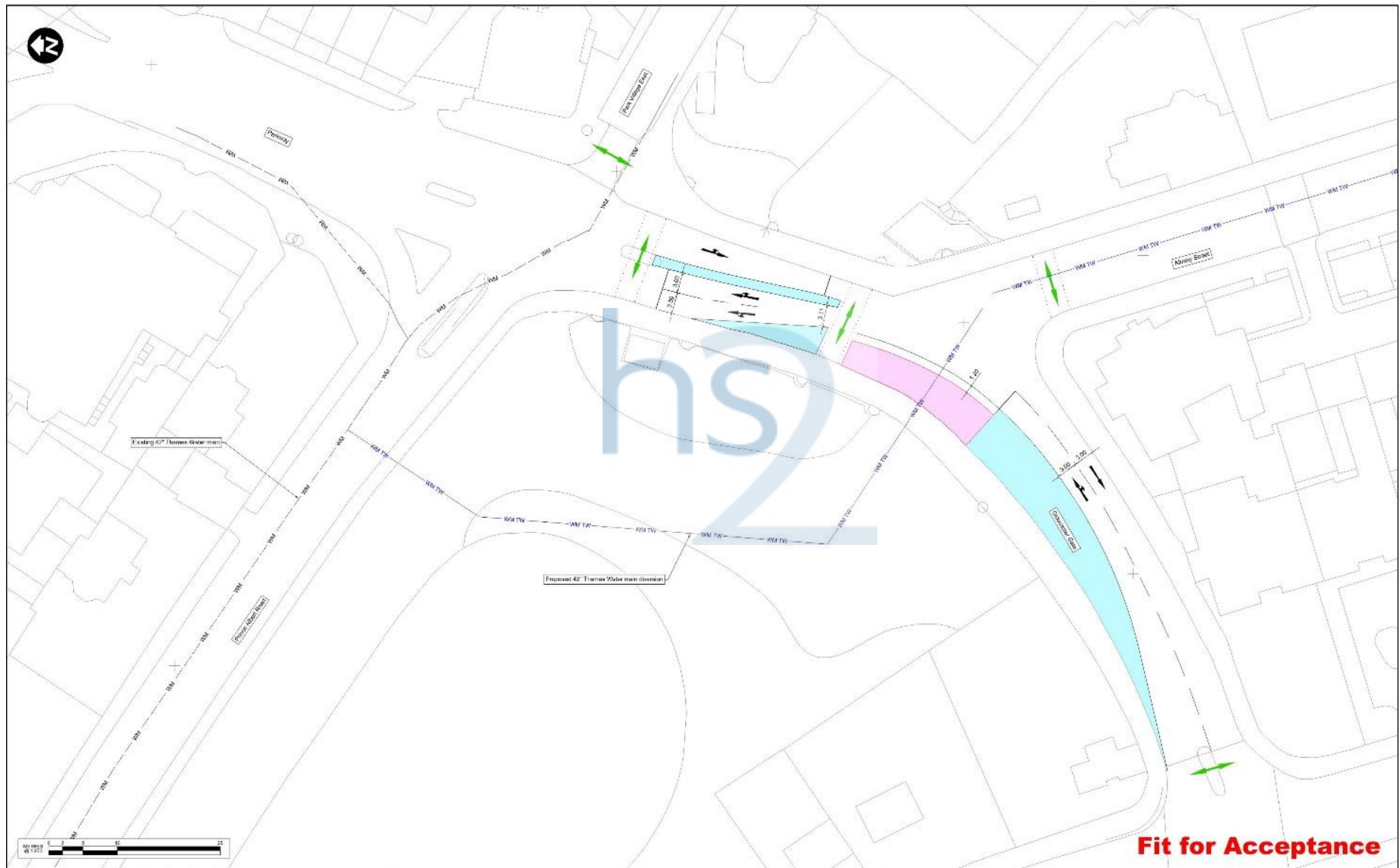




Figure 64: A4201 Parkway traffic management measures - stage 5

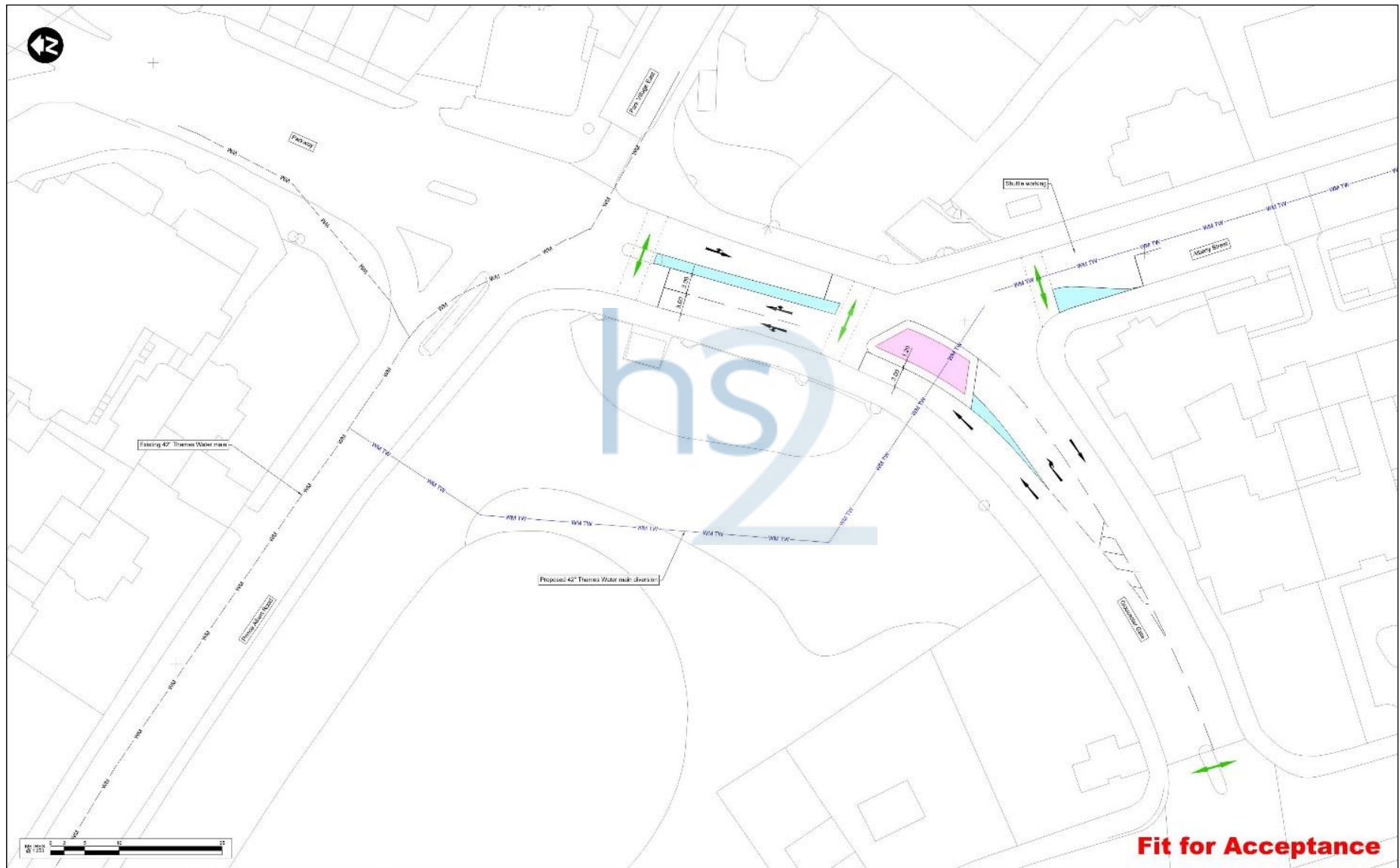
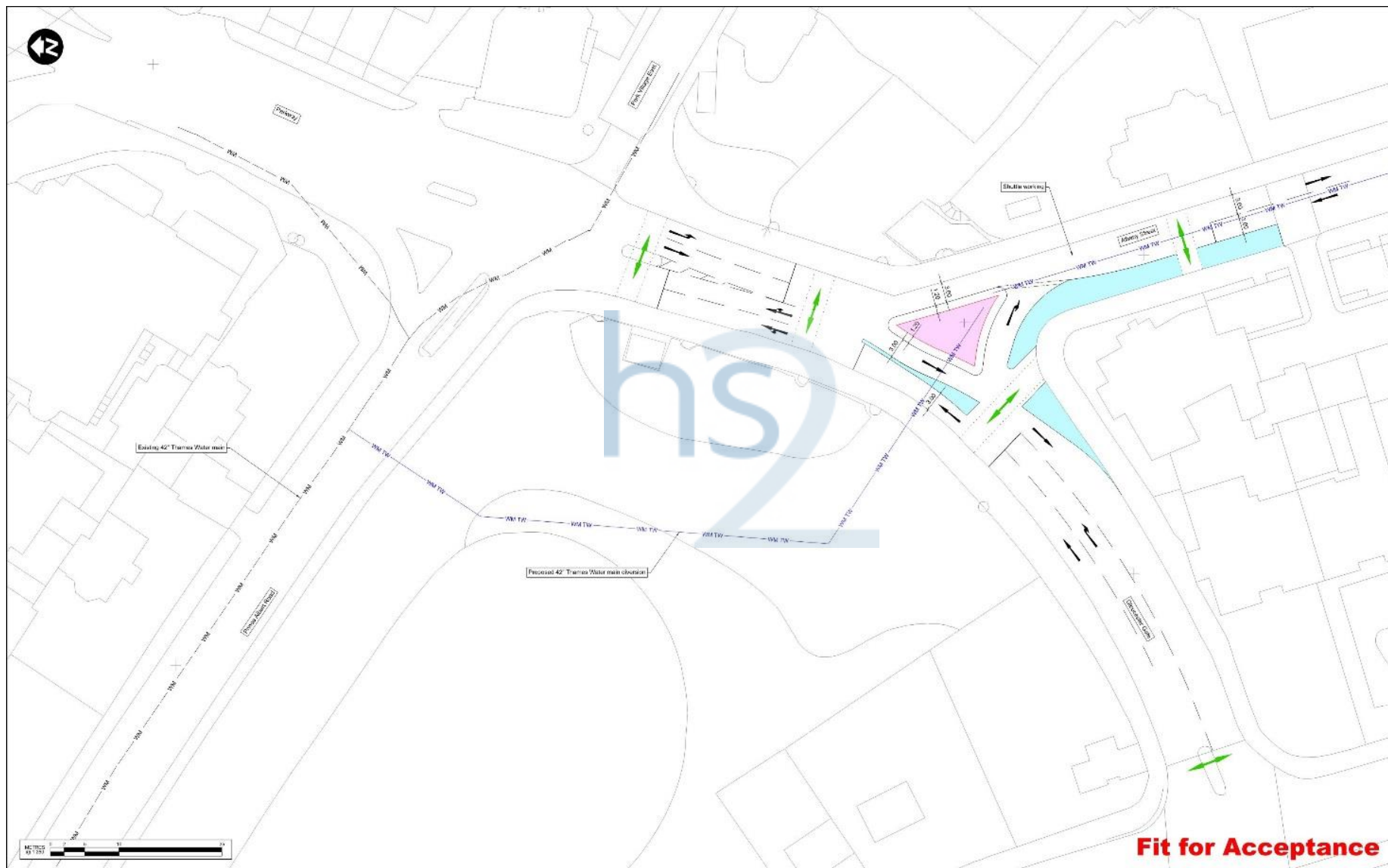


Figure 65: A4201 Parkway traffic management measures - stage 6



### Temporary road closures

3.3.48 Where roads will be temporarily closed during the construction programme, temporary diversions will be put in place to provide alternative routes for vehicles. Table 67 describes the temporary diversions or realignments required for each road for each direction of travel.

Table 67: Temporary diversions and realignments on the local highway network

| Road closure   | Travel direction        | Alternative route  |
|--|-------------------------|--|
| Carriage Shed and Park Village East Ramp and Park Village East (north) | Eastbound               | From Park Village East, left turn onto Stanhope Street, right turn onto Robert Street to A400 Hampstead Road.<br><br>Alternative route via A4201 Parkway.  |
|  | Westbound               | -  |
| Morningson Street overbridge   | Eastbound               | From Gloucester Gate, ahead onto A4201 Parkway, right turn onto Albert Street to Morningson Street.  |
|  | Westbound               | From Morningson Terrace, left turn onto A4201 Parkway, left turn onto A4201 Albany Street, left turn onto Robert Street and left turn onto Stanhope Street.  |
| Varndell Street at A400 Hampstead Road                                 | Eastbound               | From Varndell Street, left turn onto Stanhope Street, left turn onto Robert Street to A400 Hampstead Road.   |
|  | Westbound               | From A400 Hampstead Road, left turn onto Robert Street, right turn onto Stanhope Street to Varndell Street.  |
| Park Village East and Park Village East (north)                        | Northbound              | Via northern end of Park Village East: From A400 Hampstead Road, continue to A400 Camden High Street, left turn onto A503 Delancey Street, left turn onto A4201 Parkway and left turn onto Park Village East.<br><br>Via southern end of Park Village East: From A400 Hampstead Road, left turn onto Robert Street, right turn onto Stanhope Street and continue to Park Village East. |
|  | Southbound              | Via northern end of Park Village East: right turn onto A4201 Parkway and continue to A400 Camden High Street.<br><br>Via southern end of Park Village East: left turn onto Granby Terrace overbridge and left or right turn onto A400 Hampstead Road.<br><br>Alternative route from southern end of Park Village East via Robert Street.   |
| Cardington Street  | Northbound              | From A501 Euston Road, right turn onto A400 Hampstead Road.<br><br>From A501 Euston Road, left turn onto A4200 Eversholt Street, left turn onto A400 Harrington Square/A400 Lidlington Place onto A400 Hampstead Road.   |
|  | Southbound              | From A400 Hampstead Road, left turn onto Drummond Street, right turn onto North Gower Street and left turn onto A501 Euston Road.  |
| Starcross Street at Cobourg Street                                     | Eastbound and westbound | From Starcross Street, left turn onto North Gower Street.  |

| Road closure                      | Travel direction        | Alternative route  |
|-----------------------------------|-------------------------|--|
| Drummond Street at Cobourg Street | Eastbound               | From Drummond Street, left turn onto North Gower Street and left turn onto A501 Euston Road.   |
|                                   | Westbound               | As existing.   |
| Melton Street                     | Northbound              | From A501 Euston Road, right turn onto A400 Hampstead Road.<br><br>From A501 Euston Road, left turn onto A4200 Eversholt Street, left turn onto A400 Harrington Square and onto A400 Hampstead Road. |
|                                   | Southbound              | From A400 Hampstead Road, left turn onto Drummond Street, right turn onto North Gower Street and left turn onto A501 Euston Road.  |
| Euston Street at Cobourg Street   | Eastbound and Westbound | From Euston Street, left turn onto North Gower Street.   |
| Gordon Street                     | Northbound              | From Gordon Street, right turn onto Endsleigh Gardens, left turn onto Upper Woburn Place and left turn onto A501 Euston Road.  |
|                                   | Southbound              | From A501 Euston Road, left/right turn onto A4200 Upper Woburn Place and left turn onto Endsleigh Gardens onto Gordon Street.  |
| A5205 Prince Albert Road          | Northbound              | From A4201 Parkway, left/right turn onto Gloucester Avenue, left turn onto St. Mark's Square.  |
|                                   | Southbound              | From A5205 Prince Albert Road, left/right turn onto Albert Terrace, right turn onto Regent's Park Road and left/right turn onto A4201 Parkway.   |

### Utility works

3.3.49 In addition to the station and directly rail-related works, a series of other highway works will be required during construction of the revised scheme, mostly associated with utility works. These include:

- Provision of connections to two UK Power Networks substations in the Pentonville and Camden areas (a proposed substation in Calshot Street and St. Pancras substation), which will be undertaken in short sections along the proposed routes, with each section expected to take less than four weeks.
- Utility works in the A503 Delancey Street area to divert telecommunication cables.
- Possible utility works required on Endsleigh Gardens, should any space constraints arise during the utility works on A501 Euston Road, which, if needed, would require sections of Endsleigh Gardens to be closed to facilitate the works.
- Possible utility works required on Mornington Terrace, should any space constraints arise during the works on Park Village East, which, if needed, would require sections of Mornington Terrace to be closed to facilitate the

works.

- Possible sewer replacement and lining works along Augustus Street.
- Utility works required on North Gower Street, Gower Street and Gower Place, to allow 132kV electricity cables to be diverted across A501 Euston Road. It is not envisaged that these works will result in a road closure.
- Further utility works, with possible closures, may be required on Aldenham Street, Polygon Road, Lancing Street, Drummond Crescent, Stanhope Street and Doric Way.

3.3.50 Any partial or full road closures, as a result of these works, will be limited to a period of less than approximately four weeks.

3.3.51 As described in Table 66, the utility works will include the replacement of gas mains on A4200 Eversholt Street. It is also possible that a Thames Water sewer, also on A4200 Eversholt Street, may be diverted along Phoenix Road and Chalton Street. However, should this sewer diversion be required, the works on Phoenix Road and Chalton Street are not expected to coincide with the works on A4200 Eversholt Street.

#### *Construction phase access diagrams*

3.3.52 Construction will impact the way pedestrians enter and exit Euston station. During the different stages of the construction programme routes for pedestrians will be managed to maintain adequate routes.

3.3.53 Traffic management measures will be introduced to reduce the impact on pedestrians in the immediate area of the construction works. Given the large pedestrian demand in the area, adequate measures need to be considered in the next stages of design to ensure walkability and pedestrian safety is not compromised.

3.3.54 During construction, sections of footways will need to be closed with temporary alternative routes in place to enable construction works to occur. These streets include:

- Granby Terrace overbridge;
- Cardington Street (permanent closure);
- Starcross Street at Cobourg Street;
- Drummond Street at Cobourg Street;
- Cobourg Street (permanent closure);
- Melton Street (south of Cardington Street);
- Euston Street at Cobourg Street; and
- Stephenson Way.

3.3.55 Additionally, three footpaths used by the public and one footway (all treated in the same way as PRow for the purposes of the TA) will be closed due to the construction works. These are:

- path across St. James's Gardens;
- path across Euston Square Gardens east;
- path across Euston Square Gardens west; and
- Harrington Street footpath.

3.3.56 Pedestrian access to Euston station will be maintained at all times during the construction programme. Access in and around Euston station and Euston LU station will be maintained during the construction phases required for its redevelopment, from 2016 until 2033. The following diagrams show the public access during the principle construction phases. There is corresponding narrative to explain the construction activities, the implications on access and servicing, and proposed mitigation measures. Access to Euston station between July 2016 and May 2017 can be seen in Figure 66.

3.3.57 Between July 2016 and May 2017, the following changes take place:

- the Cycle Hire facilities located on Drummond Street relocated to the west due to the principal construction zone;
- Cardington Street is permanently closed from the junction with Drummond Street north to the junction with A400 Hampstead Road;
- Drummond Street, Euston Street and Stephenson Way (to the east of Cobourg Street) permanently closed; and
- Stephenson Way now cul-de-sac with no access to Euston Street for vehicles or pedestrians.

3.3.58 Access to Euston station between June 2017 and July 2020 can be seen in Figure 67.

3.3.59 Between June 2017 and June 2020, the following changes take place:

- the existing basement taxi facilities are relocated to Euston Square Gardens (west) for pick-up and set-down and a separate taxi set-down is provided on A4200 Eversholt Street;
- Gordon Street is permanently closed at its junction with A501 Euston Road to all traffic except for taxis;
- a taxi rank is established westbound on Endsleigh Gardens;
- cycle parking outside exit 3 of Euston station, by Cardington Street and Melton Street, is relocated to Euston Square Gardens (east); and
- the cycle parking outside Sainsbury's local at the front of the station is relocated to Euston Square Gardens (east).

Figure 66: Pedestrian access to Euston station - July 2016 to May 2017

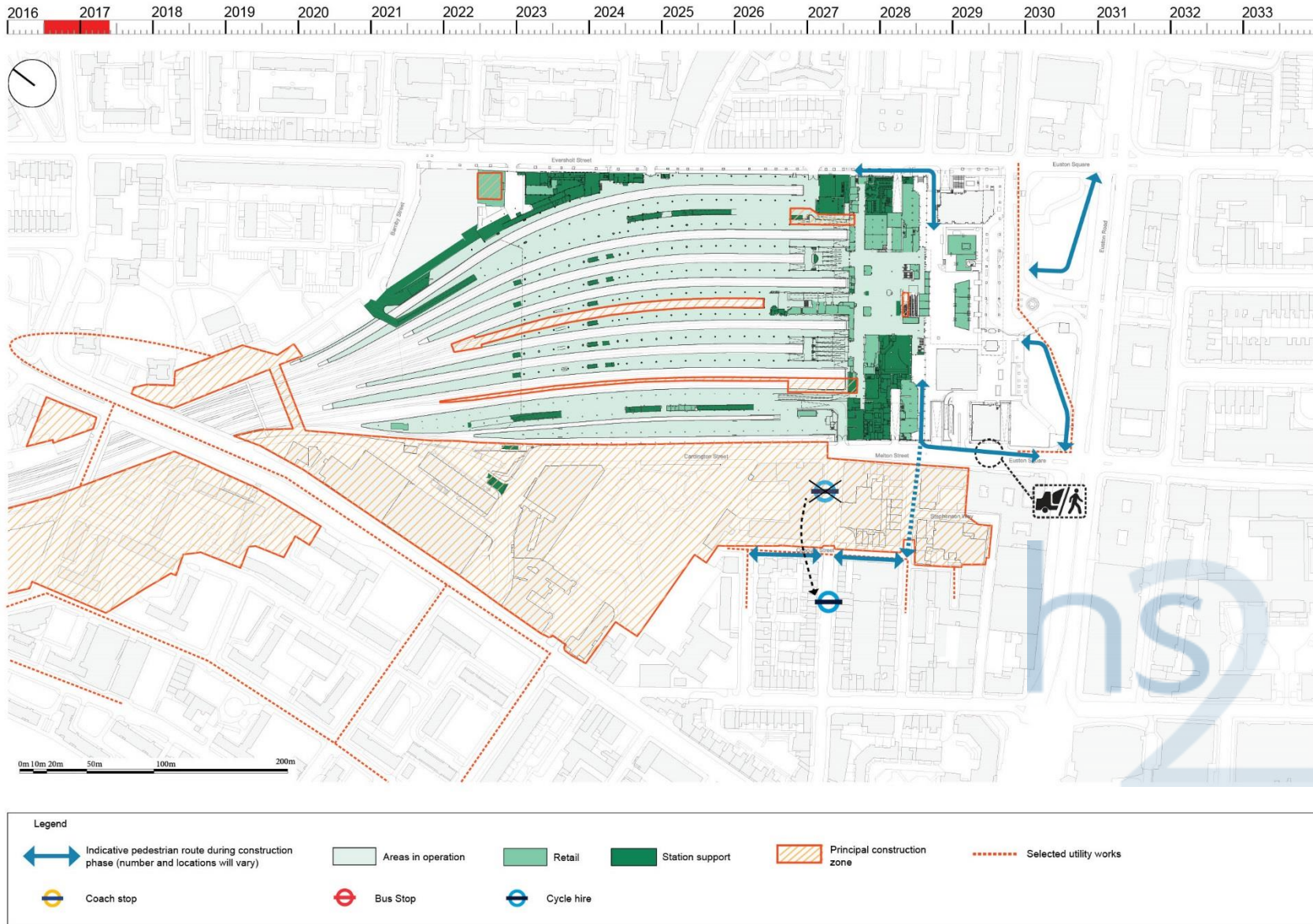
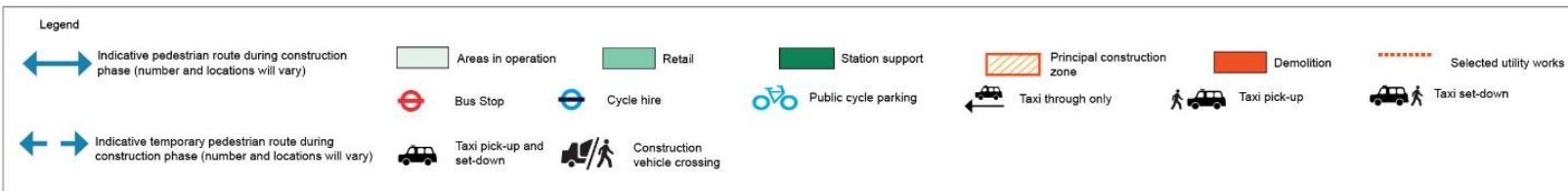
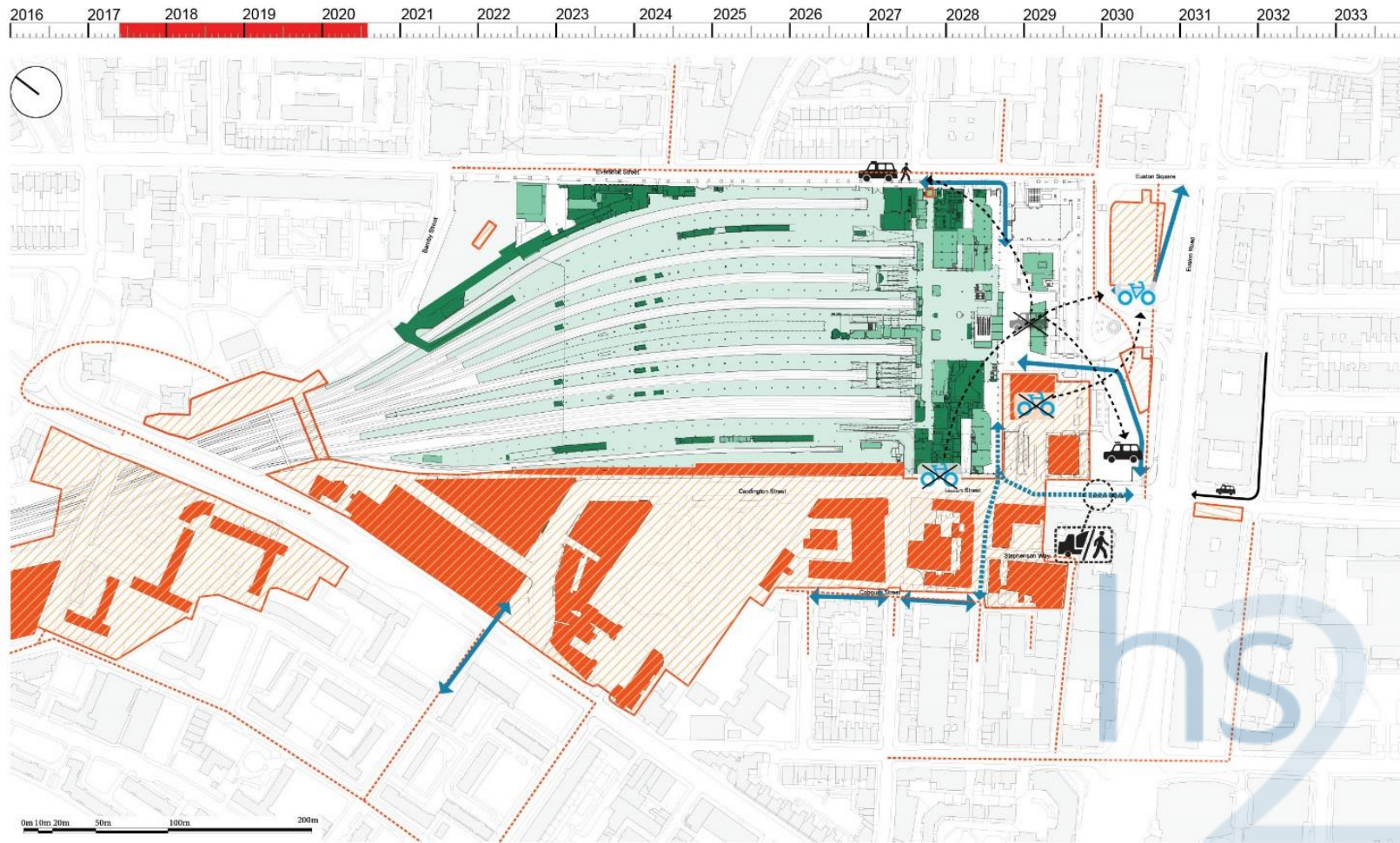


Figure 67: Pedestrian access to Euston station - June 2017 to July 2020





- 3.3.60 Access to Euston station between August 2020 and March 2023 can be seen in Figure 68.
- 3.3.61 Between August 2020 and March 2023, the following changes take place:
- A400 Hampstead Road bus stop W is temporarily suspended;
  - A400 Hampstead Road bus stop B is temporarily suspended;
  - A400 Hampstead Road bus stop K is moved southwards near the junction with North Gower Street;
  - A400 Hampstead Road Cycle Hire facilities are relocated onto Varndell Street;
  - A400 Hampstead Road overbridge is reduced to a single vehicular lane in each direction with northbound and southbound advisory cycle lanes;
  - as a result of A501 Euston Road utility works, A501 Euston Road is reduced from six lanes to four lanes for approximately 150m achieved by the removal of the A501 Euston Road bus lanes which impact upon A501 Euston Road capacity for private vehicles, buses and cyclists;
  - on A501 Euston Road, bus stop P will be relocated approximately 90m to the west;
  - on A501 Euston Road, bus stop AZ will be relocated east by approximately 90m;
  - on A501 Euston Road, bus stop H will be relocated east by approximately 90m; and
  - on A501 Euston Road, the Cycle Hire facilities will be relocated westwards close to the A501 Euston Road junction with North Gower Street.
- 3.3.62 Access to Euston station between April 2023 and March 2024 can be seen in Figure 69.
- 3.3.63 Between April 2023 and March 2024, the following changes take place:
- on A400 Hampstead Road (near Granby Terrace junction), new bus stops N1 and N2 will be introduced in the southbound and northbound directions respectively to accommodate bus routes 24, 27, 29, 88, 134, N29 and N279;
  - on A400 Hampstead Road overbridge, bus stops B and W will be reintroduced;
  - the Cycle Hire facilities that were temporarily located on Varndell Street will be relocated back to A400 Hampstead Road; and
  - the taxi set-down and pick-up facilities within Euston Square Gardens (west) will be relocated to A4200 Eversholt Street.

Figure 68: Pedestrian access to Euston station - August 2020 to March 2023

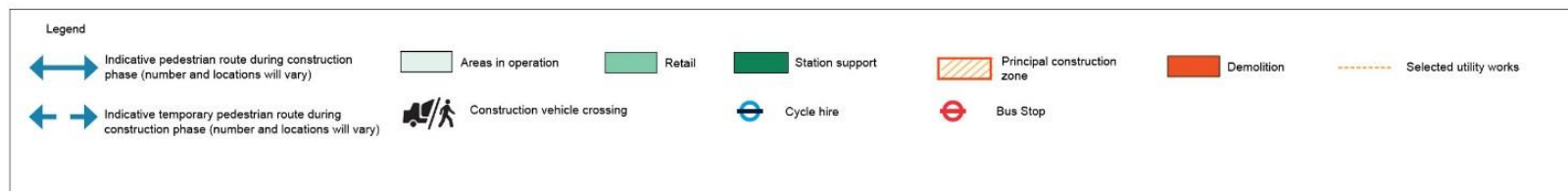
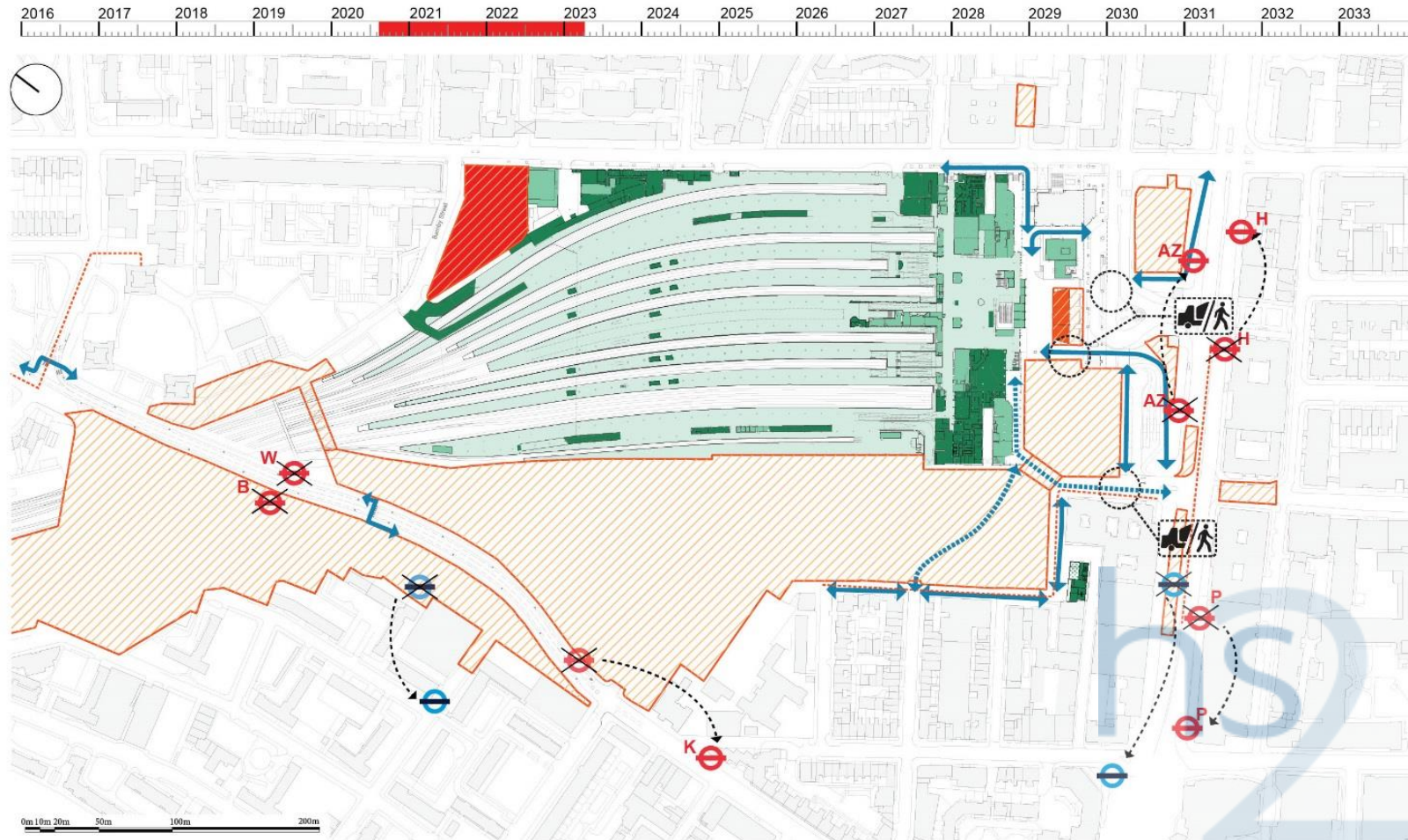
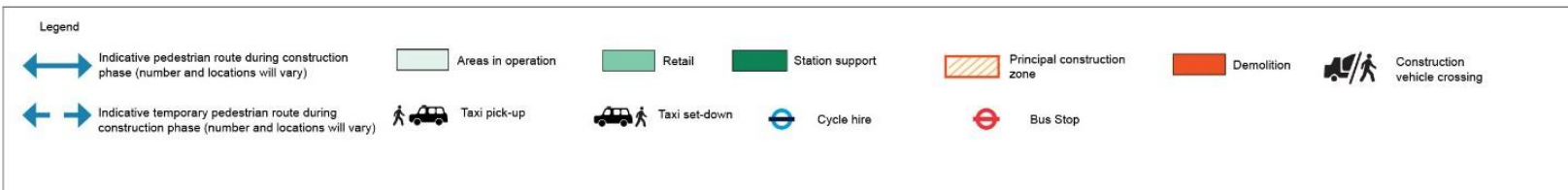
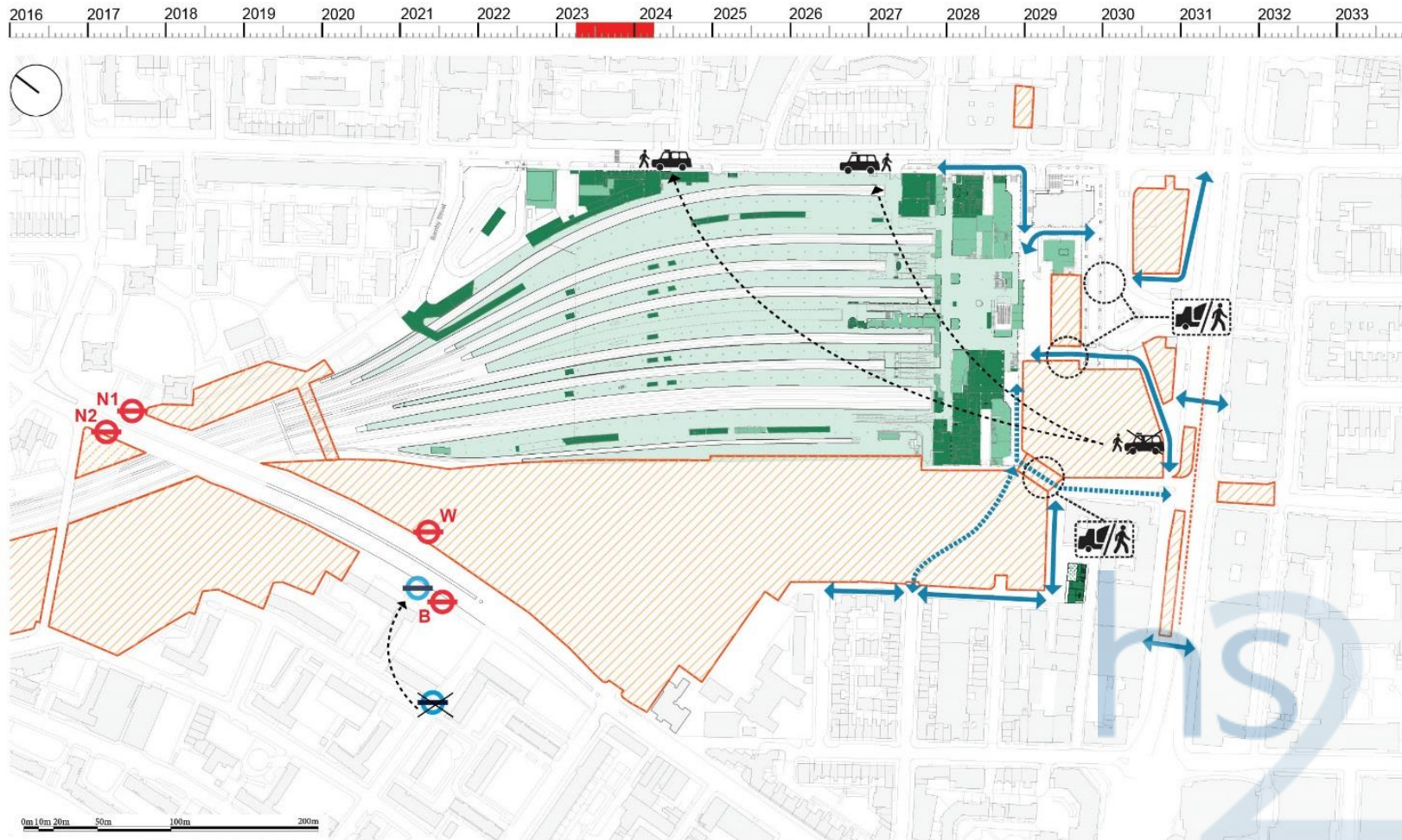


Figure 69: Pedestrian access to Euston station - April 2023 to March 2024



3.3.64 Access to Euston station between April 2024 and December 2026 can be seen in Figure 70.

3.3.65 Between April 2024 and December 2026, the following changes take place:

- A501 Euston Road utility works are completed; and
- temporary bridge installed on A501 Euston Road during construction of LU subway and link tunnels with four lanes available on A501 Euston Road (as per the previous stage).

3.3.66 Access to Euston station when HS2 Phase One is operational in December 2026 can be seen in Figure 72.

3.3.67 The following facilities are operational when HS2 Phase One is operational in December 2026:

- relocated taxi set-down, rank and pick-up on Cobourg Street accessed via walking route (Drummond street alignment);
- additional cycle parking provided adjacent to Cobourg Street station entrance with access via A400 Hampstead Road or Drummond Street / Cobourg Street;
- new Euston Square link and Gordon Street entrance open;
- new bus standing area off A4200 Eversholt Street open and in operation; and
- bus stop P on A501 Euston Road is returned to its original location.

Figure 70: Pedestrian access to Euston station - April 2024 to December 2026

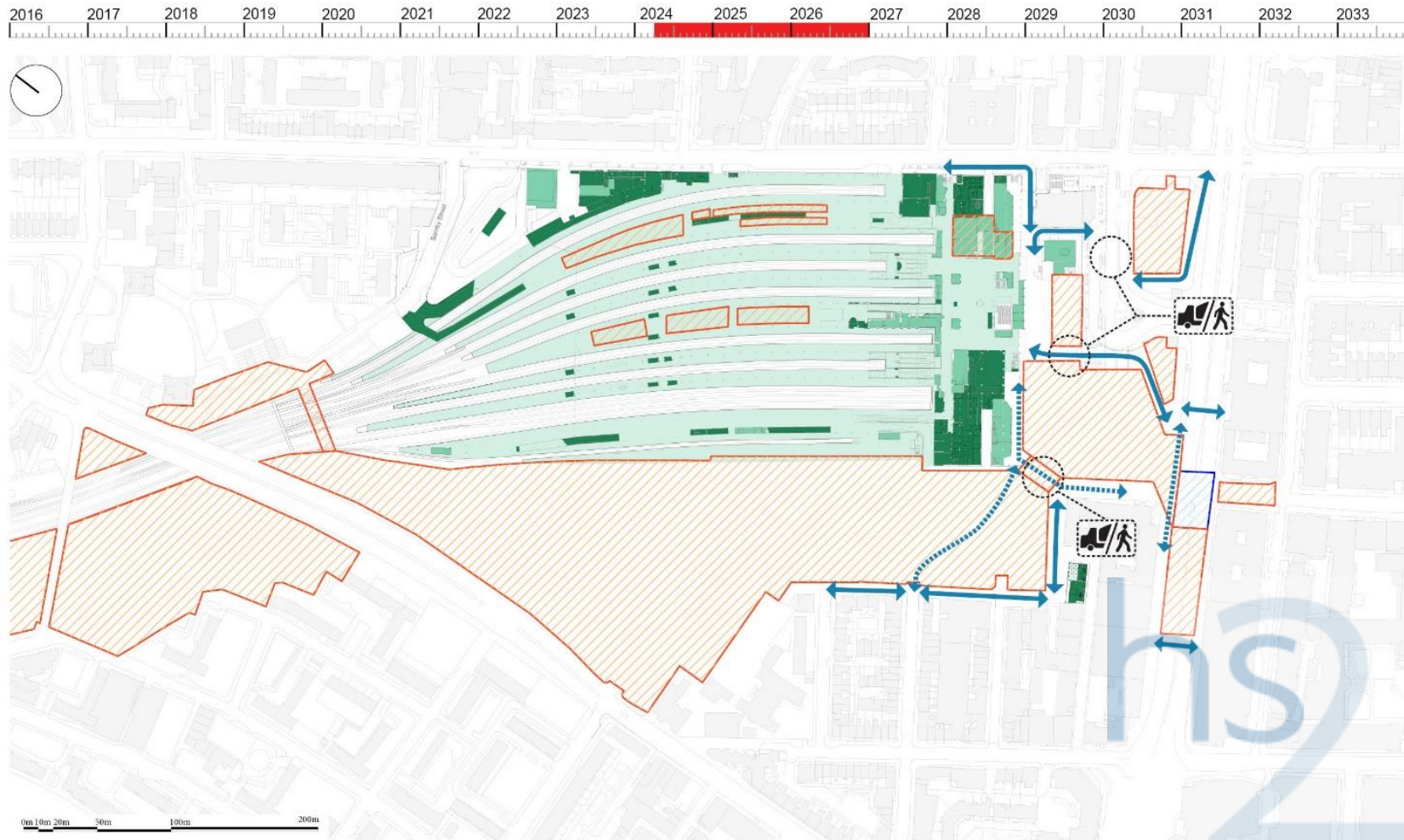
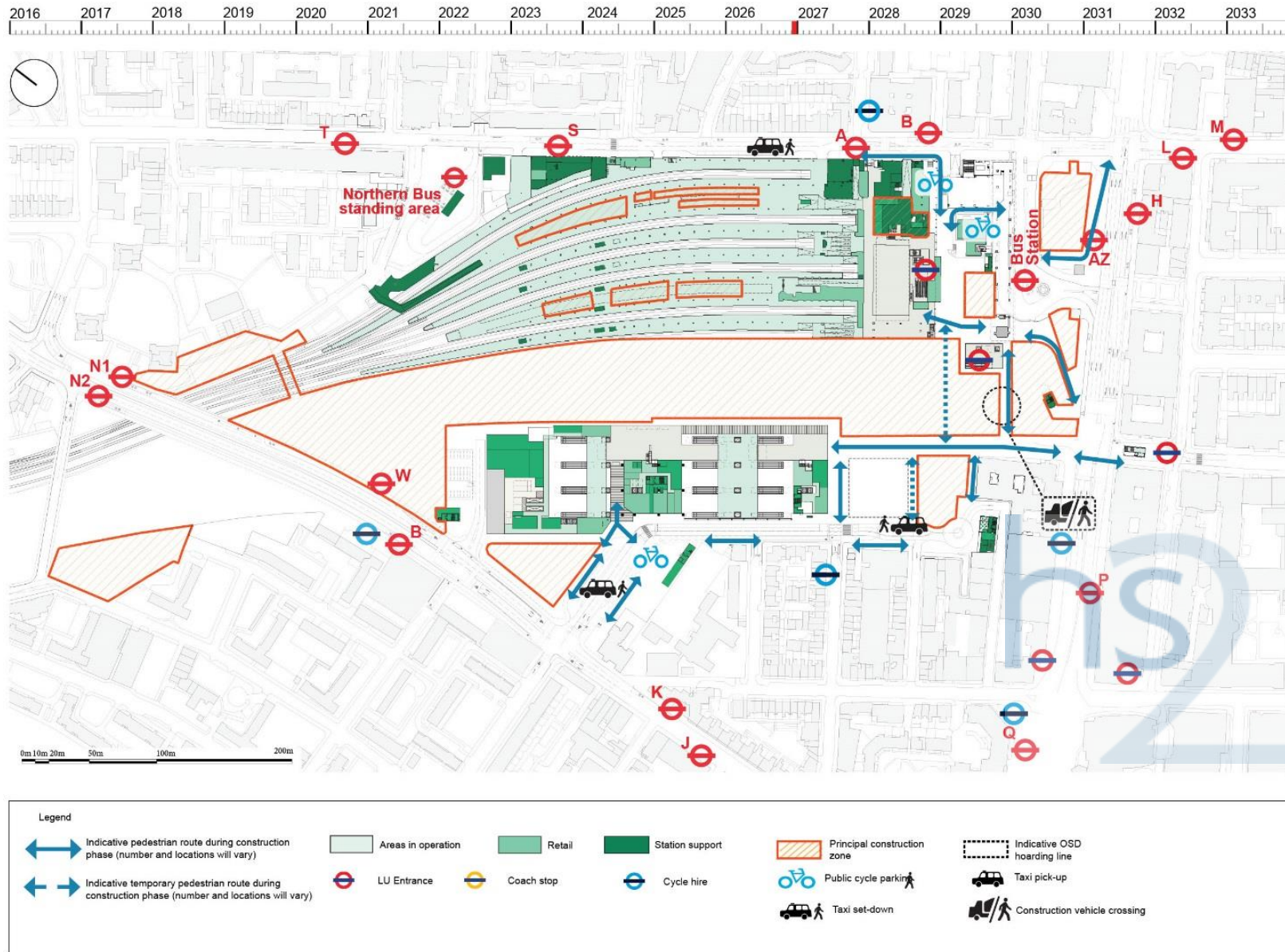
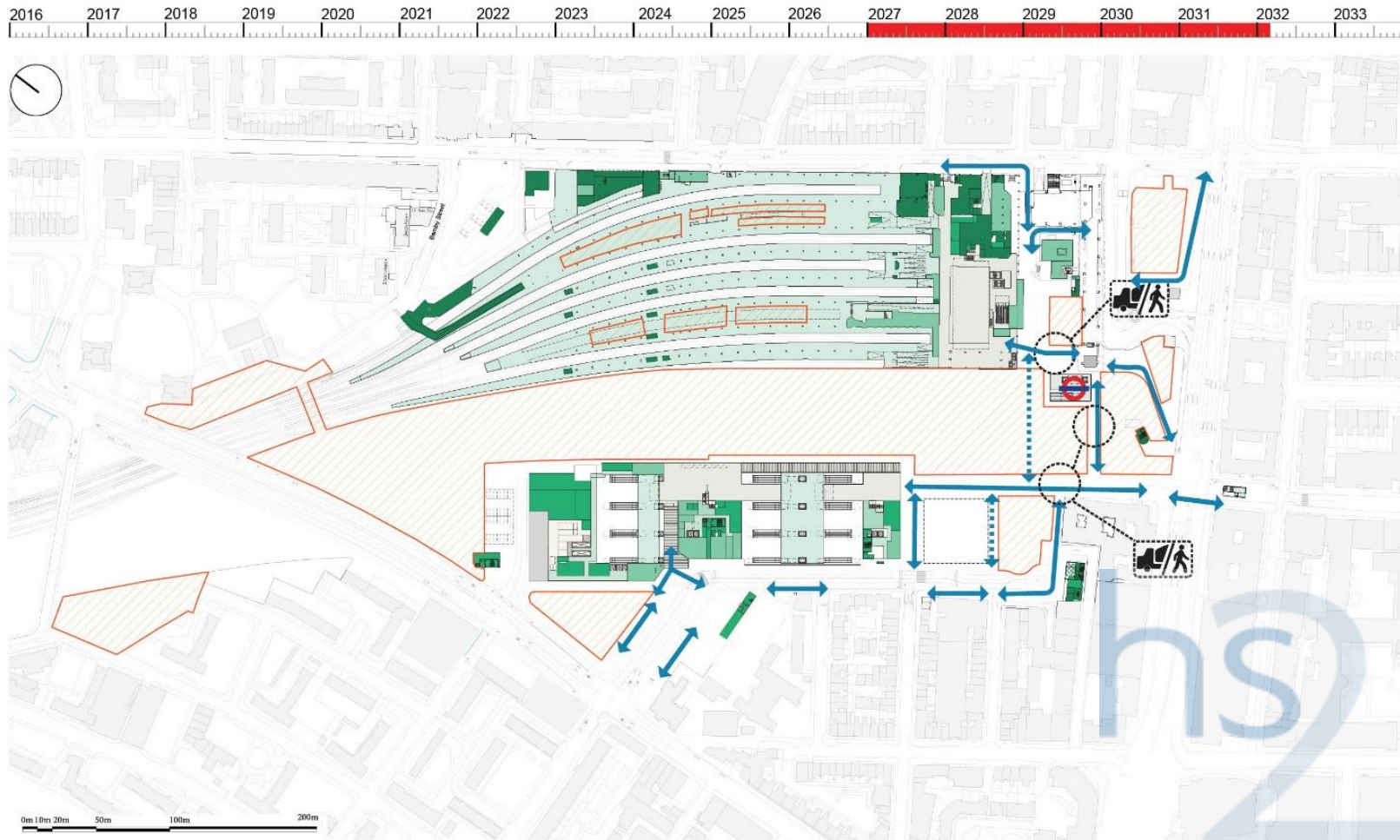


Figure 71: Pedestrian access to Euston station - December 2026 (HS2 Phase One opening)



- 3.3.68 Access to Euston station during construction stage B1 between January 2027 and February 2032 can be seen in Figure 72.
- 3.3.69 Between January 2027 and February 2032, the following facilities will be in place as part of HS2 Phase One:
- relocated taxi set-down, rank and pick-up on Cobourg Street accessed via walking route (Drummond street alignment);
  - additional cycle parking provided adjacent to Cobourg Street entrance with access via A400 Hampstead Road or Drummond Street / Cobourg Street;
  - new Euston Square link and Gordon Street entrance open; and
  - bus stop P moved back to its original location.
- 3.3.70 Access to Euston station between March 2032 and July 2032 can be seen in Figure 73.
- 3.3.71 No changes to the pedestrian access to Euston station take place between March 2032 and July 2032.

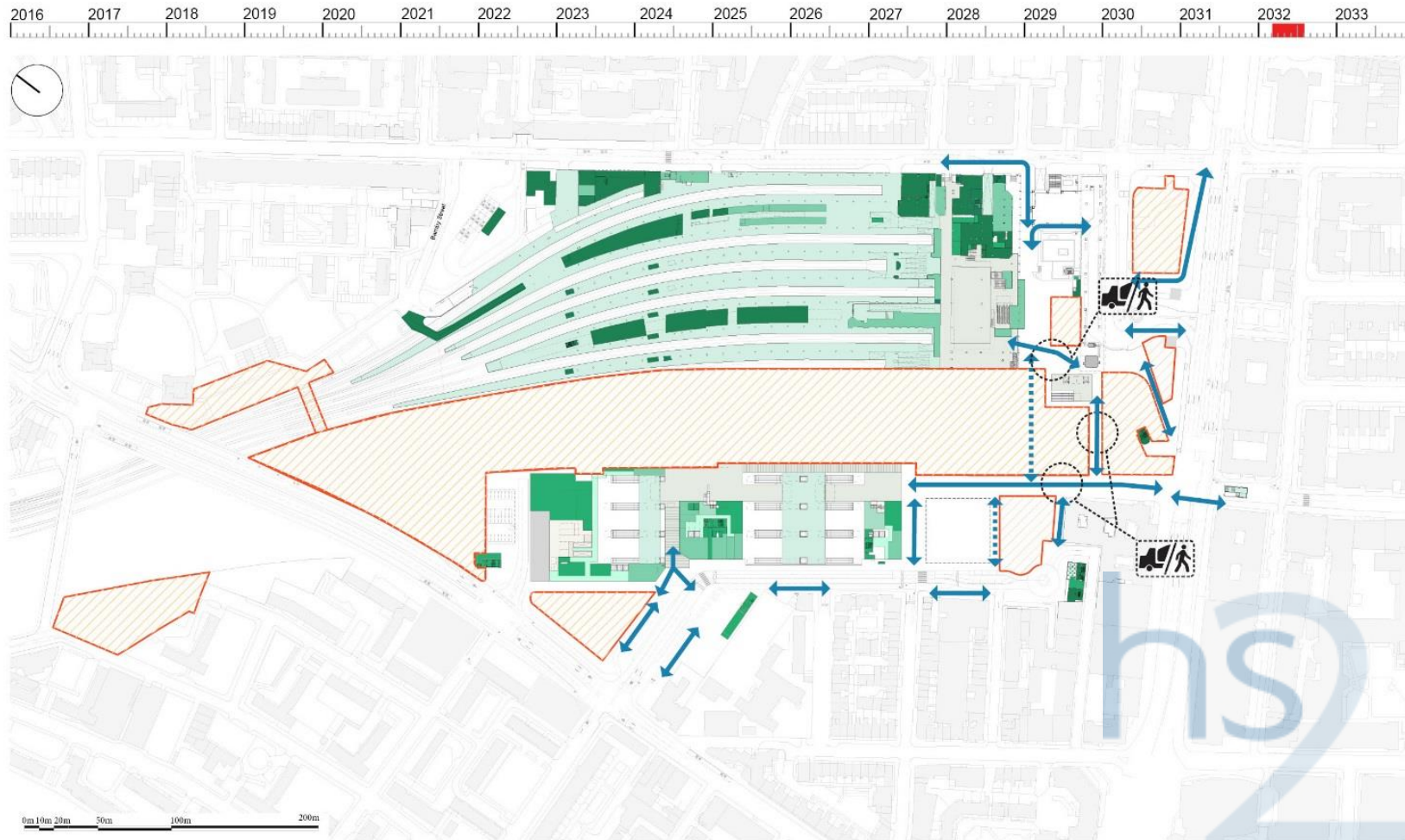
Figure 72: Pedestrian access to Euston station - January 2027 to February 2032



| Legend |  |  |                               |  |                              |
|--------|--|--|-------------------------------|--|------------------------------|
|        | Indicative pedestrian route during construction phase (number and locations will vary)           |  | Areas in operation            |  | Retail                       |
|        | Indicative temporary pedestrian route during construction phase (number and locations will vary) |  | LU Entrance                   |  | Station support              |
|        |  |  | Cycle hire                    |  | Principal construction zone  |
|        |  |  | Public cycle parking          |  | Indicative OSD hoarding line |
|        |  |  | Taxi set-down                 |  | Taxi pick-up                 |
|        |  |  | Construction vehicle crossing |  |                              |

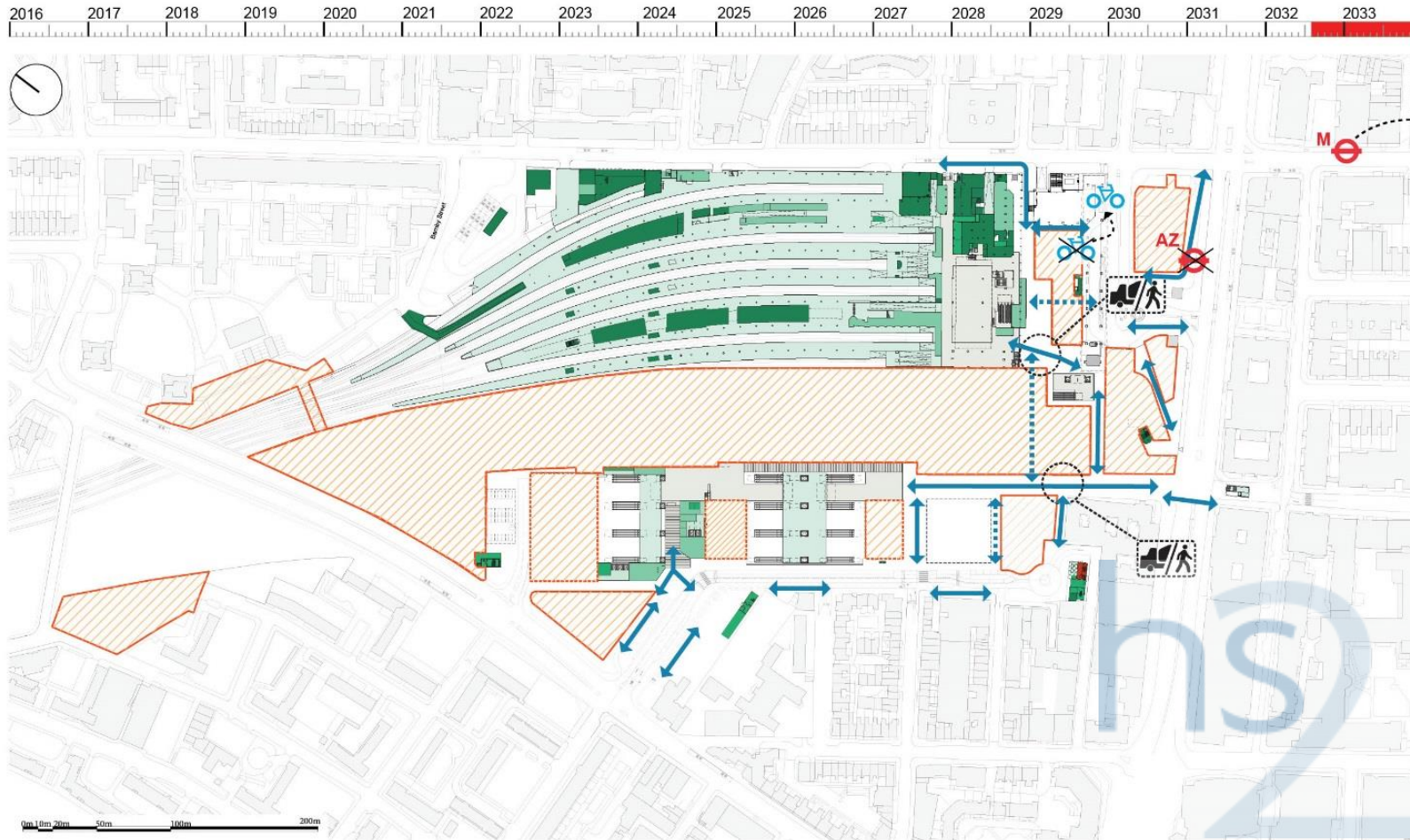


Figure 73: Pedestrian access to Euston station - March 2032 to July 2032



- 3.3.72 Access to Euston station between August 2032 and December 2033 can be seen in Figure 74.
- 3.3.73 Between August 2032 and December 2033, the following changes take place:
- Bus stop AZ is removed;
  - The cycle parking behind Nandos and Café Rouge at the front of the station is relocated to a new location near A4200 Eversholt Street; and
  - Bus stop M is relocated further south.
- 3.3.74 Access to Euston station when Euston station is fully operational in December 2033, for the commencement of HS2 Phase Two operations (completion of construction stage B1 construction), can be seen in Figure 75.
- 3.3.75 Upon completion of the HS2 Phase Two station at the end of construction stage B1 construction at the end of 2033, the following facilities will be in place:
- new linear bus station open and in operation;
  - all new bus stop locations in operation;
  - all pedestrian paths within Euston Square Gardens open permanently;
  - new taxi drop-off and pick-up facility complete and in operation at the north of the station and accessed from A400 Hampstead Road;
  - private car set-down in operation at the west of the station and accessed at the junction of A400 Hampstead Road with Robert Street;
  - new cycle parking provided on A4200 Eversholt Street (close to the northern bus standing area), in the Euston Square Gardens (west), on Gordon Street and at the southern end of Cobourg Street; and
  - a new Cycle Hire station on Endsleigh Gardens at Gordon Street.

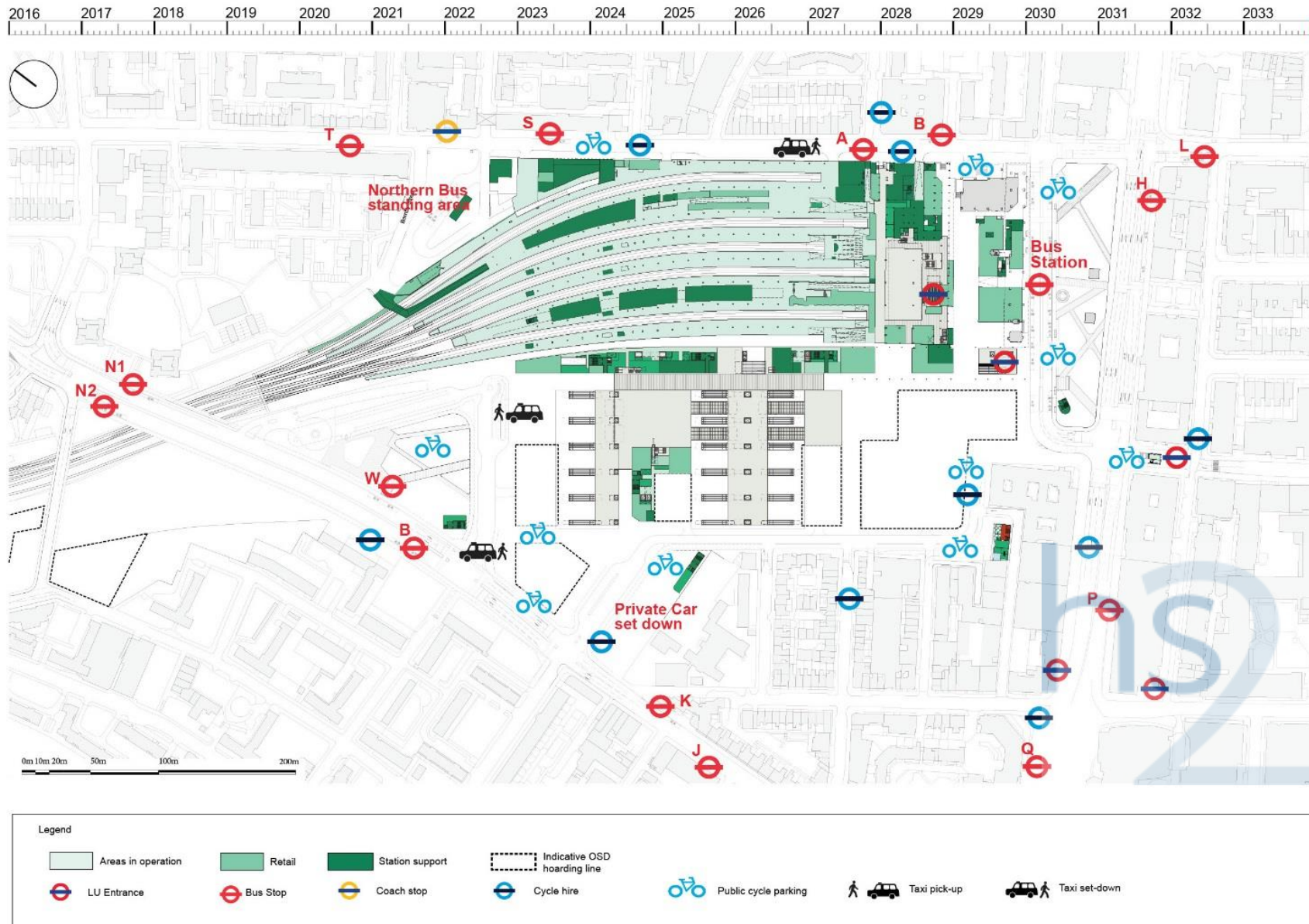
Figure 74: Pedestrian access to Euston station - August 2032 to December 2033



| Legend |  |  |                             |  |                              |  |                               |
|--------|--|--|-----------------------------|--|------------------------------|--|-------------------------------|
|        | Indicative pedestrian route during construction phase (number and locations will vary)           |  | Areas in operation          |  | Retail                       |  | Station support               |
|        | Indicative temporary pedestrian route during construction phase (number and locations will vary) |  | Principal construction zone |  | Indicative OSD hoarding line |  | Construction vehicle crossing |

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Figure 75: Pedestrian access to Euston station (December 2033 - Euston station fully operational for HS2 Phase 2)



*Measures included in the revised scheme*

3.3.76 The following measures have been included as part of the engineering design of the Construction Stages A and B1 of revised scheme, and will avoid or reduce impacts on transport users:

- HGV routeing as far as possible along the strategic road network and using designated roads for access. These routes are shown on Map CT-05-001 (Volume 2, CFA1 Map Book).
- Site workers to use public transport to access the site with no on-site workers' parking.
- The A400 Hampstead Road overbridge will require reconstruction. Throughout reconstruction, two lanes of traffic will be maintained (one lane of traffic will be kept open in each direction). In addition, a cycle lane will be provided in each direction alongside the general traffic lanes for the first stage of the works, while a segregated two-way cycle lane will be provided adjacent to the northbound carriageway. A footway will be maintained at all times during construction.
- The proposed sub-surface pedestrian route under Euston Square Gardens and across A501 Euston Road and the connections to the Euston Square underground station platforms will be constructed using open cut excavation techniques and will include diversion of various utilities that will require the temporary closure of the eastbound and westbound bus lanes on A501 Euston Road. Construction will be phased across the road, in order to maintain two lanes in each direction, compared to the existing three lanes (including bus lanes) in each direction. However, it is anticipated that a minimum of two weekend closures of A501 Euston Road will be required as part of the construction of the new subway under A501 Euston Road which requires the local removal of the crown of the sub-surface (Metropolitan, Hammersmith & City and Circle) lines.
- Passenger access by car will be retained with temporary facilities for passenger drop-off in A4200 Eversholt Street, although no public car parking will be provided during construction phases.
- The revised scheme proposes that the temporary taxi facilities will, initially, be located to the west side of Euston Square Gardens. Due to phasing of the station works, it will be necessary to relocate the temporary taxi facilities to A4200 Eversholt Street, then to Cobourg Street before the final permanent location at the rear of the station.
- Cycle parking capacity will be maintained and specific temporary cycle parking locations proposed in consultation with TfL and LBC, as required. Any cycle hire docking stations affected by construction will be relocated.

3.3.77 The draft Code of Construction Practice (CoCP) (see Volume 5: Appendix CT-003-000/1) will seek to reduce deliveries of construction materials and equipment, thus

minimising construction lorry trip generation, especially during peak traffic periods. The draft CoCP will include HGV management and control measures.

- 3.3.78 The number of private car trips to and from the site (both workforce and visitors) will be minimised with no provision for workers' parking. This objective will be supported through an over-arching framework travel plan<sup>11</sup> (see hybrid Bill document TR-001-000, ES Volume 3, Part 5) that will require travel plans to be used along with a range of potential measures to mitigate the impacts of traffic and transport movements associated with construction of the revised scheme. As part of this, a construction workforce travel plan will be put into operation with the aim of encouraging the use of sustainable modes of transport.
- 3.3.79 The measures in the draft CoCP include clear controls on vehicle types, hours of site operation, and routes for heavy goods vehicles, to reduce the impact of road-based construction traffic. In order to achieve this, generic and site specific traffic management measures will be implemented on or adjacent to public roads and footpaths used by the public affected by the revised scheme, as necessary.
- 3.3.80 Specific management measures will include:
- the core site operating hours, as set out in the draft CoCP, will be 08:00 to 18:00 on weekdays and 08:00 to 13:00 on Saturdays; and
  - site staff and workers will generally arrive before the morning peak hour and depart after the evening peak hour, although certain specific construction activities will require extended working hours for reasons of engineering practicability (draft CoCP Section 5.2).
- 3.3.81 Planned Network Rail track possessions will be used to facilitate civil engineering works affecting the existing rail network. These possessions will be generally limited to weekends and mid-week nights to facilitate those construction activities planned outside the core working hours and to reduce disruption to rail passengers.

### **Euston - Station and Approach (CFA1) construction Stage A impacts**

- 3.3.82 Throughout this section, where the AM and PM peak periods and hours are referred to these relate to the following times of day:
- AM peak period - 07:00 to 10:00;
  - AM peak hour - 08:00 to 09:00;
  - PM peak period - 16:00 to 19:00; and
  - PM peak hour - 17:00 to 18:00 for highways and 18:00 to 19:00 for public transport (NR, LU and buses).

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<sup>11</sup> Construction and operational travel plans will promote the use of sustainable transport modes as appropriate to the location and types of trip. They will include measures such as: provision of information on and promotion of public transport services; provision of good cycle and pedestrian facilities; liaison with public transport operators; promotion of car sharing; and the appointment of a travel plan coordinator to ensure suitable measures are in place and are effective.

### *Key construction transport issues*

3.3.83 Traffic and transport impacts will arise from the following construction activities:

- removal of excavated material;
- delivery of construction materials;
- utility works;
- working activity;
- disruption to rail services;
- diversions and road closures (both temporary and permanent); and
- construction activities and diversions from adjacent CFA.

3.3.84 Construction of the revised scheme in the Euston area will have temporary impacts which will include increased traffic demand on a number of roads through the area associated with material movement and delivery of construction materials and traffic diversions resulting from the temporary closure of roads and/or footpaths requiring diversion routes for users. Utility works will also result in shuttle working on a number of roads.

3.3.85 Construction of the revised scheme will also have an impact on public transport, including the potential for a reduction in the available NR services and the potential requirement for temporary closure of some LU platforms at Euston station. Interchange performance at Euston station will, however, be maintained throughout construction.

3.3.86 The following sections consider in detail the impacts of construction activities.

### *Rail*

3.3.87 A number of interventions on the conventional rail network are proposed to allow the interface between high speed and conventional railways to be established. Two main types of intervention are proposed. First, possessions to maintain safety while civil engineering works are taking place over, under or adjacent to the existing railway. Secondly, possessions to enable alterations to be made to the existing railway to accommodate the revised scheme.

3.3.88 Railway works will be planned with NR to ensure that disruption to passengers and freight is minimised as far as reasonably practicable. This includes measures such as:

- careful programming of works to coincide with possessions that are planned for the general maintenance of the existing railway;
- planning works so that they will be undertaken in short, overnight stages when passenger services will not be disrupted; and
- programming longer closures at weekends or bank holidays to minimise the number of passengers affected.

3.3.89 There will be a large number of individual interventions in the Euston area. These will be included in a number of standard possessions which vary in duration depending on

the scale and complexity of the works planned. These range from mid-week night possessions, through to weekend possessions and bank holiday weekend possessions and longer blockade to carry out major track reconfiguration works. The majority of the possessions will have little or no impact on the operation of Euston and its conventional rail services as they are relatively minor localised works, such as work on and adjacent to track not in use overnight or at weekends when station use is less intense. In addition, many of the interventions will be combined to reduce the frequency of potential disruption. It is expected that there will be a number of possessions that will have the potential for substantial disruption to passengers, which includes some weekend closures.

### Line X

- 3.3.90 Line X in the approach to Euston station provides a grade-separated link from the fast lines approaching the station to the platforms on the east of the station. Line X will be retained as part of the revised scheme. Line X provides additional flexibility and resilience to the operation of the conventional station. However, during construction of the high speed approach, Line X will be temporarily closed for a three year period between 2018 and 2021. The temporary closure of Line X has the potential to adversely impact the resilience and flexibility of operation of the conventional station and WCML services during this period.
- 3.3.91 To mitigate any adverse impacts due to Line X closure during the works, train operating companies and NR will need to consider a range of mitigation measures. These will include, for example, consideration of de-classification<sup>12</sup> of services and reduced turn-round times for services.
- 3.3.92 It is possible that it will be necessary to temporarily suspend some services to ensure resilience of the remaining services. While off-peak and weekend services are likely to be affected, some alterations to peak services may be required and would be likely to be accompanied by other measures to minimise the impacts, which could include:
- lengthening of trains;
  - changes to stopping patterns; and
  - extension of services to other stations.
- 3.3.93 To illustrate the potential impacts, an assessment has been undertaken of withdrawing two AM peak Watford Junction to Euston services and one PM peak Euston to Watford Junction service.
- 3.3.94 This assessment indicates that passengers diverting from the withdrawn services would be likely to use the following lines as an alternative:
- over 50% would use Metropolitan and Jubilee line services from Finchley Road southbound;
  - under 10% would use the Northern line (Edgware branch) southbound;

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<sup>12</sup> allowing rail passengers with standard class tickets to sit in first class carriages



- 5% would use the Bakerloo line southbound; and
- 4% would use the Northern line (Mill Hill/High Barnet branch) southbound.

3.3.95 Analysis indicates that the percentage change in journey time will be less than 10% and relatively few passengers would be affected.

### *Underground*

3.3.96 During the construction period, LU services via Euston LU station will continue to operate. However, construction of the new escalators and lifts to the underground are likely to require some closures of the underground platforms at Euston LU station where LU services would not call at the affected platforms. Further design development will seek to reduce any through-running where possible. However, the current assumption is that the following will be necessary:

- The southbound Northern line (Bank branch) platform being closed during construction of the new escalator barrel, lowering of the ticket hall and cross passage connections. Trains on this line will not stop at Euston for a three-month period from mid-May 2022 to mid-August 2022.
- On the Victoria line and the Northern line (Bank branch), northbound platforms being closed simultaneously during construction of the new escalator barrel, lowering of the ticket hall and construction of cross passage connections. Trains on these lines will not stop at Euston for a five-month period from early October 2022 to late February 2023.
- On the Northern line (Charing Cross branch), simultaneous northbound and southbound platform closures during construction of the lower lift shaft, lower lobby, cross passage and stair connection. Trains on this line will not stop at Euston for a three-month period from early January 2032 to early April 2032.

3.3.97 In broad terms, the platform closures would result in disruption to passengers during these periods with potential re-routeing onto alternative LU services, interchange at alternative locations, increases in walk journeys from adjacent stations and increases in short distance bus journeys. Changed interchange patterns may also result in increased congestion at affected stations. The impact of end to end journey times is:

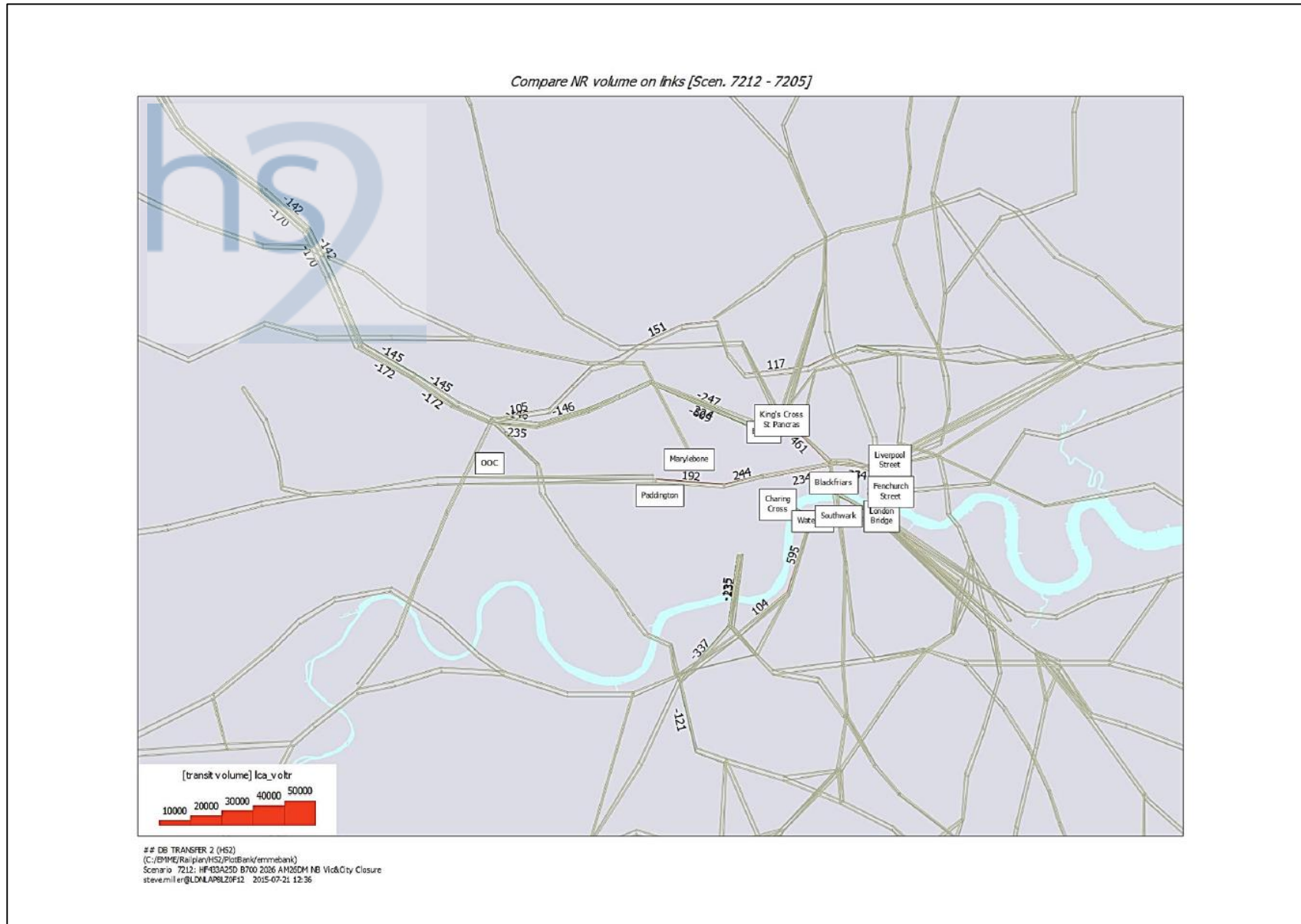
- Northern line (Bank branch) southbound platform closure average journey time increase of around 3.5% for both the AM and PM peak periods;
- Victoria line and Northern line (Bank branch) northbound platform closure, - average journey time increase of around 2.5% for the AM and 4% for the PM peak periods; and
- Northern line (Charing Cross branch) northbound and southbound platform closures, with an average journey time increase of around 2.0% for the AM peak period and 2.7 % for the PM peak period.

### **Northbound Victoria line and the Northern line (Bank branch)**

- 3.3.98 With the northbound Victoria line and northbound Northern line (Bank branch) platform closures, passengers who would have interchanged at Euston will be likely to interchange between the Northern line and Victoria line at Warren Street or Kings Cross or instead use the Northern line Charing Cross branch. Some passengers would enter or leave the underground at Warren Street station or King's Cross St. Pancras and walk to or from Euston station Table 77 to Figure 79 show the impact of the through running of the Victoria line and Northern line (Bank branch) northbound services on the AM peak hour rail, underground, bus and walk networks. Impacts in the PM peak are similar. Apart from the reductions in LU flows, the key impacts are:
- rail - diversion of inbound trips from Victoria to Waterloo and increase in Thameslink demand towards Kings Cross;
  - bus - increases in bus demand in both directions along Euston Road towards Angel; and
  - walk - increases in walk demand from Warren Street and Kings Cross.
- 3.3.99 In Figure 76 to Figure 79, the green bandwidths indicate a decrease in flows while the red bandwidths indicate an increase.

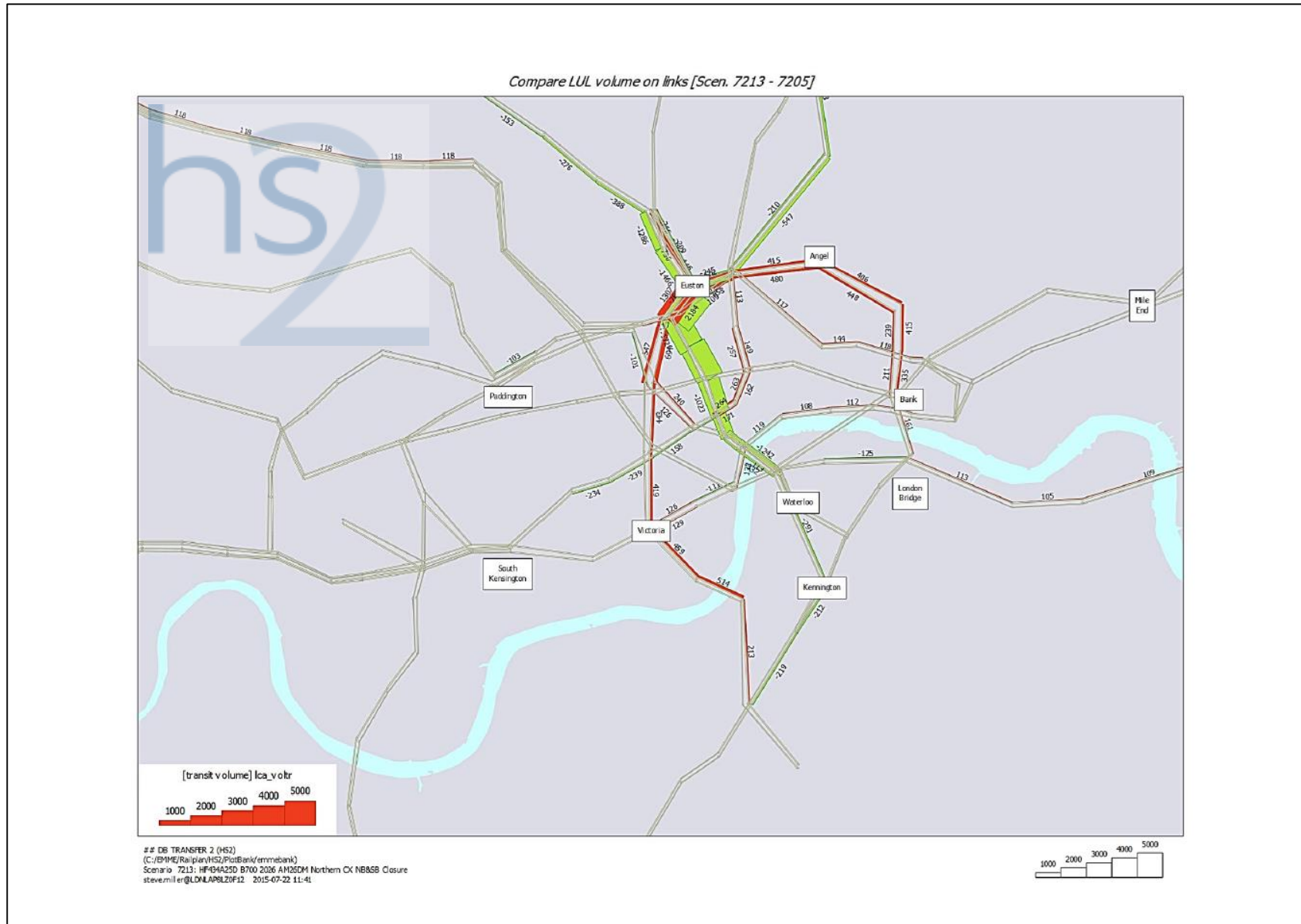
# SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

Figure 76: Victoria line and Northern line (Bank branch) northbound platform closures - AM peak hour impact on rail flows



# SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

Figure 77: Victoria line and Northern line (Bank branch) northbound platform closures - AM peak hour impact on underground flows



# SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

Figure 78: Victoria line and Northern line (Bank branch) northbound platform closures - AM peak hour impact on bus flows

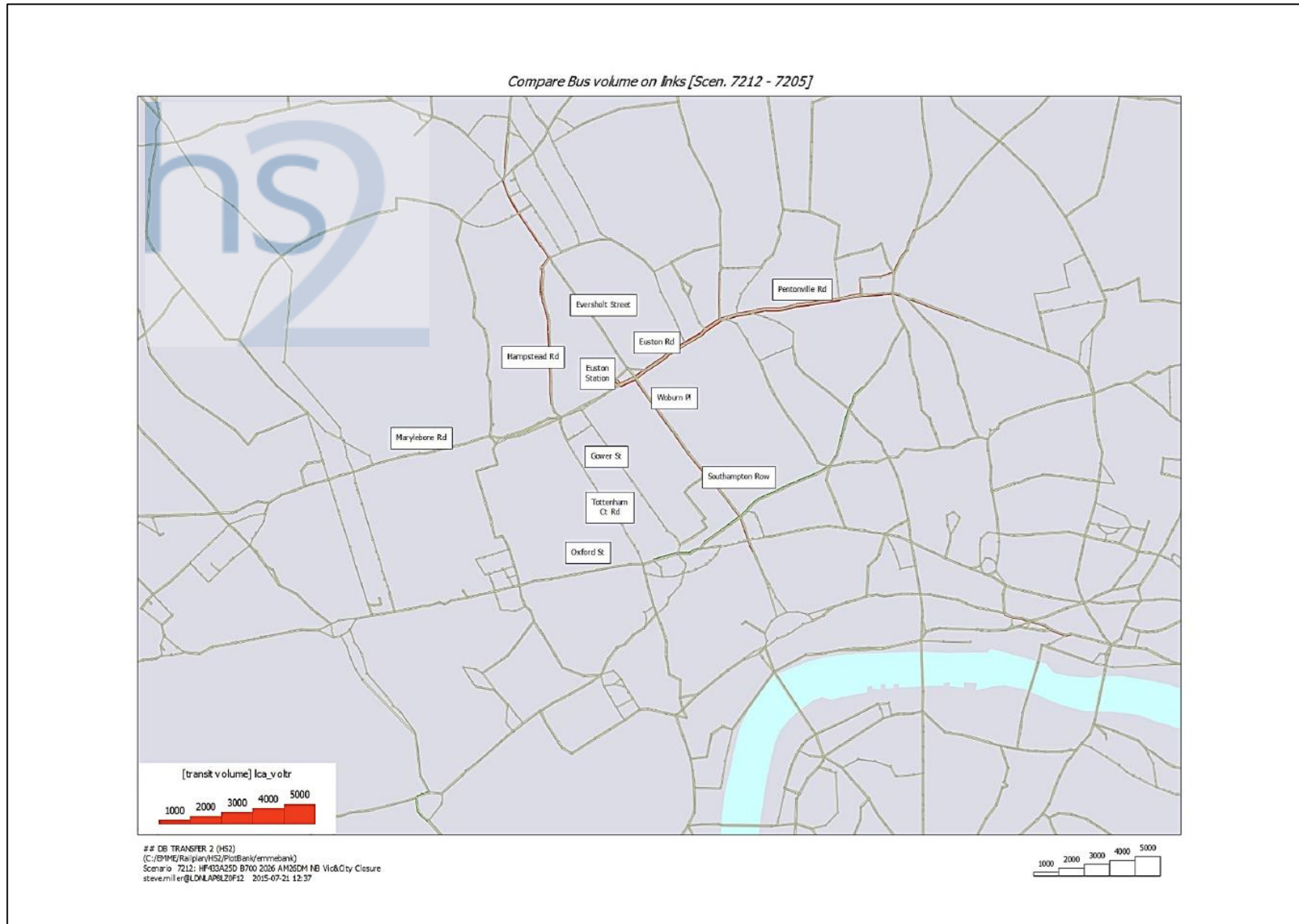
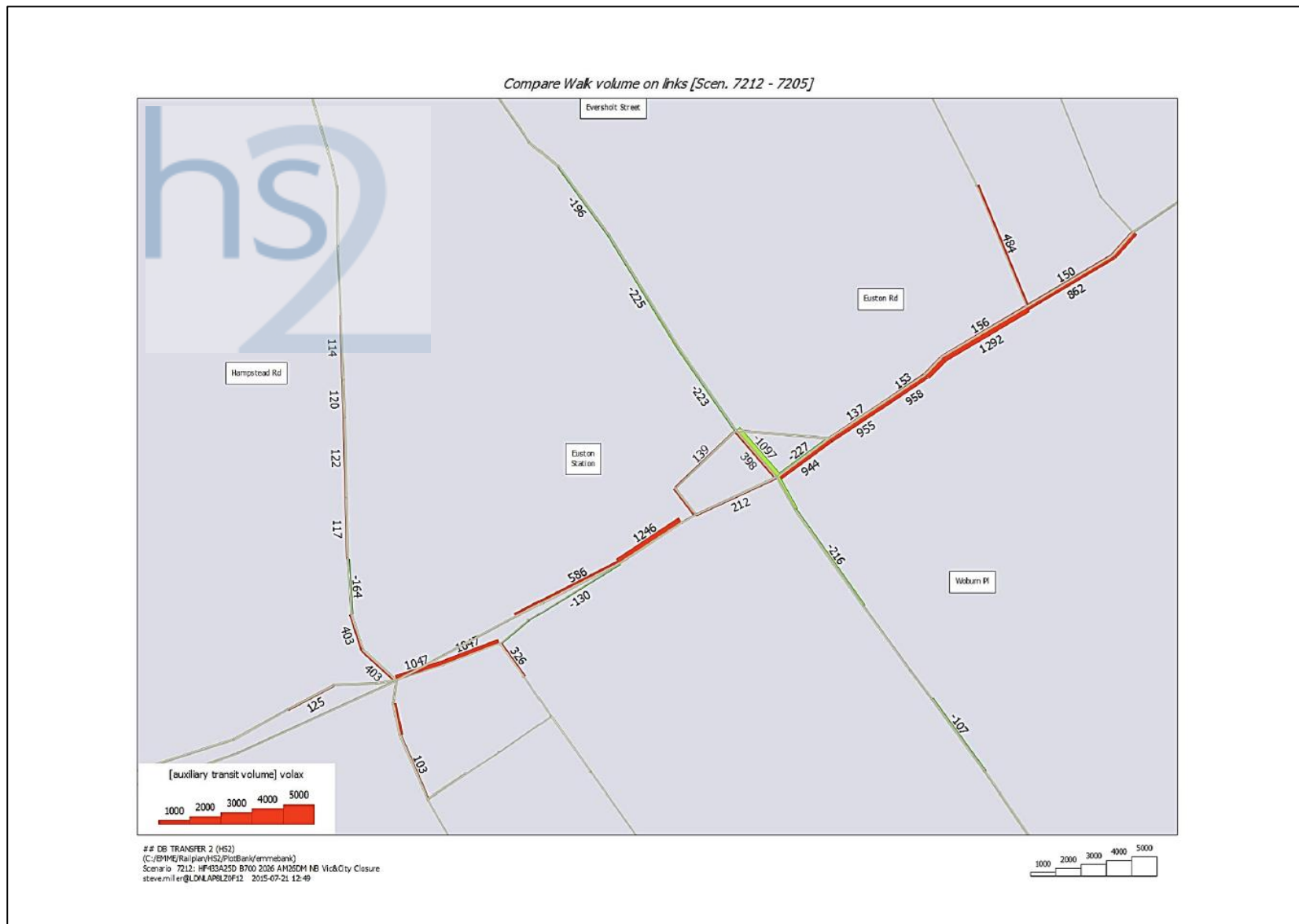


Figure 79: Victoria line and Northern line (Bank branch) northbound platform closures - AM peak hour impact on walking



- 3.3.100 The northbound Victoria line and northbound Northern line (Bank branch) platform closures impact on crowding, with an increase in crowding of approximately 1 PPSM on the Northern line (Charing Cross branch) in both directions between Goodge Street and Euston, as a result of passengers diverting onto these services. This would increase crowding to just over 4 PPSM in the southbound direction between Euston and Warren Street in the southbound direction. As this is a relatively short section of overcrowding, this could be mitigated through the provision of additional platform supervision at Warren Street to manage disruption. Passengers could also be encouraged to alight at Warren Street and walk to Euston.
- 3.3.101 Table 68 shows a 28% decrease in total AM peak boarders and alighters, and Table 69 shows a 45% decrease in total PM peak boarders and alighters at Euston. However, the tables show increases in boarders and alighters on the northbound Northern line (Charing Cross branch) in both the AM and PM peak periods.

Table 68: 2026 AM peak period (07:00 to 10:00) Euston station NR demand - Victoria line and Northern line (Bank branch) northbound platform closures

| Description                                     | 2026 baseline |        |        | 2026 northbound Victoria line / Northern line (Bank branch) closure |        |        |
|---|---------------|--------|--------|---|--------|--------|
|   | Board         | Alight | Total  | Board   | Alight | Total  |
| <b>Euston LU</b>                                |               |        |        |   |        |        |
| Northern line Charing Cross branch (northbound) | 2,738         | 2,038  | 4,776  | 3,090   | 5,299  | 8,389  |
| Northern line Charing Cross branch (southbound) | 6,666         | 2,256  | 8,922  | 6,602   | 1,474  | 8,076  |
| Northern line Bank branch (northbound)          | 4,594         | 4,467  | 9,061  | -   | -      | 0      |
| Northern line Bank branch (southbound)          | 7,626         | 9,540  | 17,166 | 7,622   | 8,955  | 16,577 |
| Victoria line (northbound)                      | 3,540         | 10,286 | 13,826 | -   | -      | 0      |
| Victoria line (southbound)                      | 13,855        | 6,853  | 20,708 | 13,650  | 6,951  | 20,601 |
| Sub-total: Euston LU                            | 39,019        | 35,440 | 74,459 | 30,964  | 22,679 | 53,643 |
| <b>Euston Square LU</b>                         |               |        |        |   |        |        |
| Metropolitan line (northbound/westbound)        | 2,363         | 7,287  | 9,650  | 2,365   | 7,929  | 10,294 |
| Metropolitan line (southbound/eastbound)        | 5,403         | 6,134  | 11,537 | 5,456   | 6,248  | 11,704 |
| Sub-total: Euston Square LU                     | 7,766         | 13,421 | 21,187 | 7,821   | 14,177 | 21,998 |

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Table 69: 2026 PM peak period (16:00 to 19:00) Euston station NR demand - Victoria line and Northern line (Bank branch) northbound platform closures

| Description                                     | 2026 baseline |        |        | 2026 northbound Victoria line / Northern line (Bank branch) closure |        |        |
|---|---------------|--------|--------|---|--------|--------|
|   | Board         | Alight | Total  | Board   | Alight | Total  |
| <b>Euston LU</b>                                |               |        |        |   |        |        |
| Northern line Charing Cross branch (northbound) | 2,443         | 3,471  | 5,914  | 2,550   | 9,008  | 11,558 |
| Northern line Charing Cross branch (southbound) | 4,829         | 2,307  | 7,136  | 4,770   | 665    | 5,435  |
| Northern line Bank branch (northbound)          | 9,152         | 8,893  | 18,045 | -   | -      | 0      |
| Northern line Bank branch (southbound)          | 5,008         | 5,322  | 10,330 | 5,600   | 5,309  | 10,909 |
| Victoria line (northbound)                      | 4,159         | 18,728 | 22,887 | -   | -      | 0      |
| Victoria line (southbound)                      | 9,950         | 3,988  | 13,938 | 9,934   | 5,341  | 15,275 |
| Sub-total: Euston LU                            | 35,541        | 42,709 | 78,250 | 22,854  | 20,323 | 43,177 |
| <b>Euston Square LU</b>                         |               |        |        |   |        |        |
| Metropolitan line (northbound/westbound)        | 4,102         | 5,740  | 9,842  | 4,107   | 7,822  | 11,929 |
| Metropolitan line (southbound/eastbound)        | 5,684         | 2,352  | 8,036  | 5,787   | 2,507  | 8,294  |
| Sub-total: Euston Square LU                     | 9,786         | 8,092  | 17,878 | 9,894   | 10,329 | 20,223 |

3.3.102 Table 70 shows the impact of the closure on line flows with a 20% AM peak decrease on the northbound Victoria line south of Euston and a 10% AM peak decrease on the northbound Northern line (Bank branch). There are corresponding increases on the Northern line (Charing Cross branch). As the majority of Victoria line passengers alight during the morning peak, with relatively few boarders, the northbound Victoria line flow north of Euston is largely unchanged.

Table 70: 2026 passenger flows (AM and PM peak periods) - underground - Victoria line and Northern line (Bank branch) northbound platform closures

| Service                         | Direction  | AM peak period (07:00-10:00) |  |              | PM peak period (16:00-19:00) |  |              |
|---------------------------------|------------|------------------------------|--|--------------|------------------------------|--|--------------|
|                                 |            | 2026 baseline                | 2026 Victoria line / Northern line (Bank branch) closure | % difference | 2026 baseline                | 2026 Victoria line / Northern line (Bank branch) closure | % difference |
| Victoria line (north of Euston) | Northbound | 24,869                       | 25,139   | 1%           | 57,172                       | 58,239   | 2%           |
|                                 | Southbound | 63,201                       | 63,455   | 0%           | 35,501                       | 36,830   | 4%           |



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| Service  | Direction  | AM peak period (07:00-10:00) |  |              | PM peak period (16:00-19:00) |  |              |
|--|------------|------------------------------|--|--------------|------------------------------|--|--------------|
|  |            | 2026 baseline                | 2026 Victoria line / Northern line (Bank branch) closure | % difference | 2026 baseline                | 2026 Victoria line / Northern line (Bank branch) closure | % difference |
| Victoria line (south of Euston)                            | Northbound | 31,614                       | 25,139   | -20%         | 71,742                       | 58,239   | -19%         |
|  | Southbound | 70,204                       | 70,154   | 0%           | 41,463                       | 41,423   | 0%           |
| Northern line Bank branch (north of Euston)                | Northbound | 20,913                       | 18,683   | -11%         | 35,663                       | 32,312   | -9%          |
|  | Southbound | 41,199                       | 41,177   | 0%           | 24,036                       | 24,430   | 2%           |
| Northern line Bank branch (south of Euston)                | Northbound | 20,786                       | 18,683   | -10%         | 35,404                       | 32,312   | -9%          |
|  | Southbound | 39,285                       | 39,843   | 1%           | 23,722                       | 24,722   | 4%           |
| Northern line Charing Cross branch (north of Euston)       | Northbound | 14,518                       | 16,064   | 11%          | 35,397                       | 37,352   | 6%           |
|  | Southbound | 37,791                       | 37,651   | 0%           | 22,482                       | 21,841   | -3%          |
| Northern line Charing Cross branch (south of Euston)       | Northbound | 13,818                       | 18,273   | 32%          | 36,426                       | 43,810   | 20%          |
|  | Southbound | 42,201                       | 42,779   | 1%           | 25,004                       | 25,945   | 4%           |
| Metropolitan, H&C and Circle lines (west of Euston Square) | Eastbound  | 51,271                       | 51,512   | 0%           | 42,326                       | 42,222   | 0%           |
|  | Westbound  | 39,951                       | 39,812   | 0%           | 44,349                       | 44,158   | 0%           |
| Metropolitan, H&C and Circle lines (east of Euston Square) | Eastbound  | 50,540                       | 50,720   | 0%           | 45,658                       | 45,502   | 0%           |
|  | Westbound  | 44,875                       | 45,376   | 1%           | 45,988                       | 47,873   | 4%           |

3.3.103 Table 71 shows a 14% reduction in boarders, alighters and interchangers at Euston but with corresponding large increases at Warren Street, with smaller increases at Euston Square and Camden Town.

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Table 71: Station access, egress and interchange with platform closures - Victoria line and Northern line (Bank branch) northbound platform closures

| Station                          | 2026 baseline | 2026 Victoria line/<br>Northern line<br>(Bank branch)<br>closure | Absolute<br>difference | Relative difference |
|----------------------------------|---------------|--|------------------------|---------------------|
| Euston (including Euston Square) | 98,529        | 88,783   | -9,746                 | -10%                |
| Euston                           | 77,342        | 66,785   | -10,557                | -14%                |
| Euston Square                    | 21,187        | 21,998   | 811                    | 4%                  |
| Warren Street                    | 28,041        | 33,066   | 5,025                  | 18%                 |
| King's Cross                     | 72,755        | 76,847   | 4,092                  | 6%                  |
| Waterloo                         | 160,095       | 160,813  | 718                    | 0%                  |
| St Pancras                       | 22,975        | 23,535   | 560                    | 2%                  |
| Tottenham Court Road             | 48,483        | 48,986   | 503                    | 1%                  |
| Cannon Street                    | 31,105        | 31,343   | 238                    | 1%                  |
| Oxford Circus                    | 96,116        | 96,311   | 195                    | 0%                  |
| Aldgate                          | 18,680        | 18,874   | 194                    | 1%                  |
| Moorgate                         | 33,504        | 33,676   | 172                    | 1%                  |
| Charing Cross                    | 39,096        | 39,241   | 145                    | 0%                  |
| Liverpool Street                 | 119,679       | 119,817  | 138                    | 0%                  |
| Green Park                       | 39,586        | 39,719   | 133                    | 0%                  |
| Russell Square                   | 7,557         | 7,682  | 125                    | 2%                  |
| Old Street                       | 25,755        | 25,635   | -120                   | 0%                  |
| Leicester Square                 | 24,089        | 23,880   | -209                   | -1%                 |
| Farringdon                       | 85,500        | 85,187   | -313                   | 0%                  |
| Bank                             | 81,765        | 81,451   | -314                   | 0%                  |
| Victoria                         | 142,700       | 142,079  | -621                   | 0%                  |

| Station                   | 2026 baseline    | 2026 Victoria line/<br>Northern line<br>(Bank branch)<br>closure | Absolute<br>difference | Relative difference |
|---------------------------|------------------|--|------------------------|---------------------|
| London Bridge             | 141,013          | 140,346  | -667                   | 0%                  |
| Goodge Street             | 15,341           | 14,400   | -941                   | -6%                 |
| <b>Sub-total</b>          | <b>1,332,368</b> | <b>1,331,669</b>   | <b>-699</b>            | <b>0%</b>           |
| <b>Total (all Zone 1)</b> | <b>2,032,025</b> | <b>2,031,310</b>   | <b>-715</b>            | <b>0%</b>           |
| Camden Town               | 17,413           | 18,819   | 1,406                  | 8%                  |
| Mornington Crescent       | 3,327            | 3,269  | -58                    | -2%                 |

### Southbound Northern line (Bank branch)

3.3.104 With the Northern line (Bank branch) southbound platform closure, passengers travelling towards the City of London who would have interchanged at Euston will be likely to use the Northern line (Charing Cross branch) towards Kennington and then the Northern line (Bank branch) towards London Bridge; or, use the Metropolitan, Hammersmith & City or Circle lines to Moorgate before interchanging to the Northern line. Alternatively, passengers will use the Northern line and Victoria line and interchange at King's Cross St. Pancras or Warren Street. As well as passenger reductions on the southbound Northern line (Bank branch), there are consequential reductions on the southbound Victoria line, as the relatively easy interchange between the southbound Northern line (Bank branch) and Victoria line is removed. Apart from the changes in LU flows, the key impacts are:

- rail - reductions in West Coast Main Line (WCML) flows into Euston (primarily due to diversion to LU lines);
- walk - increases in walk demand towards Warren Street; and
- bus - increases in bus demand southbound from Camden Town along A400 Hampstead Road.

3.3.105 Figure 80 to Figure 83 show the impact of the through running of the Northern line (Bank branch) southbound services on the AM peak hour rail, underground, bus and walk networks. In Figure 80 to Figure 83, the green bandwidths indicate a decrease in flows while the red bandwidths indicate an increase.

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Figure 8o: Northern line Bank branch southbound platform closure - AM peak hour impact on rail flows

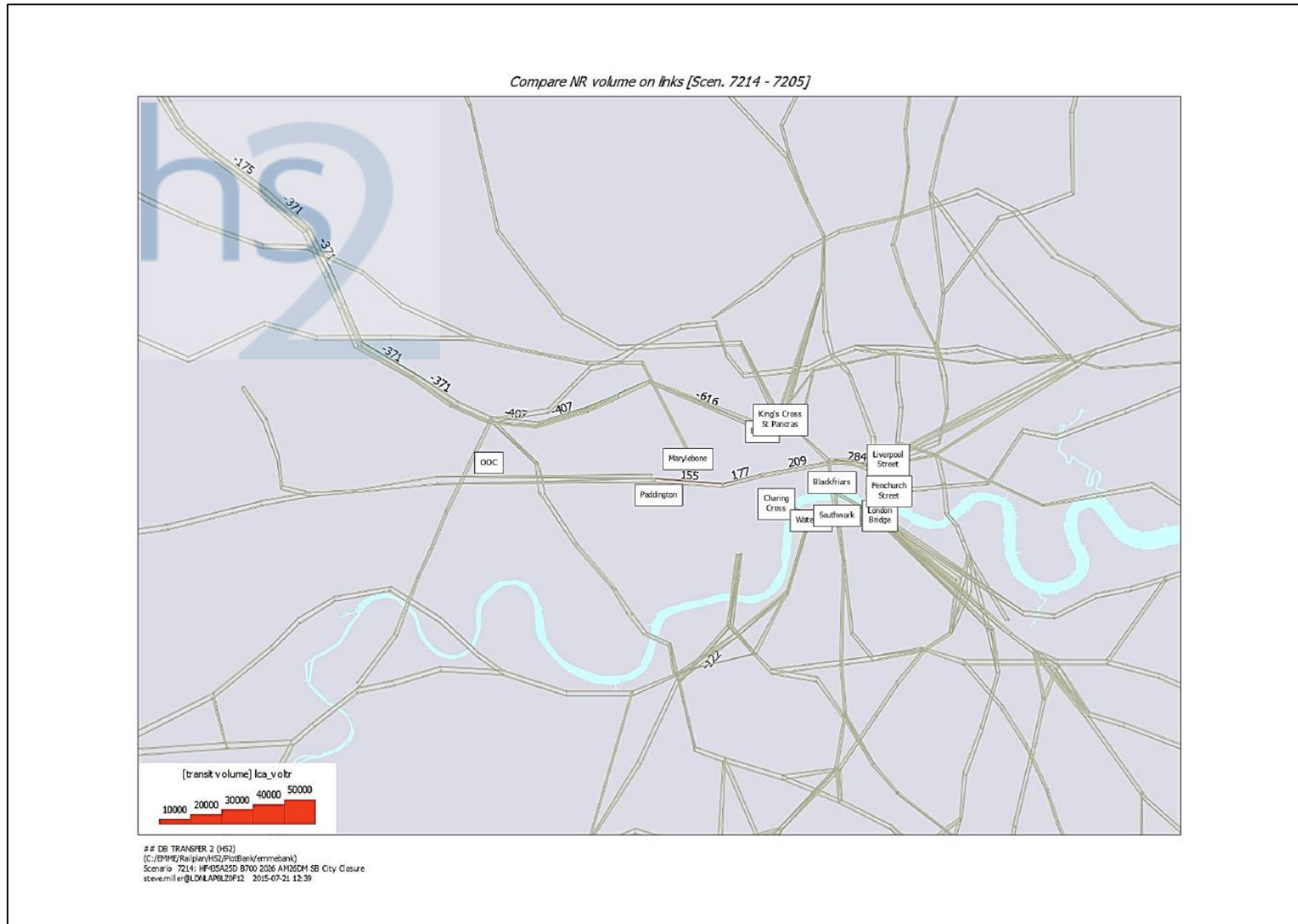


Figure 81: Northern line Bank branch southbound platform closure - AM peak hour impact on underground flows

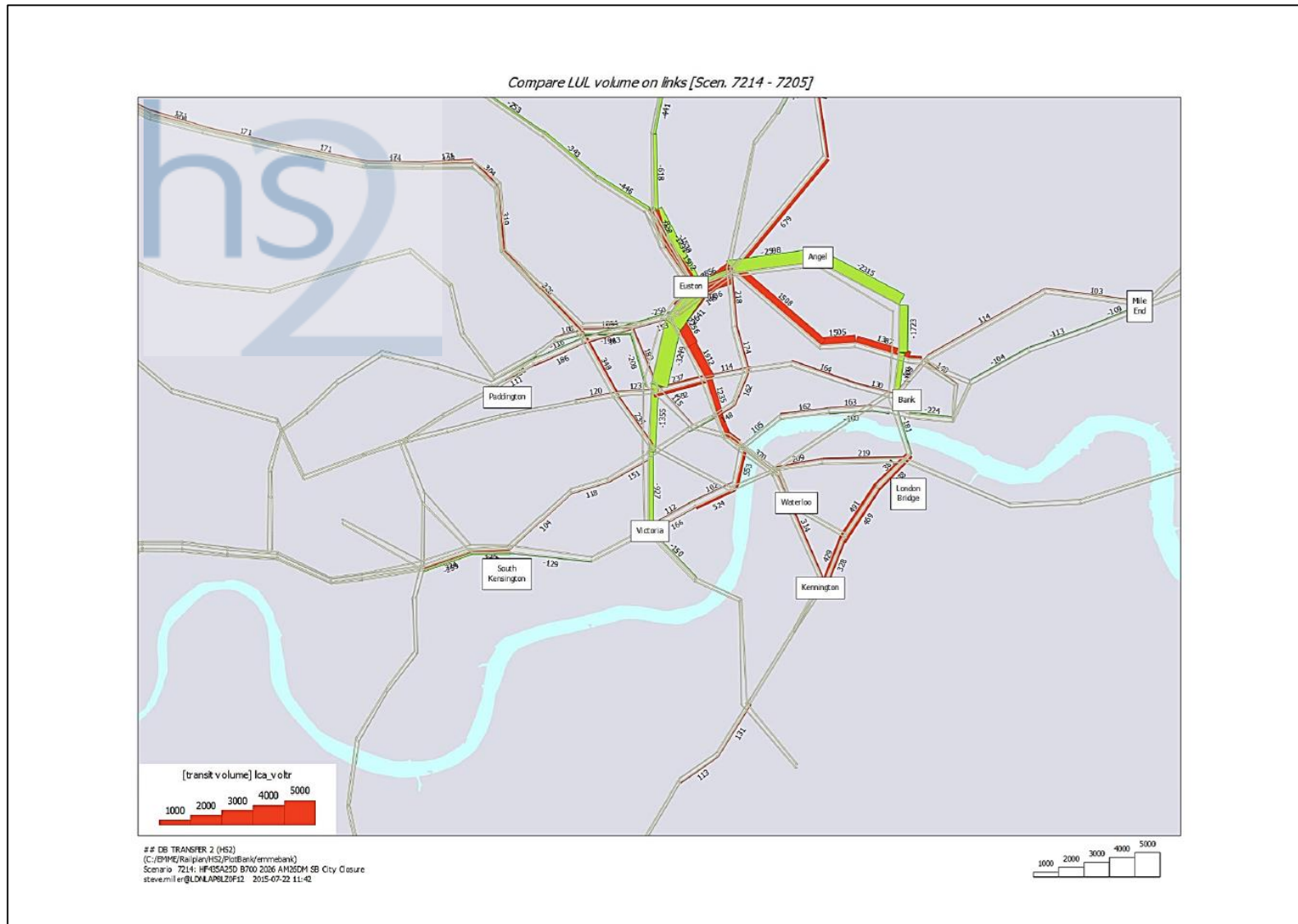


Figure 82: Northern line Bank branch southbound platform closure - AM peak hour impact on bus flows

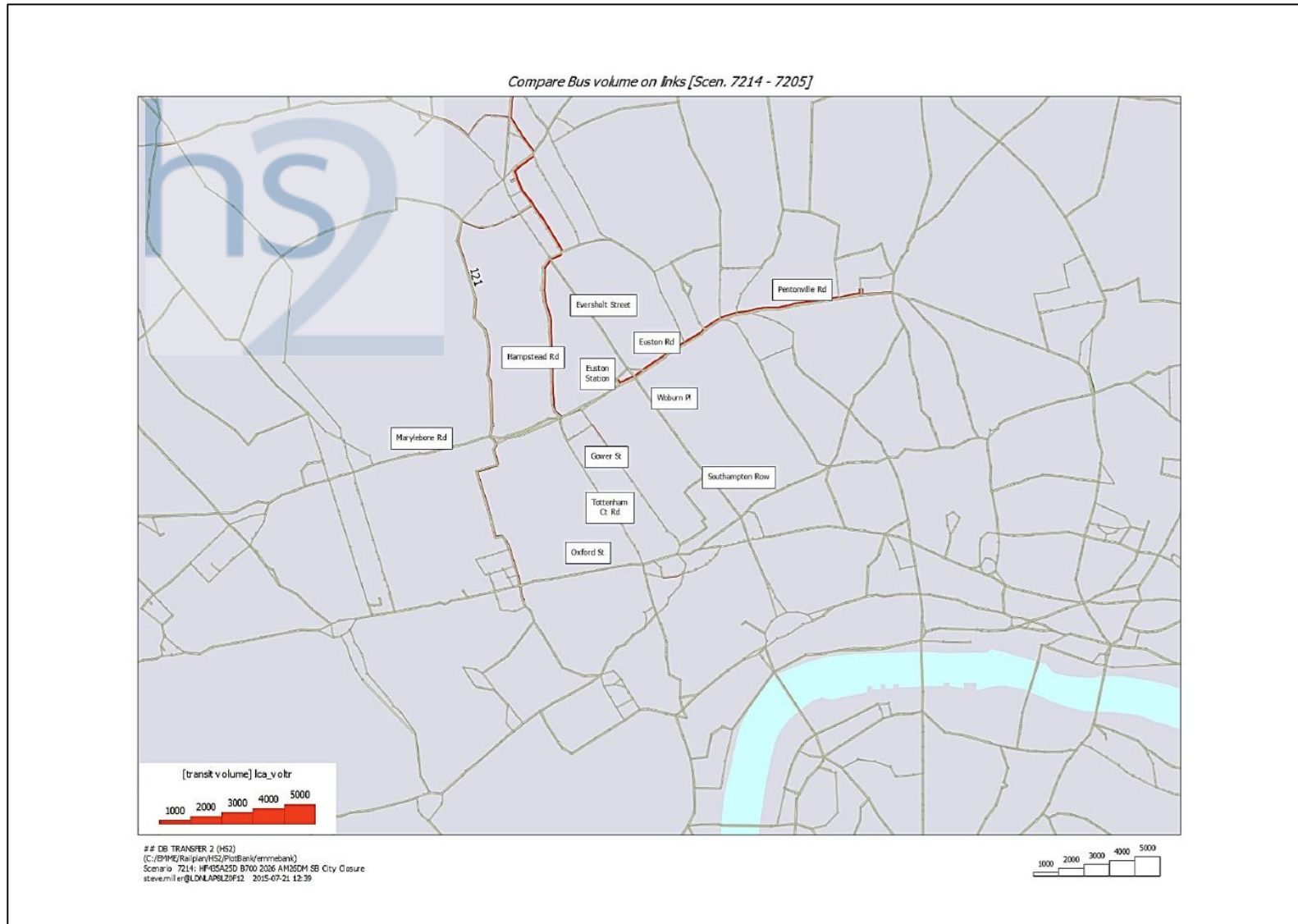
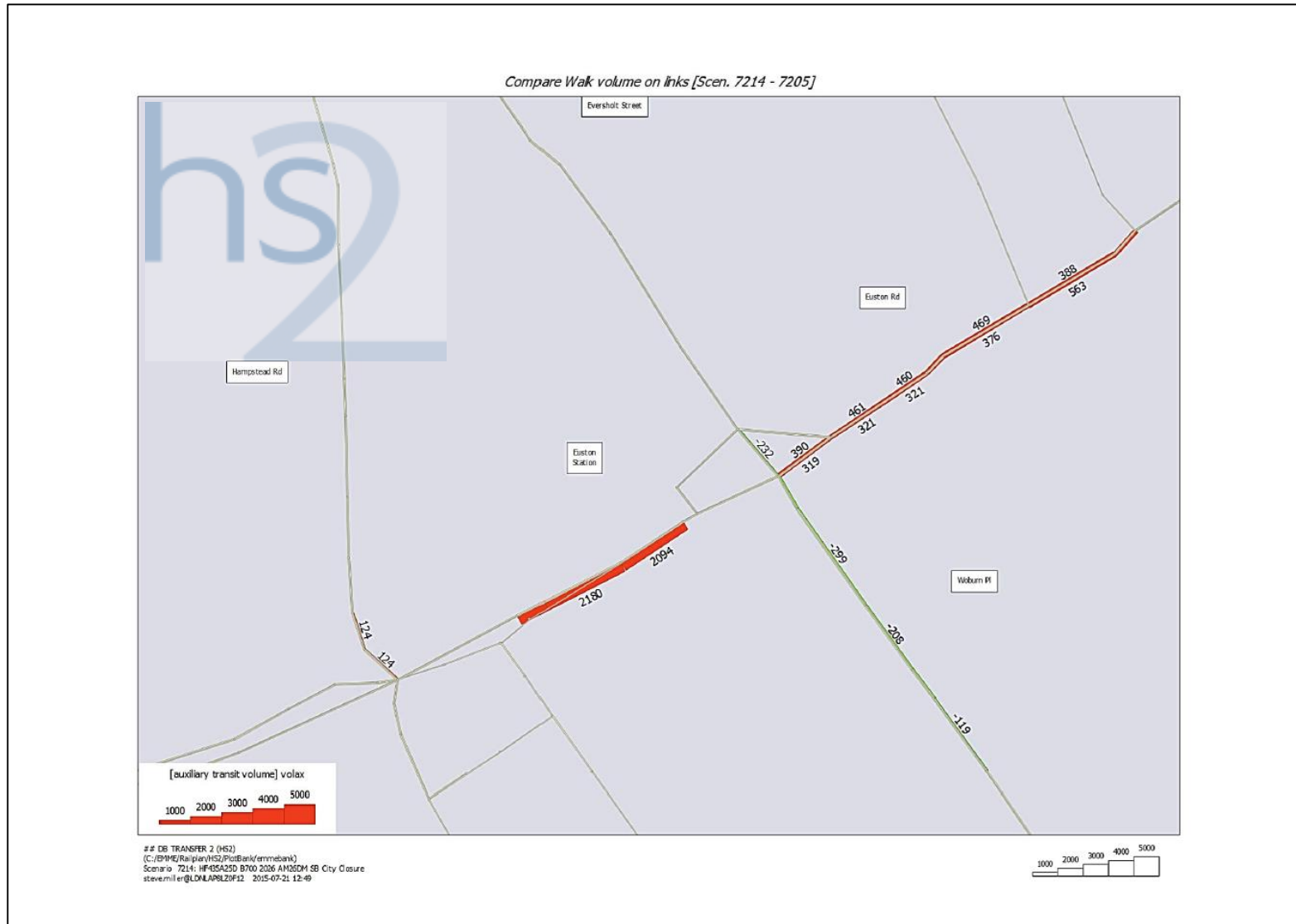


Figure 83: Northern line Bank branch southbound platform closure - AM peak hour impact on walking



- 3.3.106 The southbound Northern line (Bank branch) platform closure impacts on crowding with an increase in crowding of approximately 1 PPSM on the southbound Northern line (Charing Cross branch) between Goodge Street and Euston as a result of passengers diverting onto these services but the overall crowding would remain below 4 PPSM and below the level of crowding that is generally accepted as a maximum.
- 3.3.107 Table 72 shows a 31% decrease in total AM peak boarders and alighters and Table 73 shows an 18% decrease in total PM peak boarders and alighters at Euston, including a 36% decrease in passengers boarding and alighting southbound Victoria line trains in both the AM and PM peaks, due to the removal of the relatively easy interchange between the Victoria line and the Northern line (Bank branch).

Table 72: 2026 AM peak period (07:00 to 10:00) Euston station NR demand - Northern line (Bank branch) southbound closure

| Description                                     | 2026 baseline |        |        | 2026 Northern line (Bank branch) closure |        |        |
|---|---------------|--------|--------|--|--------|--------|
|   | Board         | Alight | Total  | Board                                    | Alight | Total  |
| <b>Euston LU</b>                                |               |        |        |  |        |        |
| Northern line Charing Cross branch (northbound) | 2,738         | 2,038  | 4,776  | 2,724                                    | 2,037  | 4,761  |
| Northern line Charing Cross branch (southbound) | 6,666         | 2,256  | 8,922  | 8,138                                    | 2,589  | 10,727 |
| Northern line Bank branch (northbound)          | 4,594         | 4,467  | 9,061  | 4,606                                    | 4,507  | 9,113  |
| Northern line Bank branch (southbound)          | 7,626         | 9,540  | 17,166 | -  | -      | 0      |
| Victoria line (northbound)                      | 3,540         | 10,286 | 13,826 | 3,266                                    | 10,101 | 13,367 |
| Victoria line (southbound)                      | 13,855        | 6,853  | 20,708 | 7,241                                    | 5,939  | 13,180 |
| Sub-total: Euston LU                            | 39,019        | 35,440 | 74,459 | 25,975                                   | 25,173 | 51,148 |
| <b>Euston Square LU</b>                         |               |        |        |  |        |        |
| Metropolitan line (northbound/westbound)        | 2,363         | 7,287  | 9,650  | 2,360                                    | 7,277  | 9,637  |
| Metropolitan line (southbound/eastbound)        | 5,403         | 6,134  | 11,537 | 7,584                                    | 6,187  | 13,771 |
| Sub-total: Euston Square LU                     | 7,766         | 13,421 | 21,187 | 9,944                                    | 13,464 | 23,408 |



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Table 73: 2026 PM peak period (16:00 to 19:00) Euston station NR demand - Northern line (Bank branch) southbound closure

| Description                                     | 2026 baseline |        |        | 2026 Northern line (Bank branch) closure |        |        |
|---|---------------|--------|--------|--|--------|--------|
|   | Board         | Alight | Total  | Board                                    | Alight | Total  |
| <b>Euston LU</b>                                |               |        |        |  |        |        |
| Northern line Charing Cross Branch (northbound) | 2,443         | 3,471  | 5,914  | 2,402                                    | 3,384  | 5,786  |
| Northern line Charing Cross Branch (southbound) | 4,829         | 2,307  | 7,136  | 5,692                                    | 2,803  | 8,495  |
| Northern line Bank branch (northbound)          | 9,152         | 8,893  | 18,045 | 9,204                                    | 8,893  | 18,097 |
| Northern line Bank branch (southbound)          | 5,008         | 5,322  | 10,330 | -  | -      | 0      |
| Victoria line (northbound)                      | 4,159         | 18,728 | 22,887 | 4,292                                    | 18,410 | 22,702 |
| Victoria line (southbound)                      | 9,950         | 3,988  | 13,938 | 6,072                                    | 2,815  | 8,887  |
| Sub-total: Euston LU                            | 35,541        | 42,709 | 78,250 | 27,662                                   | 36,305 | 63,967 |
| <b>Euston Square LU</b>                         |               |        |        |  |        |        |
| Metropolitan line (northbound/westbound)        | 4,102         | 5,740  | 9,842  | 4,098                                    | 5,738  | 9,836  |
| Metropolitan line (southbound/eastbound)        | 5,684         | 2,352  | 8,036  | 6,338                                    | 2,358  | 8,696  |
| Sub-total: Euston Square LU                     | 9,786         | 8,092  | 17,878 | 10,436                                   | 8,096  | 18,532 |

3.3.108 Table 74 shows the impact of the closure on line flows with a 7% AM peak decrease on the southbound Victoria line north of Euston and a 5% AM peak decrease on the southbound Victoria line south of Euston. There are corresponding increases on the southbound Northern line Charing Cross line and eastbound sub-surface lines. This general pattern is repeated for the PM peak period.

Table 74: 2026 passenger flows (AM and PM peak periods) underground - Northern line (Bank branch) southbound closure

| Service                         | Direction  | AM peak period (07:00-10:00) |  |              | PM peak period (16:00-19:00) |  |              |
|---------------------------------|------------|------------------------------|--|--------------|------------------------------|--|--------------|
|                                 |            | 2026 baseline                | 2026 Northern line (Bank branch) closure | % difference | 2026 baseline                | 2026 Northern line (Bank branch) closure | % difference |
| Victoria line (north of Euston) | Northbound | 24,869                       | 24,836                                   | 0%           | 57,172                       | 57,425                                   | 0%           |
|                                 | Southbound | 63,201                       | 65,187                                   | 3%           | 35,501                       | 36,081                                   | 2%           |
| Victoria line (south of Euston) | Northbound | 31,614                       | 31,672                                   | 0%           | 71,742                       | 71,543                                   | 0%           |
|                                 | Southbound | 70,204                       | 66,489                                   | -5%          | 41,463                       | 39,338                                   | -5%          |

| Service  | Direction  | AM peak period (07:00-10:00) |  |              | PM peak period (16:00-19:00) |  |              |
|--|------------|------------------------------|--|--------------|------------------------------|--|--------------|
|  |            | 2026 baseline                | 2026 Northern line (Bank branch) closure | % difference | 2026 baseline                | 2026 Northern line (Bank branch) closure | % difference |
| Northern line Bank branch (North of Euston)                | Northbound | 20,913                       | 20,909                                   | 0%           | 35,663                       | 36,219                                   | 2%           |
|  | Southbound | 41,199                       | 38,429                                   | -7%          | 24,036                       | 21,524                                   | -10%         |
| Northern line Bank branch (South of Euston)                | Northbound | 20,786                       | 20,810                                   | 0%           | 35,404                       | 35,318                                   | 0%           |
|  | Southbound | 39,285                       | 38,429                                   | -2%          | 23,722                       | 21,524                                   | -9%          |
| Northern line Charing Cross branch (north of Euston)       | Northbound | 14,518                       | 14,509                                   | 0%           | 35,397                       | 35,466                                   | 0%           |
|  | Southbound | 37,791                       | 39,294                                   | 4%           | 22,482                       | 23,924                                   | 6%           |
| Northern line Charing Cross branch (south of Euston)       | Northbound | 13,818                       | 13,821                                   | 0%           | 36,426                       | 36,448                                   | 0%           |
|  | Southbound | 42,201                       | 44,842                                   | 6%           | 25,004                       | 26,812                                   | 7%           |
| Metropolitan, H&C and Circle lines (west of Euston Square) | Eastbound  | 51,271                       | 51,021                                   | 0%           | 42,326                       | 42,230                                   | 0%           |
|  | Westbound  | 39,951                       | 40,104                                   | 0%           | 44,349                       | 44,570                                   | 0%           |
| Metropolitan, H&C and Circle lines (east of Euston Square) | Eastbound  | 50,540                       | 52,417                                   | 4%           | 45,658                       | 46,211                                   | 1%           |
|  | Westbound  | 44,875                       | 45,021                                   | 0%           | 45,988                       | 46,209                                   | 0%           |

3.3.109 Table 75 shows a 14% reduction in boarders, alighters and interchangers at Euston but with corresponding large increases at King's Cross and Euston, reflecting the patterns of changes in line flows.

3.3.110 There is a relatively large reduction at Oxford Circus as the reductions in Victoria line flows mean that some interchange to the Central line transfers to Tottenham Court Road.

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Table 75: Station access, egress and interchange with platform closures - Northern line (Bank branch) southbound closure

| Station                          | 2026 baseline | 2026 Bank branch closure | Absolute difference | Relative difference |
|----------------------------------|---------------|--------------------------|---------------------|---------------------|
| Euston (including Euston Square) | 98,529        | 89,782                   | -8,747              | -9%                 |
| Euston                           | 77,342        | 66,375                   | -10,967             | -14%                |
| Euston Square                    | 21,187        | 23,407                   | 2,220               | 10%                 |
| King's Cross                     | 72,755        | 78,126                   | 5,371               | 7%                  |
| Embankment                       | 28,028        | 28,773                   | 745                 | 3%                  |
| Tottenham Court Road             | 48,483        | 49,132                   | 649                 | 1%                  |
| Warren Street                    | 28,041        | 28,597                   | 556                 | 2%                  |
| St James' Park                   | 23,430        | 23,799                   | 369                 | 2%                  |
| Liverpool Street                 | 119,679       | 120,044                  | 365                 | 0%                  |
| Goodge Street                    | 15,341        | 15,642                   | 301                 | 2%                  |
| Monument                         | 10,584        | 10,831                   | 247                 | 2%                  |
| Bond Street                      | 43,876        | 44,092                   | 216                 | 0%                  |
| Paddington                       | 78,889        | 79,053                   | 164                 | 0%                  |
| Mansion House                    | 6,202         | 6,360                    | 158                 | 3%                  |
| Barbican                         | 12,114        | 12,233                   | 119                 | 1%                  |
| Blackfriars                      | 35,395        | 35,510                   | 115                 | 0%                  |
| Leicester Square                 | 24,089        | 24,199                   | 110                 | 0%                  |
| Waterloo                         | 160,095       | 160,196                  | 101                 | 0%                  |
| Pimlico                          | 10,449        | 10,317                   | -132                | -1%                 |
| Old Street                       | 25,755        | 25,577                   | -178                | -1%                 |
| London Bridge                    | 141,013       | 140,832                  | -181                | 0%                  |
| Angel                            | 21,057        | 20,873                   | -184                | -1%                 |

| Station                   | 2026 baseline    | 2026 Bank branch closure | Absolute difference | Relative difference |
|---------------------------|------------------|--------------------------|---------------------|---------------------|
| Farringdon                | 85,500           | 85,299                   | -201                | 0%                  |
| Green Park                | 39,586           | 39,089                   | -497                | -1%                 |
| Bank                      | 81,765           | 80,922                   | -843                | -1%                 |
| Victoria                  | 142,700          | 141,755                  | -945                | -1%                 |
| Oxford Circus             | 96,116           | 94,628                   | -1,488              | -2%                 |
| <b>Sub-Total</b>          | <b>1,449,475</b> | <b>1,445,660</b>         | <b>-3,815</b>       | <b>0%</b>           |
| <b>Total (all Zone 1)</b> | <b>2,032,025</b> | <b>2,028,755</b>         | <b>-3,270</b>       | <b>0%</b>           |
| Camden Town               | 17,413           | 17,489                   | 76                  | 0%                  |
| Mornington Crescent       | 3,327            | 3,306                    | -21                 | -1%                 |

### Northbound and southbound Northern line (Charing Cross branch)

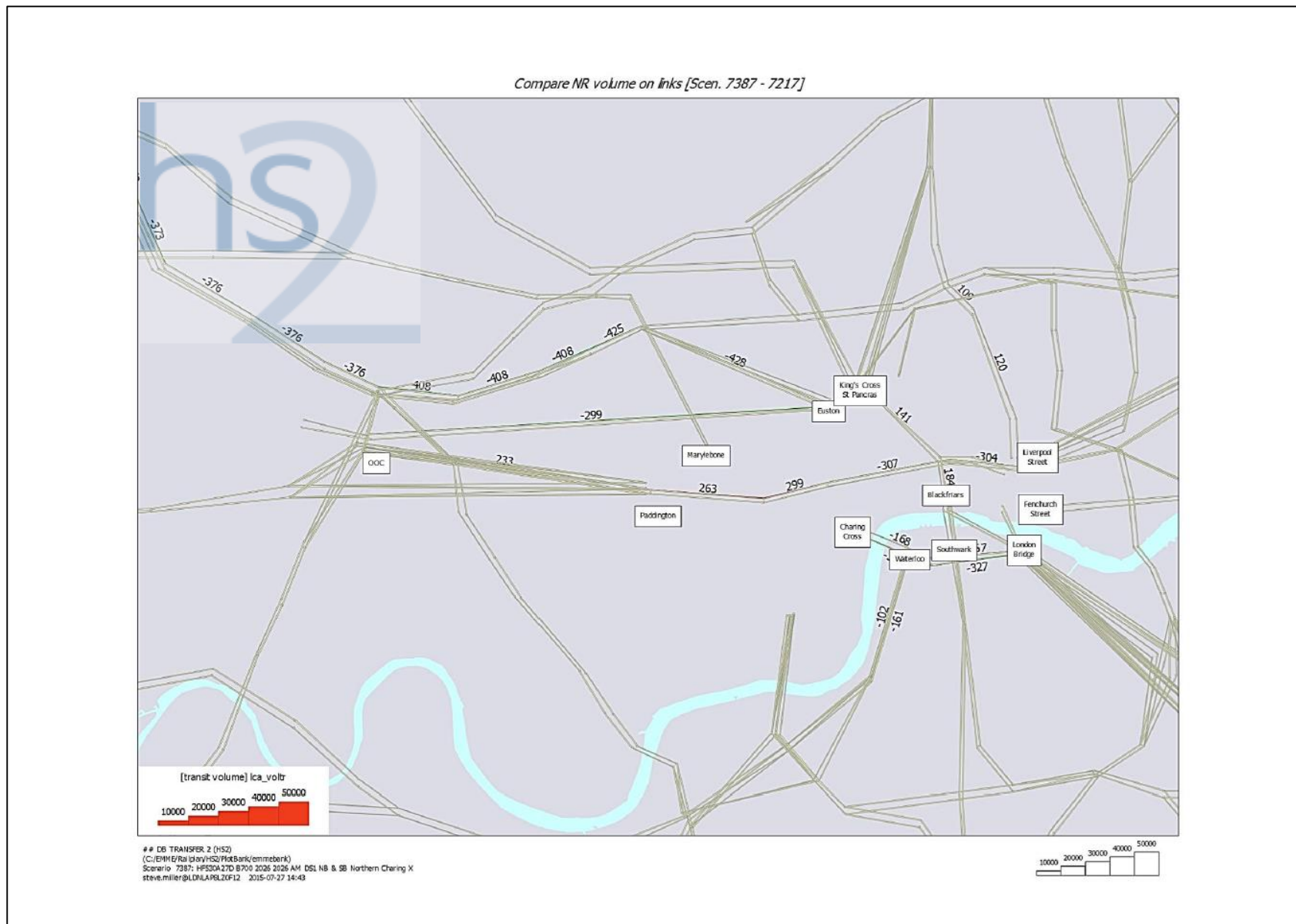
3.3.111 With the Northern line (Charing Cross branch) northbound and southbound platform closures, some passengers will be likely to interchange at Camden Town between the two Northern line branches. Interchange at Warren Street is forecast to increase by almost 50% as passengers use the Victoria line to access Euston and interchange to/from the Northern line (Charing Cross branch). Some passengers would enter or leave the underground at Warren Street, Goudge Street and King's Cross St. Pancras stations and walk to or from Euston station. Apart from the changes in LU flows, the key impacts are:

- rail – small reductions in WCML, London Bridge to Charing Cross and eastbound Crossrail flows between Tottenham Court Road and Liverpool Street;
- walk - flow increases particularly towards Warren Street but also King's Cross; and
- bus - increases in bus demand on routes parallel to the Northern line (Charing Cross branch), notably along A4200 Southampton Row and A400 Gower Street.

3.3.112 Figure 84 to Figure 87 show the impact of the through running of the Northern line (Bank branch) southbound services on the AM peak hour rail, underground, bus and walk networks. In Figure 84 to Figure 87, the green bandwidths indicate a decrease in trips while the red bandwidths indicate an increase.

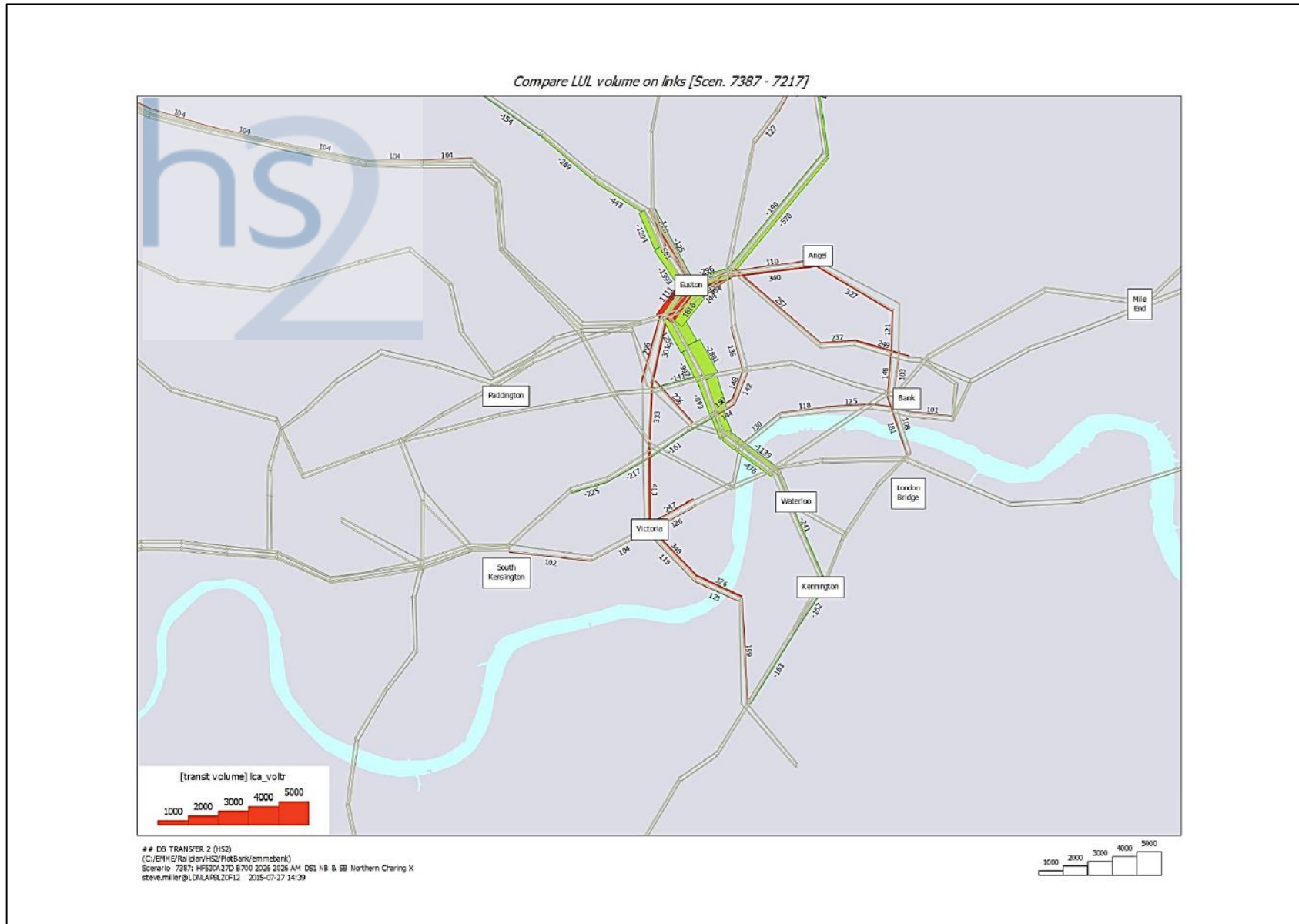
# SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

Figure 84: Northern line (Charing Cross branch) northbound and southbound platform closures - AM peak hour impact on rail flows



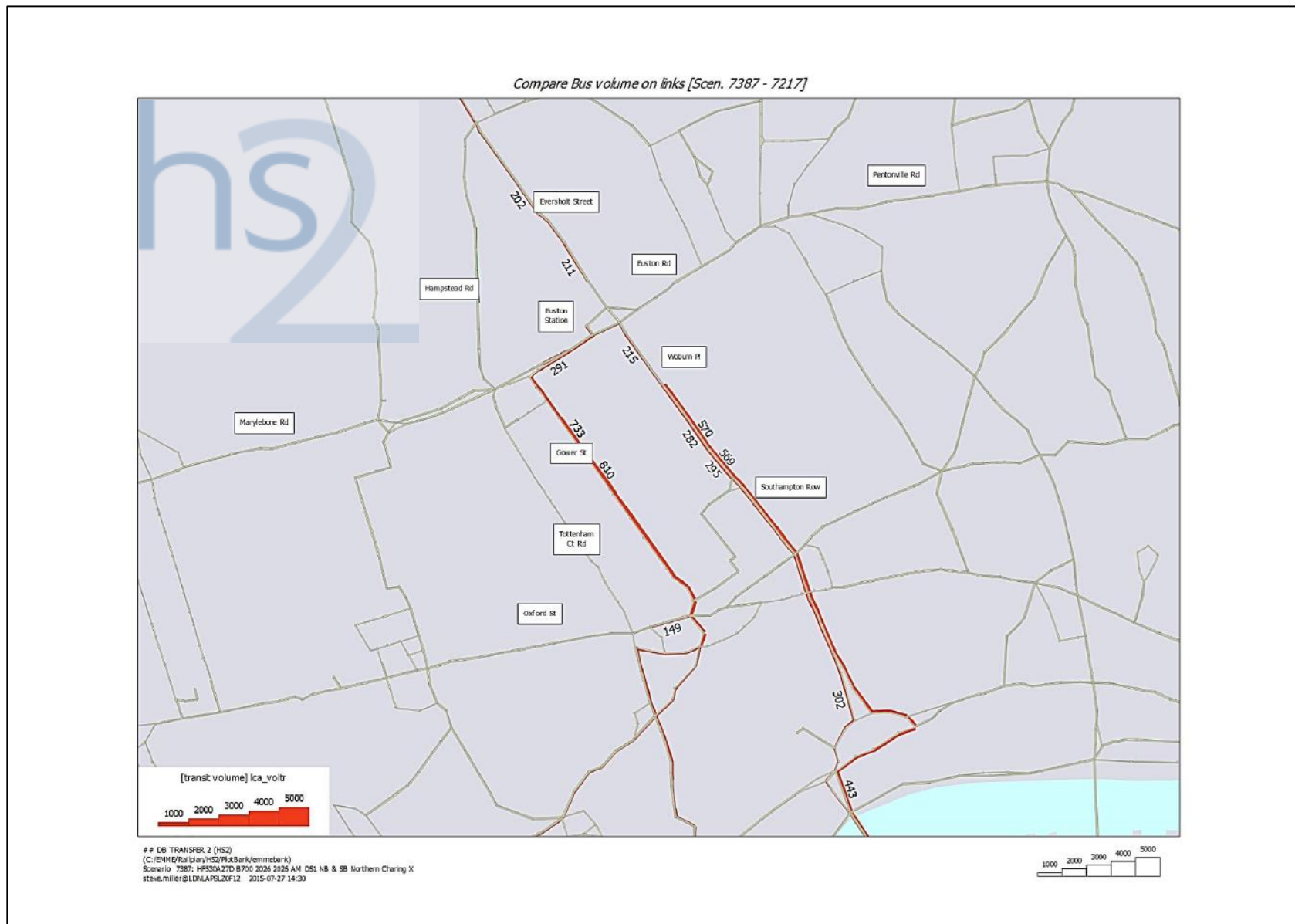
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Figure 85: Northern line (Charing Cross branch) northbound and southbound platform closures - AM peak hour impact on underground flows



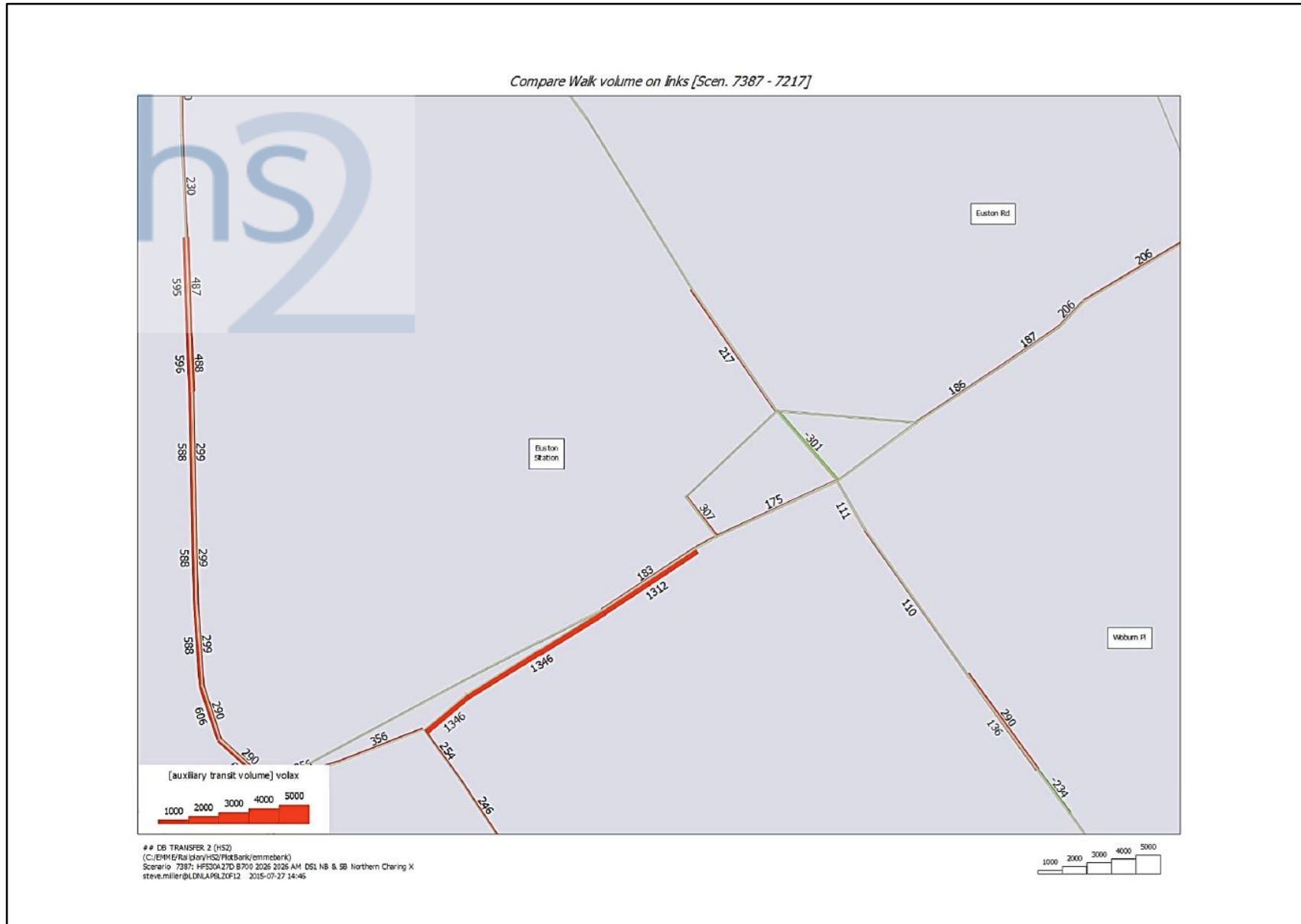
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Figure 86: Northern line (Charing Cross branch) northbound and southbound platform closures - AM peak hour impact on bus flows



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Figure 87: Northern line (Charing Cross branch) northbound and southbound platform closures - AM peak hour impact on walk flows





- 3.3.113 The northbound and southbound Northern line (Charing Cross branch) platform closure has a lower impact on crowding than the other platform closures. There are no discernible changes to crowding on the Northern line (Bank branch), small reductions (less than 0.5 PPSM) on the southbound Northern Line Charing Cross branch south of Euston and consequential increases on the southbound Victoria line.
- 3.3.114 Table 76 shows a 19% decrease in total AM peak boarders and alighters at Euston. There are generally small increases in boarders and alighters on other lines at Euston and at Euston Square. Changes in the PM peak are similar.

Table 76: 2026 AM peak period (07:00 to 10:00) Euston station NR demand - Northern line (Charing Cross branch) northbound and southbound platform closures

| Description                                     | 2026 baseline |        |        | 2026 Northern line (Bank branch) closure |        |        |
|---|---------------|--------|--------|--|--------|--------|
|   | Board         | Alight | Total  | Board                                    | Alight | Total  |
| <b>Euston LU</b>                                |               |        |        |  |        |        |
| Northern line Charing Cross Branch (northbound) | 2,722         | 2,171  | 4,893  | -  | -      | 0      |
| Northern line Charing Cross Branch (southbound) | 5,619         | 2,731  | 8,350  | -  | -      | 0      |
| Northern line Bank branch (northbound)          | 4,954         | 4,125  | 9,079  | 5,184                                    | 4,448  | 9,632  |
| Northern line Bank branch (southbound)          | 6,048         | 10,023 | 16,071 | 6,314                                    | 9,938  | 16,252 |
| Victoria line (northbound)                      | 3,775         | 11,252 | 15,027 | 2,983                                    | 11,868 | 14,851 |
| Victoria line (southbound)                      | 14,017        | 6,841  | 20,858 | 14,860                                   | 4,945  | 19,805 |
| Sub-total: Euston LU                            | 37,135        | 37,143 | 74,278 | 29,341                                   | 31,199 | 60,540 |
| <b>Euston Square LU</b>                         |               |        |        |  |        |        |
| Metropolitan line (northbound/westbound)        | 4,247         | 8,690  | 12,937 | 4,144                                    | 8,672  | 12,816 |
| Metropolitan line (southbound/eastbound)        | 9,271         | 6,782  | 16,053 | 9,617                                    | 6,871  | 16,488 |
| Sub-total: Euston Square LU                     | 13,518        | 15,472 | 28,990 | 13,761                                   | 15,543 | 29,304 |

- 3.3.115 Table 77 shows the impact of the closure on line flows with a 7% AM peak decrease and on the southbound Northern line (Charing Cross branch) south of Euston and a 10% increase on the northbound section of this line north of Euston. There are corresponding increases of between 1% and 4% on the Victoria and Northern line (Bank branch) but little impact on sub-surface lines at Euston Square.

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Table 77: 2026 passenger flows (AM and PM peak periods) underground - Northern line (Charing Cross branch) northbound and southbound platform closures

| Service  | Direction  | AM peak period (07:00-10:00) |   |              |
|--|------------|------------------------------|---|--------------|
|  |            | 2026 baseline                | 2026 Northern line (Charing Cross branch) closure | % difference |
| Victoria line (north of Euston)                            | Northbound | 24,934                       | 24,638  | -1%          |
|  | Southbound | 63,300                       | 62,379  | -1%          |
| Victoria line (south of Euston)                            | Northbound | 32,410                       | 33,522  | 3%           |
|  | Southbound | 70,476                       | 72,294  | 3%           |
| Northern line Bank branch (North of Euston)                | Northbound | 21,128                       | 21,689  | 3%           |
|  | Southbound | 41,228                       | 41,004  | -1%          |
| Northern line Bank branch (South of Euston)                | Northbound | 20,299                       | 20,953  | 3%           |
|  | Southbound | 37,253                       | 37,380  | 0%           |
| Northern line Charing Cross branch (north of Euston)       | Northbound | 14,384                       | 12,991  | -10%         |
|  | Southbound | 38,035                       | 38,122  | 0%           |
| Northern line Charing Cross branch (south of Euston)       | Northbound | 13,833                       | 12,991  | -6%          |
|  | Southbound | 40,922                       | 38,122  | -7%          |
| Metropolitan, H&C and Circle lines (west of Euston Square) | Eastbound  | 50,015                       | 49,954  | 0%           |
|  | Westbound  | 40,476                       | 40,535  | 0%           |
| Metropolitan, H&C and Circle lines (east of Euston Square) | Eastbound  | 52,505                       | 52,700  | 0%           |
|  | Westbound  | 44,919                       | 45,063  | 0%           |

3.3.116 Table 78 shows a 7% reduction in boarders, alighters and interchanging passengers at Euston, which is consistent with the fact that boarders and alighters is lower than for the other through-running scenarios. The largest increase (14%) is at Warren Street, which is in line with the increase in walking between Euston and Warren Street. Goodge Street experiences an increase of 7% with walk and bus then used to reach destinations, along with London Bridge (less than 1%), which is linked to increases in bus flows towards Aldwych and A4200 Southampton Row.

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Table 78: Station access, egress and interchange with platform closures - Northern line (Charing Cross branch) northbound and southbound platform closures

| Station                          | 2026 baseline    | 2026 Northern line (Charing Cross branch) closure | Absolute difference | Relative difference |
|----------------------------------|------------------|---|---------------------|---------------------|
| Euston (including Euston Square) | 80,139           | 74,366  | -5,773              | -7%                 |
| Euston                           | 71,982           | 65,996  | -5,986              | -8%                 |
| Euston Square                    | 8,157            | 8,370   | 213                 | 3%                  |
| Warren Street                    | 26,686           | 30,465  | 3,779               | 14%                 |
| Goodge Street                    | 14,985           | 16,017  | 1,032               | 7%                  |
| London Bridge                    | 141,028          | 141,462   | 434                 | 0%                  |
| King's Cross                     | 70,654           | 70,966  | 312                 | 0%                  |
| St Pancras                       | 22,229           | 22,475  | 246                 | 1%                  |
| Victoria                         | 143,060          | 143,284   | 224                 | 0%                  |
| Blackfriars                      | 35,597           | 35,783  | 186                 | 1%                  |
| Piccadilly Circus                | 15,238           | 15,413  | 175                 | 1%                  |
| St James' Park                   | 23,583           | 23,740  | 157                 | 1%                  |
| Bond Street                      | 45,002           | 45,102  | 100                 | 0%                  |
| Paddington                       | 53,926           | 54,026  | 100                 | 0%                  |
| Oxford Circus                    | 96,321           | 96,144  | -177                | 0%                  |
| Knightsbridge                    | 7,550            | 7,365   | -185                | -2%                 |
| Charing Cross                    | 38,835           | 38,257  | -578                | -1%                 |
| Leicester Square                 | 23,878           | 23,056  | -822                | -3%                 |
| Waterloo                         | 160,358          | 159,367   | -991                | -1%                 |
| <b>Sub-Total</b>                 | <b>1,020,012</b> | <b>1,018,324</b>                                  | <b>-1,688</b>       | <b>0%</b>           |
| <b>Total (all Zone 1)</b>        | <b>2,005,832</b> | <b>2,004,300</b>                                  | <b>-1,532</b>       | <b>0%</b>           |
| Camden Town                      | 17,388           | 18,099  | 711                 | 4%                  |
| Mornington Crescent              | 3,315            | 3,399   | 84                  | 3%                  |

### **Sub-surface (Circle, Hammersmith & City and Metropolitan) line closure**

3.3.117 Construction of the new subway under A501 Euston Road requires the local removal of the crown of the sub-surface (Circle, Hammersmith & City and Metropolitan) line running tunnel. In order to complete the works, a deck is required beneath the subway to protect LU assets from damage. This deck must be built within the tunnel of the LU trains. It is not possible to build this deck, complete the works, and then remove the deck again within an overnight closure and so weekend closures are required for these works. Minimising the number of weekend LU line closures requires A501 Euston Road to also be closed during each LU line closure to allow crane support for the works. It is anticipated that a minimum of two weekend closures will be required with supporting overnight closures to complete the surrounding structural works. These closures would occur as part of construction Stage A between April 2024 and June 2025.

#### *Bus*

3.3.118 The existing Euston bus station may remain fully operational during the construction phase with minimal disruption to bus services using the bus station. It is expected that the following changes to bus facilities will occur during the construction phase of the revised scheme:

- on A400 Hampstead Road, bus stops B and W may be temporarily suspended; when reinstated, northbound bus stop B will be relocated to the south by 100-200m and southbound bus stop W will be relocated to the south by 100-200m, both due to the construction of the A400 Hampstead Road overbridge;
- on A400 Hampstead Road, 'Robert Street' southbound bus stop K will be relocated to the south, by approximately 100m, due to the construction of the new junction of A400 Hampstead Road with Robert Street and the entrance to the station taxi facility. The corresponding northbound bus stop will be unaffected;
- on A501 Euston Road, 'Euston Station' westbound bus stop H will be relocated to the east, by approximately 90m, due to the construction of the sub-surface pedestrian route beneath A501 Euston Road;
- on A501 Euston Road, 'Euston Square Station' westbound bus stop P will be relocated to the west, by approximately 30m, due to the construction of the sub-surface pedestrian route beneath A501 Euston Road;
- on A501 Euston Road, bus stop AZ will be relocated east by approximately 90m due to the construction of the sub-surface pedestrian route beneath A501 Euston Road; and
- on A4200 Eversholt Street, 'Aldenham Street' southbound bus stop S will be relocated to the south, by approximately 70m, so it can be served by bus routes which will start from the new Northern Bus Standing Area when the revised scheme is in operation, and also to create space for a temporary coach parking bay during the construction phase.

3.3.119 It is expected that the following bus lanes will be temporarily removed during the construction phase:

- A501 Euston Road westbound and eastbound bus lanes due to the construction of the pedestrian sub-surface route beneath A501 Euston Road;
- A4200 Eversholt Street southbound bus lane to provide a running lane for general traffic during utility works on A4200 Eversholt Street; and
- A400 Hampstead Road (bridge) northbound and southbound bus lanes due to the construction of the new A400 Hampstead Road overbridge.

- 3.3.120 Due to the closure of the bus lanes, buses will use the general traffic lanes during the construction phase.
- 3.3.121 The timing of changes to the bus infrastructure around the station during the construction programme is reported in the construction phase access diagrams section.
- 3.3.122 No bus route diversions or reductions in frequency are expected due to works associated with Euston station construction.
- 3.3.123 There will be temporary bus route diversions on Adelaide Road and Chalk Farm Road, located within the Camden (CFA2) area, which will affect bus routes 31, N31 and N28. Buses will be diverted along Primrose Hill Road, England's Lane and A502 Haverstock Hill.
- 3.3.124 There will be street-works sites associated with utility works in various locations and phases of construction which will affect bus routes. This includes bus route C2 which is expected to be affected by shuttle working, using one vehicle lane, in the A4201 Parkway area.

### *Bus Impacts*

#### **Bus stop relocation**

- 3.3.125 The relocation of bus stops will have an impact on bus users of the following services.
- 3.3.126 On A400 Hampstead Road, the temporary suspension of northbound bus stop B would affect approximately 430 bus users during the AM peak period and some 470 bus users during the PM peak period, based on existing demand. The temporary suspension of southbound bus stop W would affect approximately 230 bus users in the AM peak period and some 274 bus users in the PM peak period. The demand for this bus stop is likely to be reduced due to the demolition of a number of residential dwellings in the vicinity of the bus stop. The relocation of the bus stop upon their reinstatement is not anticipated to impact the capacity of this, or adjacent bus stops, which are located just north of William Road, approximately 390m to the south, and at Mornington Crescent LU station, approximately 360m to the north.
- 3.3.127 The southbound bus stop K on A400 Hampstead Road at Robert Street, which will be relocated approximately 100m to the south, is currently used by approximately 250 passengers during the AM peak period and approximately 370 during the PM peak period. The relocation of the bus stop will not substantially affect these users and is not expected to result in an increase in bus boarding and alighting at other southbound bus stops on A400 Hampstead Road.

- 3.3.128 Bus stop H, on A501 Euston Road is currently used by approximately 1,150 passengers (total boarding and alighting) during the AM peak period and by approximately 1,140 passengers during the PM peak periods. While demand for bus routes at this bus stop may grow, the relocation of the bus stop by approximately 90m to the east, is not expected to result in a reduction in passenger demand at this bus stop, or an increase in passenger demand at other bus stops on the affected routes. This is due to the fact that the nearest bus stops are located at Euston Square Station, approximately 180m to the west, and opposite the British Library, some 360m to the east. The relocation of bus stop H will not have any impact on the operation of the bus routes using it, as it will still serve Euston station.
- 3.3.129 A501 Euston Road westbound bus stop P at Euston Square station, is currently used by approximately 460 passengers during the AM peak period and by approximately 200 passengers during the PM peak period. Passenger demand at this bus stop may grow in the future, however, moving this bus stop 30m to the west is not expected to impact on passenger demand at this bus stop, or result in an increase in passenger demand at other bus stops on the relevant routes.
- 3.3.130 The eastbound bus stop AZ on A501 Euston Road, which will be relocated approximately 100m to the east, is currently used by approximately 419 alighting passengers during the AM peak period and approximately 520 during the PM peak period. This bus stop is only used by terminating services and no boarding is permitted. The relocation of the bus stop will not substantially affect these users and is not expected to result in an increase in bus boarding and alighting at other bus stops on A501 Euston Road.
- 3.3.131 A4200 Eversholt Street southbound bus stop S, at Aldenham Street, is currently used by approximately 250 passengers during the AM peak period and some 180 passengers during the PM peak period. While demand for bus routes at this stop may grow, the relocation of the bus stop by 70m to the south is not expected to result in a reduction in passenger demand at this bus stop, or an increase in passenger demand at other bus stops on relevant routes.

### Bus lane removal

- 3.3.132 Table 79 shows the bus routes affected by the temporary removal of bus lanes on A501 Euston Road, A4200 Eversholt Street and A400 Hampstead Road. The number of buses (based on the frequency) affected in each direction is also provided.

Table 79: Bus routes affected by bus lane removals

| Street/road            | Bus routes               | Number of buses per direction |
|------------------------|--------------------------|-------------------------------|
| A501 Euston Road       | 10, 18, 30, 73, 205, 390 | 71.5                          |
| A4200 Eversholt Street | 168, 253                 | 21                            |
| A400 Hampstead Road    | 24, 27, 29, 88, 134      | 50                            |

### Bus journey times

- 3.3.133 The impact of temporarily removing the bus lanes on A501 Euston Road, A4200 Eversholt Street and A400 Hampstead Road, as well as the impact of increased HGV

movements, diverted traffic flows and the impact of the highway interventions has been modelled in CLoHAM for the five construction scenarios. The maximum and average changes (in minutes) to the end to end journey times of the bus routes operating in the Euston area are shown in Table 80, for the AM peak hour and Table 81 for the PM peak hour. For both the AM and PM peak hours, Scenarios 1, 2, 3A and 3 are compared with the 2021 baseline while scenario 4 is compared with the 2026 baseline.

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Table 8o: Bus journey time changes (in minutes) - AM peak hour (o8:oo - o9:oo)

| Bus route | From/to                           | Direction  | Baseline |      | Scenario |      |      |      |      | Actual change 2021 baseline to scenario: |      |      |      |      | % change 2021 baseline to scenario: |       |       |       |       |
|-----------|-----------------------------------|------------|----------|------|----------|------|------|------|------|--|------|------|------|------|-------------------------------------|-------|-------|-------|-------|
|           |                                   |            | 2021     | 2026 | 1        | 2    | 3A   | 3    | 4    | 1  | 2    | 3A   | 3    | 4    | 1                                   | 2     | 3A    | 3     | 4     |
|           |                                   |            |          |      |          |      |      |      |      |  |      |      |      |      |                                     |       |       |       |       |
| 10        | King's Cross to Hammersmith       | Eastbound  | 51.7     | 52.2 | 50.7     | 58   | 56.3 | 55.4 | 55.9 | -1                                       | 6.3  | 4.6  | 3.7  | 3.7  | -1.9%                               | 12.2% | 8.9%  | 7.2%  | 7.1%  |
|           |                                   | Westbound  | 52.2     | 51.9 | 52.4     | 52.8 | 53   | 52.9 | 52.5 | 0.2                                      | 0.6  | 0.8  | 0.7  | 0.6  | 0.4%                                | 1.1%  | 1.5%  | 1.3%  | 1.2%  |
| 18        | Euston to Sudbury                 | Terminates | 54.7     | 54.6 | 55.5     | 55   | 55.2 | 55.2 | 54.3 | 0.8                                      | 0.3  | 0.5  | 0.5  | -0.3 | 1.5%                                | 0.5%  | 0.9%  | 0.9%  | -0.5% |
|           |                                   | Westbound  | 47.9     | 47.5 | 47.9     | 48.1 | 48.3 | 48.2 | 47.7 | 0  | 0.2  | 0.4  | 0.3  | 0.2  | 0.0%                                | 0.4%  | 0.8%  | 0.6%  | 0.4%  |
| 24        | Hampstead Heath to Grosvenor Road | Terminates | 52.3     | 52.4 | 50.7     | 58.3 | 56.6 | 55.7 | 56.8 | -1.6                                     | 6    | 4.3  | 3.4  | 4.4  | -3.1%                               | 11.5% | 8.2%  | 6.5%  | 8.4%  |
|           |                                   | Southbound | 49.2     | 49   | 49.9     | 49.6 | 49.3 | 49.4 | 49.5 | 0.7                                      | 0.4  | 0.1  | 0.2  | 0.5  | 1.4%                                | 0.8%  | 0.2%  | 0.4%  | 1.0%  |
| 27        | Chalk Farm to Chiswick            | Northbound | 66.3     | 65.6 | 66.4     | 66.2 | 66.4 | 66.3 | 65.8 | 0.1                                      | -0.1 | 0.1  | 0    | 0.2  | 0.2%                                | -0.2% | 0.2%  | 0.0%  | 0.3%  |
|           |                                   | Southbound | 59       | 58.7 | 59.8     | 59.3 | 58.5 | 58.9 | 59   | 0.8                                      | 0.3  | -0.5 | -0.1 | 0.3  | 1.4%                                | 0.5%  | -0.8% | -0.2% | 0.5%  |
| 29        | Trafalgar Square to Wood Green    | Northbound | 50.1     | 50.1 | 48.5     | 56.1 | 54.4 | 53.6 | 54.5 | -1.6                                     | 6    | 4.3  | 3.5  | 4.4  | -3.2%                               | 12.0% | 8.6%  | 7.0%  | 8.8%  |
|           |                                   | Southbound | 43       | 42.9 | 43.2     | 43   | 42.9 | 43.1 | 43.3 | 0.2                                      | 0    | -0.1 | 0.1  | 0.4  | 0.5%                                | 0.0%  | -0.2% | 0.2%  | 0.9%  |
| 30        | Hackney Wick to Oxford Street     | Eastbound  | 52       | 51.8 | 52.6     | 52.2 | 52.1 | 52   | 51.3 | 0.6                                      | 0.2  | 0.1  | 0    | -0.5 | 1.2%                                | 0.4%  | 0.2%  | 0.0%  | -1.0% |
|           |                                   | Westbound  | 54.9     | 54.7 | 55.2     | 55.2 | 57.6 | 57.7 | 54.9 | 0.3                                      | 0.3  | 2.7  | 2.8  | 0.2  | 0.5%                                | 0.5%  | 4.9%  | 5.1%  | 0.4%  |



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| Bus route | From/to                                | Direction  | Baseline |       | Scenario |       |       |       |       | Actual change 2021 baseline to scenario: |      |      |      |      | % change 2021 baseline to scenario: |       |       |       |       |
|-----------|--|------------|----------|-------|----------|-------|-------|-------|-------|--|------|------|------|------|-------------------------------------|-------|-------|-------|-------|
|           |  |            | 2021     | 2026  | 1        | 2     | 3A    | 3     | 4     | 1  | 2    | 3A   | 3    | 4    | 1                                   | 2     | 3A    | 3     | 4     |
|           |  |            |          |       |          |       |       |       |       |  |      |      |      |      |                                     |       |       |       |       |
| 73        | Victoria to Stoke Newington            | Eastbound  | 59.6     | 60.2  | 58.6     | 65.9  | 64.2  | 63.3  | 63.8  | -1                                       | 6.3  | 4.6  | 3.7  | 3.6  | -1.7%                               | 10.6% | 7.7%  | 6.2%  | 6.0%  |
|           |  | Westbound  | 55.5     | 55.1  | 55.7     | 56    | 56.3  | 56.1  | 55.6  | 0.2                                      | 0.5  | 0.8  | 0.6  | 0.5  | 0.4%                                | 0.9%  | 1.4%  | 1.1%  | 0.9%  |
| 88        | Camden Town to Clapham Common          | Northbound | 47.1     | 46.9  | 46.8     | 46.7  | 46.7  | 46.7  | 47.2  | -0.3                                     | -0.4 | -0.4 | -0.4 | 0.3  | -0.6%                               | -0.8% | -0.8% | -0.8% | 0.6%  |
|           |  | Southbound | 62.8     | 62.3  | 63.2     | 63.1  | 62.9  | 63.2  | 63    | 0.4                                      | 0.3  | 0.1  | 0.4  | 0.7  | 0.6%                                | 0.5%  | 0.2%  | 0.6%  | 1.1%  |
| 134       | North Finchley to Tottenham Court Road | Northbound | 50.6     | 50.7  | 48.6     | 56.1  | 54.5  | 53.6  | 55    | -2                                       | 5.5  | 3.9  | 3    | 4.3  | -4.0%                               | 10.9% | 7.7%  | 5.9%  | 8.5%  |
|           |  | Southbound | 48.3     | 48    | 48.6     | 48.2  | 48.2  | 48.4  | 48.4  | 0.3                                      | -0.1 | -0.1 | 0.1  | 0.4  | 0.6%                                | -0.2% | -0.2% | 0.2%  | 0.8%  |
| 168       | Hampstead Heath to Old Kent Road       | Northbound | 112.8    | 112.6 | 112.9    | 112.9 | 113.4 | 114.6 | 113.2 | 0.1                                      | 0.1  | 0.6  | 1.8  | 0.6  | 0.1%                                | 0.1%  | 0.5%  | 1.6%  | 0.5%  |
|           |  | Southbound | 46.8     | 46.5  | 46.9     | 46.2  | 46.5  | 47.9  | 46.6  | 0.1                                      | -0.6 | -0.3 | 1.1  | 0.1  | 0.2%                                | -1.3% | -0.6% | 2.4%  | 0.2%  |
| 205       | Paddington to Bow                      | Eastbound  | 59.6     | 59.5  | 60.5     | 60.1  | 60.1  | 60    | 59.2  | 0.9                                      | 0.5  | 0.5  | 0.4  | -0.3 | 1.5%                                | 0.8%  | 0.8%  | 0.7%  | -0.5% |
|           |  | Westbound  | 58.8     | 58.8  | 59       | 59.3  | 59.5  | 59.6  | 59.3  | 0.2                                      | 0.5  | 0.7  | 0.8  | 0.5  | 0.3%                                | 0.9%  | 1.2%  | 1.4%  | 0.9%  |
| 253       | Euston to Hackney                      | Northbound | 35.6     | 35.3  | 35.6     | 35.7  | 35.7  | 35.9  | 35.7  | 0  | 0.1  | 0.1  | 0.3  | 0.4  | 0.0%                                | 0.3%  | 0.3%  | 0.8%  | 1.1%  |
|           |  | Terminates | 36.4     | 36.3  | 36.5     | 36.4  | 36.4  | 36.6  | 36.3  | 0.1                                      | 0    | 0    | 0.2  | 0    | 0.3%                                | 0.0%  | 0.0%  | 0.5%  | 0.0%  |
| 390       | Archway to Notting Hill Gate           | Northbound | 54.3     | 54.6  | 53.3     | 60.6  | 58.9  | 58    | 58.4  | -1                                       | 6.3  | 4.6  | 3.7  | 3.8  | -1.8%                               | 11.6% | 8.5%  | 6.8%  | 7.0%  |
|           |  | Southbound | 45.7     | 45.5  | 45.9     | 46.3  | 46.6  | 46.5  | 46.1  | 0.2                                      | 0.6  | 0.9  | 0.8  | 0.6  | 0.4%                                | 1.3%  | 2.0%  | 1.8%  | 1.3%  |

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| Bus route | From/to                               | Direction  | Baseline |       | Scenario |       |      |       |       | Actual change 2021 baseline to scenario: |      |     |      |      | % change 2021 baseline to scenario: |       |       |       |       |
|-----------|---------------------------------------|------------|----------|-------|----------|-------|------|-------|-------|--|------|-----|------|------|-------------------------------------|-------|-------|-------|-------|
|           |                                       |            | 2021     | 2026  | 1        | 2     | 3A   | 3     | 4     | 1  | 2    | 3A  | 3    | 4    | 1                                   | 2     | 3A    | 3     | 4     |
|           |                                       |            |          |       |          |       |      |       |       |  |      |     |      |      |                                     |       |       |       |       |
| 14        | Putney Heath to Warren Street station | Terminates | 56       | 55.6  | 54       | 61.9  | 60.2 | 59.3  | 59.8  | -2                                       | 5.9  | 4.2 | 3.3  | 4.2  | -3.6%                               | 10.5% | 7.5%  | 5.9%  | 7.6%  |
|           |                                       | Southbound | 47.5     | 47.1  | 47.7     | 47.8  | 47.8 | 47.7  | 47.3  | 0.2                                      | 0.3  | 0.3 | 0.2  | 0.2  | 0.4%                                | 0.6%  | 0.6%  | 0.4%  | 0.4%  |
| 59        | Streatham Hill to King's Cross        | Eastbound  | 116.3    | 115.9 | 116.6    | 117   | 117  | 118   | 116.9 | 0.3                                      | 0.7  | 0.7 | 1.7  | 1    | 0.3%                                | 0.6%  | 0.6%  | 1.5%  | 0.9%  |
|           |                                       | Southbound | 48.5     | 48.6  | 48.7     | 49    | 49   | 50.2  | 49    | 0.2                                      | 0.5  | 0.5 | 1.7  | 0.4  | 0.4%                                | 1.0%  | 1.0%  | 3.5%  | 0.8%  |
| 68        | Euston to West Norwood                | Terminates | 133.9    | 133.6 | 133.9    | 133.9 | 134  | 134.9 | 133.9 | 0  | 0    | 0.1 | 1    | 0.3  | 0.0%                                | 0.0%  | 0.1%  | 0.7%  | 0.2%  |
|           |                                       | Southbound | 68.5     | 68.4  | 68.6     | 68.5  | 68.6 | 69.2  | 68.4  | 0.1                                      | 0    | 0.1 | 0.7  | 0    | 0.1%                                | 0.0%  | 0.1%  | 1.0%  | 0.0%  |
| 91        | Trafalgar Square to Hornsey           | Eastbound  | 45.9     | 44    | 44.8     | 45.5  | 46.6 | 46.1  | 45.1  | -1.1                                     | -0.4 | 0.7 | 0.2  | 1.1  | -2.4%                               | -0.9% | 1.5%  | 0.4%  | 2.5%  |
|           |                                       | Southbound | 41       | 40.5  | 41.1     | 41.2  | 41.4 | 41.6  | 40.9  | 0.1                                      | 0.2  | 0.4 | 0.6  | 0.4  | 0.2%                                | 0.5%  | 1.0%  | 1.5%  | 1.0%  |
| 476       | Euston to Northumberland Park         | Eastbound  | 41.6     | 41.3  | 41.8     | 42.3  | 42.2 | 42.3  | 41.8  | 0.2                                      | 0.7  | 0.6 | 0.7  | 0.5  | 0.5%                                | 1.7%  | 1.4%  | 1.7%  | 1.2%  |
|           |                                       | Terminates | 49.2     | 48.8  | 49.4     | 49.6  | 49.8 | 50.3  | 49.2  | 0.2                                      | 0.4  | 0.6 | 1.1  | 0.4  | 0.4%                                | 0.8%  | 1.2%  | 2.2%  | 0.8%  |
| C2        | Parliament Hill Fields to Victoria    | Northbound | 23.9     | 24    | 23.9     | 24    | 24   | 23.8  | 23.9  | 0  | 0.1  | 0.1 | -0.1 | -0.1 | 0.0%                                | 0.4%  | 0.4%  | -0.4% | -0.4% |
|           |                                       | Terminates | 37.3     | 37.5  | 35.9     | 43.8  | 42   | 41.2  | 41.8  | -1.4                                     | 6.5  | 4.7 | 3.9  | 4.3  | -3.8%                               | 17.4% | 12.6% | 10.5% | 11.5% |

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Table 81: Bus journey time changes (in minutes) - PM peak hour (17:00 - 18:00)

| Bus route | From/to                           | Direction  | Baseline |      | Scenario |      |      |      |      | Actual change 2021 baseline to scenario: |      |      |      |      | % change 2021 baseline to scenario: |       |       |       |       |
|-----------|-----------------------------------|------------|----------|------|----------|------|------|------|------|--|------|------|------|------|-------------------------------------|-------|-------|-------|-------|
|           |                                   |            | 2021     | 2026 | 1        | 2    | 3A   | 3    | 4    | 1  | 2    | 3A   | 3    | 4    | 1                                   | 2     | 3A    | 3     | 4     |
|           |                                   |            |          |      |          |      |      |      |      |  |      |      |      |      |                                     |       |       |       |       |
| 10        | King's Cross to Hammersmith       | Eastbound  | 52.4     | 54.3 | 50.9     | 48.3 | 62.5 | 60.3 | 63.0 | -1.5                                     | -4.1 | 10.1 | 7.9  | 8.7  | 3.8%                                | 1.7%  | 19.3% | 18.7% | 16.0% |
|           |                                   | Westbound  | 50.9     | 50.8 | 48.2     | 49.3 | 52.2 | 52.2 | 52.1 | -2.7                                     | -1.6 | 1.3  | 1.3  | 1.3  | 0.0%                                | 1.9%  | 2.6%  | 2.8%  | 2.6%  |
| 18        | Euston to Sudbury                 | Terminates | 47.5     | 47.1 | 48.7     | 65.1 | 48.2 | 47.8 | 48.3 | 1.2                                      | 17.6 | 0.7  | 0.3  | 1.2  | 1.5%                                | 18.8% | 1.5%  | 0.8%  | 2.5%  |
|           |                                   | Westbound  | 48.4     | 48.9 | 57.0     | 51.0 | 49.8 | 49.6 | 49.6 | 8.6                                      | 2.6  | 1.4  | 1.2  | 0.7  | 0.6%                                | 0.4%  | 2.9%  | 2.5%  | 1.4%  |
| 24        | Hampstead Heath to Grosvenor Road | Terminates | 54.8     | 56.7 | 51.4     | 55.5 | 65.0 | 63.0 | 65.9 | -3.4                                     | 0.7  | 10.2 | 8.2  | 9.2  | 4.0%                                | -0.5% | 18.6% | 18.4% | 16.2% |
|           |                                   | Southbound | 50.8     | 50.3 | 55.8     | 60.8 | 49.6 | 49.5 | 50.9 | 5  | 10   | -1.2 | -1.3 | 0.6  | 1.2%                                | 0.0%  | -2.4% | -2.6% | 1.2%  |
| 27        | Chalk Farm to Chiswick            | Northbound | 55.8     | 55.3 | 61.5     | 64.1 | 55.5 | 55.6 | 56.8 | 5.7                                      | 8.3  | -0.3 | -0.2 | 1.5  | 0.0%                                | 18.9% | -0.5% | -0.4% | 2.7%  |
|           |                                   | Southbound | 60.8     | 60.6 | 56.0     | 43.8 | 59.2 | 59.2 | 60.8 | -4.8                                     | -17  | -1.6 | -1.6 | 0.2  | 1.2%                                | -0.5% | -2.6% | -2.6% | 0.3%  |
| 29        | Trafalgar Square to Wood Green    | Northbound | 53.9     | 55.7 | 44.1     | 54.2 | 64.0 | 62.1 | 64.8 | -9.8                                     | 0.3  | 10.1 | 8.2  | 9.1  | 3.9%                                | -0.4% | 18.7% | 19.0% | 16.3% |
|           |                                   | Southbound | 44       | 43.8 | 54.2     | 50.5 | 43.8 | 43.8 | 44.2 | 10.2                                     | 6.5  | -0.2 | -0.2 | 0.4  | 0.2%                                | 0.4%  | -0.5% | -0.7% | 0.9%  |
| 30        | Hackney Wick to Oxford Street     | Eastbound  | 54.4     | 54.3 | 50.6     | 70.4 | 54.1 | 54.1 | 54.3 | -3.8                                     | 16   | -0.3 | -0.3 | 0    | -0.4%                               | 16.9% | -0.6% | -0.4% | 0.0%  |
|           |                                   | Westbound  | 50.3     | 50.1 | 62.0     | 54.7 | 53.4 | 54.2 | 49.9 | 11.7                                     | 4.4  | 3.1  | 3.9  | -0.2 | 0.6%                                | 1.9%  | 6.2%  | 8.0%  | -0.4% |

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| Bus route | From/to                                | Direction  | Baseline |       | Scenario |       |       |       |       | Actual change 2021 baseline to scenario: |       |      |      |      | % change 2021 baseline to scenario: |       |       |       |       |
|-----------|--|------------|----------|-------|----------|-------|-------|-------|-------|--|-------|------|------|------|-------------------------------------|-------|-------|-------|-------|
|           |  |            | 2021     | 2026  | 1        | 2     | 3A    | 3     | 4     | 1  | 2     | 3A   | 3    | 4    | 1                                   | 2     | 3A    | 3     | 4     |
|           |  |            |          |       |          |       |       |       |       |  |       |      |      |      |                                     |       |       |       |       |
| 73        | Victoria to Stoke Newington            | Eastbound  | 60.2     | 62.1  | 53.7     | 60.1  | 70.2  | 68.0  | 70.8  | -6.5                                     | -0.1  | 10   | 7.8  | 8.7  | 3.0%                                | 0.0%  | 16.6% | 16.0% | 14.0% |
|           |  | Westbound  | 53.7     | 53.5  | 59.8     | 58.0  | 55.0  | 55.0  | 54.8  | 6.1                                      | 4.3   | 1.3  | 1.3  | 1.3  | 0.0%                                | -0.2% | 2.4%  | 2.6%  | 2.4%  |
| 88        | Camden Town to Clapham Common          | Northbound | 60.1     | 60.1  | 58.2     | 60.9  | 60.2  | 59.8  | 60.7  | -1.9                                     | 0.8   | 0.1  | -0.3 | 0.6  | -0.5%                               | 19.2% | 0.2%  | -0.3% | 1.0%  |
|           |  | Southbound | 58.1     | 57.4  | 53.0     | 47.7  | 58.0  | 58.2  | 58.3  | -5.1                                     | -10.4 | -0.1 | 0.1  | 0.9  | 0.2%                                | -0.4% | -0.2% | 0.3%  | 1.6%  |
| 134       | North Finchley to Tottenham Court Road | Northbound | 51.1     | 52.7  | 48.0     | 122.9 | 60.9  | 59.0  | 61.6  | -3.1                                     | 71.8  | 9.8  | 7.9  | 8.9  | 3.7%                                | 0.9%  | 19.2% | 18.7% | 16.9% |
|           |  | Southbound | 47.9     | 47.7  | 122.1    | 53.7  | 47.6  | 47.7  | 48.1  | 74.2                                     | 5.8   | -0.3 | -0.2 | 0.4  | 0.2%                                | -3.4% | -0.6% | -0.4% | 0.8%  |
| 168       | Hampstead Heath to Old Kent Road       | Northbound | 121.8    | 121.5 | 54.9     | 57.4  | 123.5 | 124.1 | 123.6 | -66.9                                    | -64.4 | 1.7  | 2.3  | 2.1  | 0.2%                                | -0.3% | 1.4%  | 2.0%  | 1.7%  |
|           |  | Southbound | 55.6     | 54.2  | 57.5     | 57.9  | 56.1  | 58.0  | 53.8  | 1.9                                      | 2.3   | 0.5  | 2.4  | -0.4 | -1.3%                               | 1.8%  | 0.9%  | 6.4%  | -0.7% |
| 205       | Paddington to Bow                      | Eastbound  | 57.6     | 57.7  | 57.2     | 37.6  | 57.4  | 57.5  | 58.9  | -0.4                                     | -20   | -0.2 | -0.1 | 1.2  | -0.2%                               | 0.5%  | -0.3% | 0.0%  | 2.1%  |
|           |  | Westbound  | 56.9     | 57.3  | 37.5     | 35.6  | 58.3  | 58.3  | 58.3  | -19.4                                    | -21.3 | 1.4  | 1.4  | 1    | 0.5%                                | -0.3% | 2.5%  | 2.5%  | 1.7%  |
| 253       | Euston to Hackney                      | Northbound | 37.4     | 37.2  | 35.6     | 63.1  | 37.6  | 37.8  | 37.4  | -1.8                                     | 25.7  | 0.2  | 0.4  | 0.2  | 0.3%                                | 19.7% | 0.5%  | 0.8%  | 0.5%  |
|           |  | Terminates | 35.7     | 35.5  | 54.7     | 46.9  | 35.7  | 35.7  | 35.5  | 19                                       | 11.2  | 0    | 0    | 0    | -0.3%                               | 2.4%  | 0.0%  | 0.0%  | 0.0%  |
| 390       | Archway to Notting Hill Gate           | Northbound | 52.7     | 54.6  | 45.8     | 68.3  | 62.9  | 60.7  | 63.3  | -6.9                                     | 15.6  | 10.2 | 8    | 8.7  | 3.8%                                | 18.8% | 19.4% | 18.8% | 15.9% |
|           |  | Southbound | 45.8     | 45.6  | 59.9     | 53.6  | 47.2  | 47.1  | 46.9  | 14.1                                     | 7.8   | 1.4  | 1.3  | 1.3  | 0.0%                                | 0.6%  | 3.1%  | 3.1%  | 2.9%  |

SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

| Bus route | From/to                               | Direction  | Baseline |       | Scenario |       |       |       |       | Actual change 2021 baseline to scenario: |       |      |     |      | % change 2021 baseline to scenario: |       |       |       |       |
|-----------|---------------------------------------|------------|----------|-------|----------|-------|-------|-------|-------|--|-------|------|-----|------|-------------------------------------|-------|-------|-------|-------|
|           |                                       |            | 2021     | 2026  | 1        | 2     | 3A    | 3     | 4     | 1  | 2     | 3A   | 3   | 4    | 1                                   | 2     | 3A    | 3     | 4     |
|           |                                       |            |          |       |          |       |       |       |       |  |       |      |     |      |                                     |       |       |       |       |
| 14        | Putney Heath to Warren Street station | Terminates | 57.5     | 59.2  | 53.6     | 120.8 | 68.2  | 66.1  | 68.0  | -3.9                                     | 63.3  | 10.7 | 8.6 | 8.8  | 4.2%                                | 0.9%  | 18.6% | 18.0% | 14.9% |
|           |                                       | Southbound | 53.3     | 52.9  | 119.8    | 55.4  | 53.8  | 53.6  | 53.2  | 66.5                                     | 2.1   | 0.5  | 0.3 | 0.3  | 0.6%                                | 0.7%  | 0.9%  | 0.9%  | 0.6%  |
| 59        | Streatham Hill to King's Cross        | Eastbound  | 119.7    | 119.6 | 55.2     | 139.4 | 120.9 | 121.4 | 121.9 | -64.5                                    | 19.7  | 1.2  | 1.7 | 2.3  | 0.1%                                | 0.6%  | 1.0%  | 1.5%  | 1.9%  |
|           |                                       | Southbound | 55       | 54.4  | 138.7    | 76.0  | 55.3  | 56.7  | 55.0  | 83.7                                     | 21    | 0.3  | 1.7 | 0.6  | 0.4%                                | -0.4% | 0.5%  | 3.3%  | 1.1%  |
| 68        | Euston to West Norwood                | Terminates | 138.6    | 138.5 | 76.5     | 45.2  | 139.4 | 140.1 | 140.3 | -62.1                                    | -93.4 | 0.8  | 1.5 | 1.8  | 0.1%                                | 2.5%  | 0.6%  | 1.1%  | 1.3%  |
|           |                                       | Southbound | 76.3     | 76.8  | 44.3     | 40.5  | 77.3  | 78.7  | 76.1  | -32                                      | -35.8 | 1    | 2.4 | -0.7 | 0.3%                                | 0.2%  | 1.3%  | 3.1%  | -0.9% |
| 91        | Trafalgar Square to Hornsey           | Eastbound  | 44.1     | 43.9  | 40.4     | 42.8  | 45.3  | 46.1  | 46.3  | -3.7                                     | -1.3  | 1.2  | 2   | 2.4  | 0.5%                                | 0.2%  | 2.7%  | 4.1%  | 5.5%  |
|           |                                       | Southbound | 40.4     | 40.1  | 42.4     | 47.4  | 40.5  | 40.6  | 40.3  | 2  | 7     | 0.1  | 0.2 | 0.2  | 0.0%                                | 0.6%  | 0.2%  | 0.2%  | 0.5%  |
| 476       | Euston to Northumberland Park         | Eastbound  | 42.7     | 42.5  | 47.3     | 24.8  | 42.7  | 42.8  | 42.9  | 4.6                                      | -17.9 | 0    | 0.1 | 0.4  | -0.7%                               | 4.2%  | 0.0%  | 0.2%  | 0.9%  |
|           |                                       | Terminates | 47.1     | 46.7  | 24.2     | 52.1  | 47.4  | 47.5  | 47.0  | -22.9                                    | 5     | 0.3  | 0.4 | 0.3  | 0.4%                                | 25.8% | 0.6%  | 1.1%  | 0.6%  |
| C2        | Parliament Hill Fields to Victoria    | Northbound | 23.8     | 23.9  | 43.6     | 48.3  | 24.9  | 24.4  | 24.7  | 19.8                                     | 24.5  | 1.1  | 0.6 | 0.8  | 1.7%                                | 1.7%  | 4.6%  | 2.1%  | 3.3%  |
|           |                                       | Terminates | 41.4     | 43.3  | 50.9     | 49.3  | 51.9  | 49.6  | 52.2  | 9.5                                      | 7.9   | 10.5 | 8.2 | 8.9  | 5.3%                                | 1.9%  | 25.4% | 25.3% | 20.6% |

- 3.3.134 The bus routes operating along A501 Euston Road experience an increase in end to end journey times as a result of increased traffic flow associated with HGV movements due to construction of the revised scheme as well as the removal of the eastbound and westbound bus lanes due to utility works on A501 Euston Road.
- 3.3.135 Bus routes operating along A4200 Eversholt Street experience an increase in end to end journey times due to the additional HGV traffic flow to the Royal Mail construction compound and the additional taxi flows to the temporary taxi facility on A4200 Eversholt Street. As well as this, the utility works on Eversholt Street during Scenario 1 also contribute to the increases in journey times during this scenario due to the temporary removal of the southbound bus lane.
- 3.3.136 On A400 Hampstead Road, the end to end bus journey time increases occur due to the additional removal of the bus lane and the reduction to one lane (for all traffic) in each direction during Scenarios 2, 3A and 3. The traffic flows associated with the construction compounds at the National Temperance Hospital, A400 Hampstead Road overbridge also contribute to the increase in bus journey times.
- 3.3.137 Route C2 which has a frequency of 7.5 buses per hour per direction is impacted by the temporary traffic management measures at the A4201 Parkway junction and the short term closures on Adelaide Road (CFA3) and Chalk Farm Road (CFA2). As a result, delays are expected to be incurred during the AM peak period and PM peak period.
- 3.3.138 While changes in traffic flow and temporary and permanent infrastructure changes will lead to increases in delays to traffic, including buses, most signal junctions in central London are under adaptive control, such as SCOOT, which will optimise the signal stages in real time. As a result of this, improvements to the bus journey times along A400 Hampstead Road, A501 Euston Road and A4200 Eversholt Street are likely to be realised due to the improvement in the operation of the main junctions along these roads.

### **Bus route diversions**

- 3.3.139 The temporary bus route diversions, as a result of the short term closures on Adelaide Road (CFA3), will impact on the distances travelled on three bus routes: route 24 (northbound), route 31 (westbound and eastbound) and route 31 (eastbound). This has been modelled as part of Scenario 3 and Scenario 3A in Table 80 and Table 81.

### *Coach*

- 3.3.140 There is an existing parking bay for one coach on Cardington Street, which accommodates charter coaches to Euston station and the Hotel Ibis. This coach parking bay will be removed due to the westward expansion of Euston station. For the duration of construction Stage A, a replacement coach bay will be provided on A4200 Eversholt Street for use by coaches arriving to the station. A replacement coach facility will be provided prior to the removal of the coach parking bay on Cardington Street. Coaches for mobility impaired people will be able to set-down and pick-up passengers on A4200 Eversholt Street, where Network Rail staff assistance can be called.
- 3.3.141 For construction Stage B1, a temporary coach set-down bay will be provided close to the A400 Hampstead Road station entrance. This will be provided on the road leading

to the logistics centre and adequate space is available for turning. Coaches for mobility impaired people will be able to set-down and pick-up passengers here, where Network Rail staff assistance can be called. Alternatively, coaches would be able to set-down on A4200 Eversholt Street.

- 3.3.142 Rail replacement buses/coaches, which currently enter Euston station by ramp from Barnby Street, will not be able to do so during the construction phase of the revised scheme. Rail replacement coaches may be accommodated on A4200 Eversholt Street or in Euston bus station during construction, subject to agreement with NR and TfL London Buses.
- 3.3.143 Cardington Street can experience periods of intense coach activity associated with the Ibis Hotel and Thistle Hotel Euston beyond the single bay provided. However, with the demolition of the hotels on Cardington Street and, hence, the removal of this demand for coach parking, it is not anticipated that the re-location of the coach facilities to A4200 Eversholt Street will impact the coach parking demand in the wider area.

#### *Public transport interchanges*

- 3.3.144 Euston and Euston underground stations currently experience a range of congestion issues. Growth and planned service enhancements (particularly the completion of ongoing upgrade works to the Northern line) are expected to result in further increases in passenger volumes and congestion. These issues have been examined as part of the construction planning process.
- 3.3.145 The main capacity constraints, in the AM peak hour, are currently identified as access to and within Euston underground station. Access flows from Euston station to Euston underground station exceed the recommended capacity of the main entrance within Euston station concourse, resulting in queues to enter the station. Similarly flows to the southbound Victoria Line and Northern Line (Bank branch) exceed the recommended capacity of the main access route, resulting in congestion within the LU station.
- 3.3.146 Station management measures to address the congestion within Euston underground station restrict station entries, this can further exacerbate existing queuing issues in the concourse.
- 3.3.147 Analysis of the PM peak period identifies passenger accumulation capacity in Euston station concourse as being the area of weakest performance. This was previously identified in NR's Network Route Utilisation Strategy (RUS) for stations. The RUS also identifies that the operation of this area requires management and control by station staff. These capacity issues are identified as being a result of the constraints of the existing infrastructure, a trend that will be further exacerbated by the forecast growth during the construction period. Access to Euston underground station is also identified as a capacity issue in the PM peak, with flows again exceeding the recommended capacity of the main entrance.
- 3.3.148 These congestion issues will increase to 2026 as demand at Euston and Euston underground station increases regardless of HS2. In the absence of the revised scheme, works would be needed to address these issues.

- 3.3.149 Additional station capacity is provided on the completion of the revised scheme in 2026 and on completion of the station in 2033. This results in performance benefits on completion of the revised scheme and during construction stage B1.
- 3.3.150 The impact of the proposed construction strategy has been reviewed in terms of the level of disruption experienced, measured in terms of changes in walking distances, and any impacts on station capacity/congestion.

### **Disruption during construction Stage A**

- 3.3.151 During construction Stage A, there will be limited impacts on Euston station during this period. The main changes are the relocation of the existing ticket hall and the reconfiguration of the station from 18 to 16 platforms.
- 3.3.152 The platform reconfiguration will affect the utilisation of platforms and LU access routes. Additional infrastructure, ramp widening to platforms 1-3 and an additional escalator from concourse to the LU ticket hall, will be provided to support these revised routeings.

### **Euston station capacity during construction Stage A**

- 3.3.153 No additional capacity impacts are therefore predicted for Euston station during construction Stage A. Existing capacity issues will, however, continue to be present and may require increased management as passenger demand increases.

### **Euston underground station capacity during construction Stage A**

- 3.3.154 Apart from platform closures, the construction phasing has a limited impact on Euston underground station capacity during this period. Existing congestion issues will, however, persist, and forecast growth is expected to result in increased congestion within the LU station during the construction period.
- 3.3.155 Impacts of the construction phasing relate to changes in the interchange patterns between the underground and NR stations, where an additional escalator is proposed to increase capacity on the main concourse to underground concourse routes.

### **Disruption during construction Stage B1**

- 3.3.156 Passenger routes within Euston station, between platforms, concourse, station entrances and interchange will also be affected throughout the construction Stage B1 period. Review of the proposed phasing indicates that the vast majority of revised interchange routes and surface connections can be maintained without substantial impacts (increase in travel distance of less than 100m).
- 3.3.157 Changes to the location of the Euston station taxi rank during the B1 construction stage remain in the order of an additional 100-200 metres.

### **Euston station capacity during construction Stage B1**

- 3.3.158 Construction of the revised scheme has limited impacts on Euston station during this period. The main changes are the relocation of displaced station accommodation in both the station and piazza area.



- 3.3.159 This will result in the introduction of station accommodation structures on platforms 2/3 and 8/9. The impacts of this on station performance is not considered to be material.
- 3.3.160 No negative capacity impacts are therefore identified for Euston station. Existing capacity issues will, however, continue to be present, although opening of Phase One of the revised scheme in 2026 is expected to reduce usage of conventional services at Euston station below baseline forecasts.

### **Euston underground station capacity during construction Stage B1**

- 3.3.161 Euston underground station is substantially enhanced on the completion of Phase One of the revised scheme in 2026, substantially increasing the available station capacity. In conjunction with the shifts in demand between conventional and high speed services, this will enable Euston underground station to meet recommended capacity levels during this period.
- 3.3.162 Apart from the final set of platform closures which take place in 2032 the construction phasing does not have material impacts on the Euston LU station capacity during this period.

### *Pedestrians*

- 3.3.163 Certain footways will need to be closed with temporary alternative routes in place to enable construction works to occur. Therefore, during the different stages of the construction programme, routes for pedestrians will be managed to maintain adequate routes.
- 3.3.164 The impact of the proposed construction strategy has been reviewed in terms of the level of severance experienced, measured in terms of changes in walking distances, and the size requirements for proposed routes.

### **Severance during construction Stage A and construction Stage B1**

- 3.3.165 Passenger routes from Euston station and Euston underground station will be impacted during construction Stages A and B1, with some routes closed for a period and some increases in route length to access areas of public realm and the surrounding public highway network.
- 3.3.166 A review of the proposed phasing indicates that the vast majority of surface connections can be maintained without material impacts (increase in travel distance of less than 100m). A small number of connections are expected to experience minor impacts with walking distances increasing by over 100m.

### **Footway capacity during construction Stage A and construction Stage B1**

- 3.3.167 To assess changes to the pedestrian network in the vicinity of Euston station during the construction programme, an assessment has been undertaken to calculate the required pedestrian walkway and footway widths to accommodate the pedestrian flows from the station. The pedestrian assessment is based on an assessment of a reasonably busy case during the construction programme.

3.3.168 The assessment is based on footway and crossings criteria and assumes that a Level of Service (LoS) C is achieved, where LoS A provides the most comfortable conditions and LoS F the least. Table 82 shows the requirements of the LoS scale<sup>13</sup>.

Table 82: LOS scale factors

| LOS | Walkway (m <sup>2</sup> /ped) | Walkway capacity (ped/metre/min) |
|-----|-------------------------------|----------------------------------|
| A   | >3.25                         | <23                              |
| B   | 3.25-2.30                     | 23-33                            |
| C   | 2.30-1.39                     | 33-49 (two-way target 40 ppm)    |
| D   | 1.39-0.93                     | 49-66 (one-way target 50 ppm)    |
| E   | 0.93-0.46                     | 66-82                            |
| F   | <0.46                         | NA                               |

3.3.169 2012 Euston area matrices form the baseline flow data set for passenger movements in the Euston area, including local street movements. These have been used in conjunction with Railplan results for 2026 baseline and 2041 HS2 Phase One (in the absence of HS2 Phase Two services), to develop the sizing requirements for access routes during the construction period. These Railplan results have been developed with reference to the latest Train Operating Company (TOC) growth expectations and are therefore considered to be reflective of an appropriate planning scenario without further growth adjustments.

3.3.170 The provision of appropriately sized pedestrian routes to and within Euston station will be continually reviewed throughout the construction period. However, it is intended that all routes to publicly accessible areas of the station, and on the approaches to the station, will be sized to a minimum width of 3.0m.

3.3.171 At this stage the routes identified are indicative and subject to further agreement with LBC, TfL and NR.

3.3.172 The following changes have been identified and assessed:

- Diversion of the Euston Square Gardens eastern route;
- Diversion of the Euston Square Gardens western route;
- Temporary western access routes across the HS2 worksite;
- Station access during works in the station plaza; and
- Revised access routes following the commencement of Phase One operation at the end of 2026.

<sup>13</sup> Fruin. 1971. Pedestrian Planning and Design. Elevator World, Inc. Mobile, Alabama, USA.

3.3.173 The requirements for temporary and existing routes, generally the predominant route type prior to the commencement of the Phase One operation at the end of 2026, has been based on the following:

- 2012 Euston area matrices, and
- 2026 Baseline (no HS2) Railplan forecasts.

3.3.174 Requirements for temporary and existing routes during the construction Stage B1 have been developed using the same approach, but based on the following inputs:

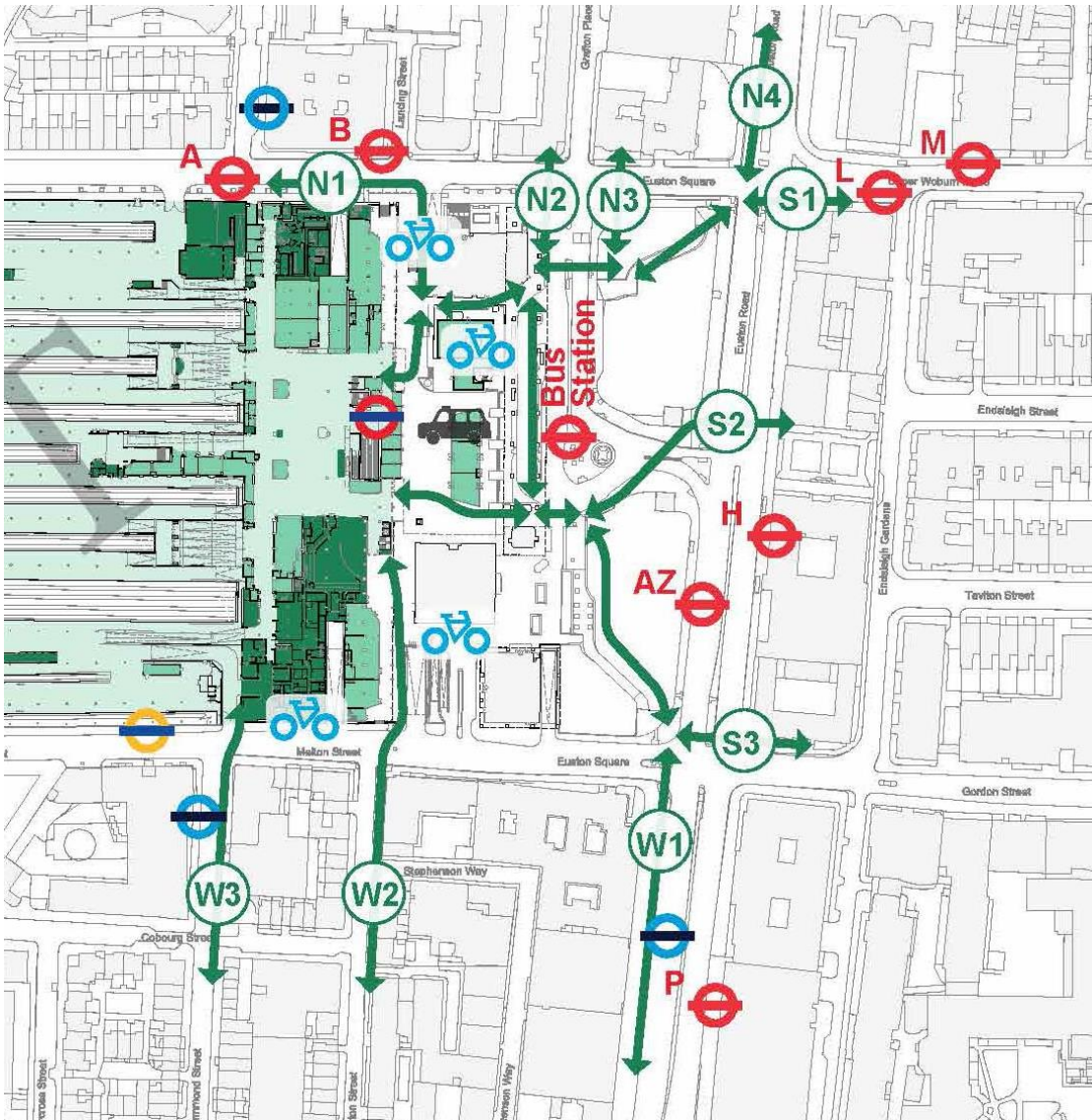
- 2012 Euston area matrices, and
- 2041 Phase One operation Railplan forecasts.

3.3.175 The results of the assessment are provided in Table 83. The locations of each of the platforms and street entrances can be seen in Figure 88. This shows that, except for the station entrances themselves, where multiple routes converge, the required dimensions are governed by the proposed minimum route width target of 3m effective width.

Table 83: Pedestrian demand, required and target walkway widths during construction Stage A

| Walkway location | AM peak hour two-way flow per minute | PM peak hour two-way flow per minute | Required width (m) | Target effective width (m) |
|------------------|--------------------------------------|--------------------------------------|--------------------|----------------------------|
| W1               | 82                                   | 62                                   | 3.0                | 3.0                        |
| W2               | 15                                   | 13                                   | 1.0                | 3.0                        |
| W3               | 26                                   | 11                                   | 2.0                | 3.0                        |
| S1               | 15                                   | 16                                   | 2.0                | 3.0                        |
| S2               | 8                                    | 8                                    | 1.0                | 3.0                        |
| S3               | 12                                   | 14                                   | 1.0                | 3.0                        |
| N1               | 17                                   | 18                                   | 2.0                | 3.0                        |
| N2               | 10                                   | 11                                   | 1.0                | 3.0                        |
| N3               | 10                                   | 7                                    | 1.0                | 3.0                        |
| N4               | 18                                   | 21                                   | 2.0                | 3.0                        |
| West entrance    | 109                                  | 91                                   | 4.0                | 4.0                        |
| East entrance    | 69                                   | 73                                   | 3.0                | 4.0                        |
| Bus station link | 15                                   | 13                                   | 1.0                | 3.0                        |

Figure 88: Station access and egress points



## Cycling

### Cycle routes

3.3.176 Cyclists will be impacted by bus lane closures on the following routes:

- A501 Euston Road - temporary closure of the westbound and eastbound bus lanes due to construction of the pedestrian sub-surface route beneath A501 Euston Road. Cyclists will use the general traffic lanes;
- A4200 Eversholt Street - temporary closure of the southbound bus lane to provide the extra width required for a temporary taxi facility adjacent to Euston station, on the western side of A4200 Eversholt Street. Cyclists will use the general traffic lane; and
- A400 Hampstead Road - temporary closure of the northbound and southbound bus lanes due to the construction of the new A400 Hampstead Road overbridge. On-carriageway cycle lane will be provided for the first stage of these works with a segregated two-way cycle lane provided adjacent to the northbound carriageway for the second stage of the works;

- 3.3.177 At the next stage of design, HS2 Ltd. will continue to work with LBC and TfL to provide the most appropriate temporary layouts for cyclists during the road works.
- 3.3.178 Cyclists will be affected by a number of road closures during the construction programme:
- Cardington Street will be closed permanently due to the construction of Euston station. Cobourg Street and the eastern ends of Starcross Street, Drummond Street, Euston Street and Stephenson Way will be temporarily closed. As described earlier, a pedestrian link from the west side of Euston station to Euston Street or Stephenson Way will be available throughout the construction phase, although cyclists may need to dismount if using this link;
  - Melton Street will be temporarily closed to cyclists due to the construction of the pedestrian sub-surface route beneath A501 Euston Road. A pedestrian link from the southwest corner of Euston station to A501 Euston Road will be available throughout the construction phase, although cyclists may need to dismount if using this link;
  - the north end of Gordon Street will be temporarily closed to cyclists due to the construction of the pedestrian sub-surface route beneath A501 Euston Road;
  - Mornington Street overbridge will be closed with a temporary pedestrian and utilities bridge provided. Cyclists using this bridge will be required to dismount before doing so. Park Village East will temporarily become a pedestrian only route, requiring cyclists to dismount. This is due to construction of the railway line on the approach to Euston station. Taking a diversionary route via A4201 Albany Street and Robert Street would add less than 100m to cyclist journeys;
  - Granby Terrace will temporarily close due to construction of the railway line on the approach to Euston station. A temporary diversion cycle route will be available via Robert Street, adding 730m to the journeys of cyclists travelling eastbound. However, it is expected that the number of cyclists using this route would be low if Park Village East was simultaneously closed; and
  - the construction works affecting Cardington Street, Melton Street and the north end of Gordon Street will result in the partial loss of LCN+ (unofficial) route 6a from Mornington Crescent to Tavistock Place or Gordon Square. Using signs, cyclists will be directed via an alternative north to south route during the construction phase. One possible diversion route would be via A400 Hampstead Road and A400 Tottenham Court Road, or Gower Street and Byng Place, which will add approximately 400m to cyclist journeys. A shorter diversion route would be available via A400 Hampstead Road, the A501 Euston Road cycle track and Gower Place, which would add approximately 250m to cyclist journeys. However, this would require two-way cycling past the Euston Square station entrance and on Gower Place.
- 3.3.179 Temporary alternative cycle routes will be further developed in consultation with TfL and LBC through the detailed construction planning stages.

## Cycle parking

- 3.3.180 Any cycle parking affected by construction activities will be relocated during the construction phase. This includes the small number of isolated on-street cycle parking spaces. The total number of existing cycle parking spaces will be maintained. Euston station's cycle parking provision will continue to be secure and sheltered, for example using canopies.
- 3.3.181 There are four cycle parking areas at the front of the existing Euston station providing 310 cycle parking spaces through a mixture of Sheffield stands and newer, covered, two-tier cycle racks. These are described as follows:
- 60 cycle parking spaces provided using Sheffield stand 'toast racks' on the west side of Euston station piazza near the ticket office, the retail units and 40 Melton Street. This will be the first cycle parking area to be affected by construction work, and will be relocated to a temporary location in Euston Square Gardens on the east side of the east gatehouse building, which is less than 150m from its original location. It will be accessible from the station and from A501 Euston Road;
  - 76 cycle parking spaces using Josta two tier racks near the Melton Street entrance to Euston station. This will also be the first cycle parking area to be affected by construction work, and will be relocated to a temporary location in Euston Square Gardens on the east side of the east gatehouse building, which is less than 200m from its original location. It will be accessible from the station and from A501 Euston Road;
  - 124 cycle parking spaces provided using Josta two tier racks (88 spaces) and Sheffield stand 'toast racks' (36 spaces) near the centre of Euston station piazza in an 'L' shape around an existing retail facility. This cycle parking will be remain in its existing location through the construction programme and will be removed at the end of the construction programme (between mid-2032 and 2033). The spaces will be re-provided as part of the total station cycle parking; and
  - 50 cycle parking spaces provided using Josta, two tier racks on the east side of Euston station piazza near 1 Eversholt Street. This cycle parking will remain in its existing location through the construction programme and will be removed at the end of the construction programme with spaces re-provided in a permanent location on A420 Eversholt Street near 1 Eversholt Street, which is less than 100m from its original location. It will be accessible from the station and from A4200 Eversholt Street.
- 3.3.182 During the transition from existing cycle parking, through temporary locations, to the permanent cycle parking locations there will be a phased increase in overall cycle parking provision if required. Cycle parking demand will also be monitored.

## Cycle hire

- 3.3.183 It is expected that the following Cycle Hire docking stations will be relocated:
- Drummond Street provides 28 docking points and will be relocated due to the

westward expansion of Euston station. The docking station is likely to be relocated westward along Drummond Street or to a nearby street;

- A400 Hampstead Road (Cartmel) provides 16 docking points and will be relocated due to the construction of the new A400 Hampstead Road overbridge. The docking station is likely to be relocated westward onto Varndell Street or to a nearby street; and
- A501 Euston Road provides 24 docking points and will be relocated due to the construction of the pedestrian subway beneath A501 Euston Road. The docking station is likely to be relocated westward, close to the A501 Euston Road junction with North Gower Street.
- On A400 Hampstead Road at Harrington Square, a maximum of 27 docking stations will not be accessible during the construction of A400 Hampstead Road overbridge. These spaces will be re-provided either by increasing the number of docking points at existing Cycle Hire stations in the vicinity of Harrington Square or by providing a new, temporary Cycle Hire station nearby.

3.3.184 Replacement docking stations will be provided prior to their closure. The existing total number of docking points will continue to be provided during the construction phase.

3.3.185 Additionally, it is expected that a small number of docking stations, including Doric Way and Endsleigh Gardens, will be temporarily closed for a period of no more than four weeks due to utility works.

### **Cycle impacts**

3.3.186 The disruption to cycle routes, as a result of road closures will not have a substantial impact on journey times as a number of alternative routes are available and they will also generally affect a low number of cyclists.

3.3.187 The closure of Cardington Street, which is currently used by 106 cyclists in the AM peak hour and 52 cyclists during the PM peak hour, will increase cyclist journey times by up to two minutes, assuming that the diverted route will be via A400 Tottenham Court Road and A400 Hampstead Road.

3.3.188 Granby Terrace overbridge is currently used by 59 cyclists during the AM peak hour and 22 cyclists during the PM peak hour. While the closure of Granby Terrace overbridge will only affect a small number of cyclists, journey times will be increased by between two and three minutes. Alternative routes will be available via Stanhope Street and Varndell Street or Robert Street.

3.3.189 The impact on cyclists of the increased number of HGVs in the area has also been considered. The risk and severity of HGV/cyclist collisions will be mitigated by a range of safety measures. Further details on these mitigation measures can be found in the Code of Construction Practice (CoCP) (see Volume 5: Appendix CT-003-000/1).

*Parking and loading***On-street parking**

- 3.3.190 To accommodate the construction works at Euston station, a number of road closures and associated parking suspensions will be necessary. There will be a temporary loss of approximately 408 on-street parking spaces as a result of the construction of the revised scheme, HGV routeing and utility works, although these are not necessarily concurrent. Included in this total are residential permit holder bays (193), pay and display (133) and loading bays (30). A number of these losses are a direct result of the revised scheme such as loss due to enlarged station footprint but the loss of these spaces will occur within the construction period. Permanent parking suspensions are assessed in the operational chapter.
- 3.3.191 Temporary and permanent parking suspensions required due to construction works will result in the loss or relocation of on-street parking at the locations shown in Table 84. Only those roads where parking bays will need to be temporarily suspended for more than four weeks are listed. It is likely that parking will be suspended along other roads. However, these are not listed as the suspensions are not likely to be necessary for more than four weeks.
- 3.3.192 The number of parking spaces suspended at each location is an approximation based upon site observations, as each vehicular space may not be individually marked.
- 3.3.193 Loading is permitted within the southbound bus lane on A4200 Eversholt Street outside of operation of the bus lane (the bus lane operates between 07:00 and 10:00 and 16:00 and 19:00). The bus lane will be suspended due to utility works and may also be suspended to facilitate provision of temporary station taxi facilities between 2023 and 2026.
- 3.3.194 In addition, a total of 25 parking bays may be suspended on Drummond Crescent to provide a secondary taxi rank during construction. Included in this total are residential permit holder bays (8), pay and display bays (2) and motorcycle bays (15).
- 3.3.195 Parking bays on Starcross Street, Drummond Street, Euston Street and Stephenson Way may also need to be suspended to allow delivery and refuse collection vehicles to turn.
- 3.3.196 To manage the loss of the three disabled parking spaces in the Euston station car park, opportunities for relocation will be considered through the detailed construction planning stages.
- 3.3.197 In order to mitigate against parking suspensions, bays will, where possible, be re-provided to make up for any shortfall in availability that may arise from the parking suspensions. Additionally, the disabled bays that will be suspended on Stanhope Street, Lancing Street and Drummond Crescent will be re-provided in an appropriate location.
- 3.3.198 Where possible, the loss of residential permit holder bays and permit holder bays shall be re-provided at locations that are currently designated as pay and display.
- 3.3.199 A total of five pay and display bays on Robert Street will be converted to residential permit holder bays to offset the loss of residential permit holder bays on Stanhope Street.



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Table 84: On-street parking bays affected by construction of the revised scheme

| Location   | Permit holder | Resident permit holder | Pay and display | Resident permit holder / pay and display | Disabled | Motorcycle | Car club | Coach | Taxi | Loading | Doctor |
|--|---------------|------------------------|-----------------|--|----------|------------|----------|-------|------|---------|--------|
| Robert Street (east of junction with Stanhope Street)                              | -             | -                      | 9               | -  | -        | -          | -        | -     | -    | -       | -      |
| Robert Street (west of junction with Stanhope Street)                              | -             | -                      | 12              | -  | -        | -          | -        | -     | -    | -       | -      |
| Stanhope Street (north of junction with Robert Street)                             | -             | 15                     | 4               | -  | -        | -          | -        | -     | -    | -       | -      |
| Mackworth Street   | -             | 16                     | -               | -  | -        | -          | -        | -     | -    | -       | -      |
| Varndell Street (between Augustus Street and Hampstead Road)                       | -             | 10                     | 3               | -  | -        | -          | -        | -     | -    | -       | -      |
| Harrington Street (between Granby Terrace Bridge and Varndell Street)              | -             | 10                     | 2               | -  | -        | -          | -        | -     | -    | -       | -      |
| Granby Terrace Bridge  | -             | 19                     | 7               | -  | -        | -          | -        | -     | -    | -       | -      |
| Park village east (between Granby Terrace Bridge and Mornington Street Bridge)     | -             | 17                     | 10              | -  | -        | -          | -        | -     | -    | -       | -      |
| Park Village East (from Mornington Street Bridge to Parkway)                       | -             | 21                     | 2               | -  | -        | -          | -        | -     | -    | -       | -      |
| Mornington Terrace (between Mornington Street Bridge and Mornington Place) one-way | -             | 18                     | -               | -  | -        | 5          | -        | -     | -    | -       | -      |
| Mornington Terrace (between Delancey Street and Mornington Street Bridge) one-way  | -             | 13                     | -               | -  | -        | -          | -        | -     | -    | -       | -      |

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| Location   | Permit holder | Resident permit holder | Pay and display | Resident permit holder / pay and display | Disabled | Motorcycle | Car club | Coach | Taxi | Loading | Doctor |
|--|---------------|------------------------|-----------------|--|----------|------------|----------|-------|------|---------|--------|
| Mornington Crescent (south of Clarkson Row)                          | -             | 1                      | 2               | -  | -        | -          | -        | -     | -    | -       | -      |
| Hampstead Road A400 (between Lidlington Place and Harrington Square) | -             | -                      | 7               | -  | -        | -          | -        | -     | 6    | 2       | -      |
| Drummond Street (east of Cobourg Street)                             | -             | 6                      | -               | -  | -        | 7          | -        | -     | -    | 1       | -      |
| Drummond Street (between Cobourg Street and North Gower Street)      | -             | 1                      | 5               | -  | -        | -          | -        | -     | -    | -       | -      |
| Starcross Street   | -             | 12                     | -               | -  | -        | -          | -        | -     | -    | -       | -      |
| Cobourg Street   | -             | 19                     | -               | -  | -        | -          | -        | -     | -    | -       | -      |
| Endsleigh Gardens (between Endsleigh Street and Gordon Street)       | -             | 5                      | 7               | -  | -        | -          | -        | -     | -    | -       | -      |
| Lancing Street   | -             | -                      | 3               | -  | -        | -          | -        | -     | -    | 1       | -      |
| Eversholt Street (from Barnby Street to Euston Road)                 | -             | -                      | -               | -  | -        | -          | -        | -     | -    | 24      | -      |
| Drummond Crescent  | -             | 8                      | 2               | -  | -        | 15         | -        | -     | -    | -       | -      |
| Barnby Street  | -             | 2                      | 5               | -  | -        | -          | -        | -     | -    | -       | -      |
| Gordon Street (north of Endsleigh Gardens)                           | -             | -                      | -               | -  | -        | -          | -        | -     | -    | 2       | -      |
| Euston Street  | -             | -                      | 8               | -  | -        | 7          | -        | -     | -    | -       | -      |

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| Location          | Permit holder | Resident permit holder | Pay and display | Resident permit holder / pay and display | Disabled | Motorcycle | Car club | Coach | Taxi | Loading | Doctor |
|-------------------|---------------|------------------------|-----------------|--|----------|------------|----------|-------|------|---------|--------|
| Cardington Street | -             | -                      | 45              | -  | -        | -          | 1        | 1     | 4    | -       | -      |
| Melton Street     | -             | -                      | -               | -  | -        | -          | 3        | -     | -    | -       | -      |

## Private parking

- 3.3.200 A number of public and private off-street parking spaces will also be temporarily or permanently suspended during the construction programme. The parking spaces are shown in Table 85.

Table 85: Private parking bays affected by construction of the revised scheme

| Location   | Parking bays lost  |
|--|--------------------|
| Park Village East (off-street residents parking) | 31 (approximately) |
| Amphill Estate                                   | 64                 |
| Euston station                                   | 217                |
| Hotel Ibis                                       | 100                |

- 3.3.201 Due to construction works, a section of Park Village East will be closed to traffic, preventing vehicular access to off-street parking at a number of properties, resulting in the loss of approximately 31 off-street parking spaces.
- 3.3.202 Due to the construction of a temporary utilities bridge connecting A400 Hampstead Road to the Amphill Estate and location of a construction satellite compound, approximately 64 private parking spaces within the Amphill Estate will be temporarily suspended.

### *Taxi and private car*

#### **Taxi**

- 3.3.203 During construction, the existing taxi facility will be demolished and a replacement facility will be provided. The existing taxi facilities will be closed by mid-2018 when the temporary taxi facilities will begin operating in the Euston Square Gardens (west).
- 3.3.204 Following the closure of Cardington Street and Melton Street, provision for taxis at Euston station will be provided as follows:
- Mid-2018 to late-2022: taxi pick-up, set-down and ranking facility within Euston Square Gardens (west) with a secondary rank located on Endsleigh Gardens and Gordon Street for access to the taxi facility, as shown in Figure 89; and
  - Early-2023 to late-2026: an in-set taxi pick-up, set-down and ranking facility located on the west side of A4200 Eversholt Street, adjacent to the eastern side of the station, with a turnaround facility provided further north off A4022 Eversholt Street, as shown in Figure 90.

Figure 89: Euston Square Gardens (west) temporary taxi facility

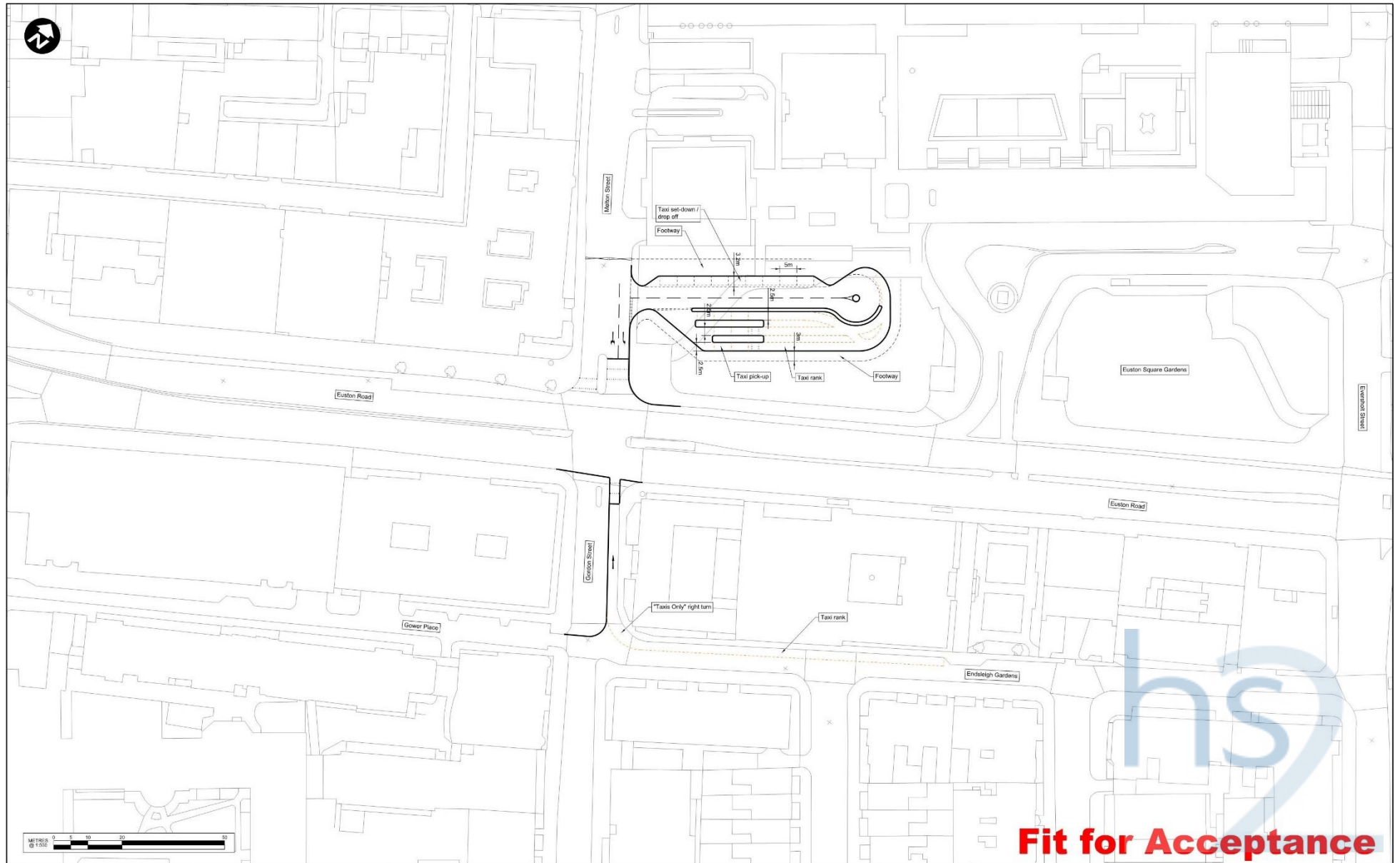
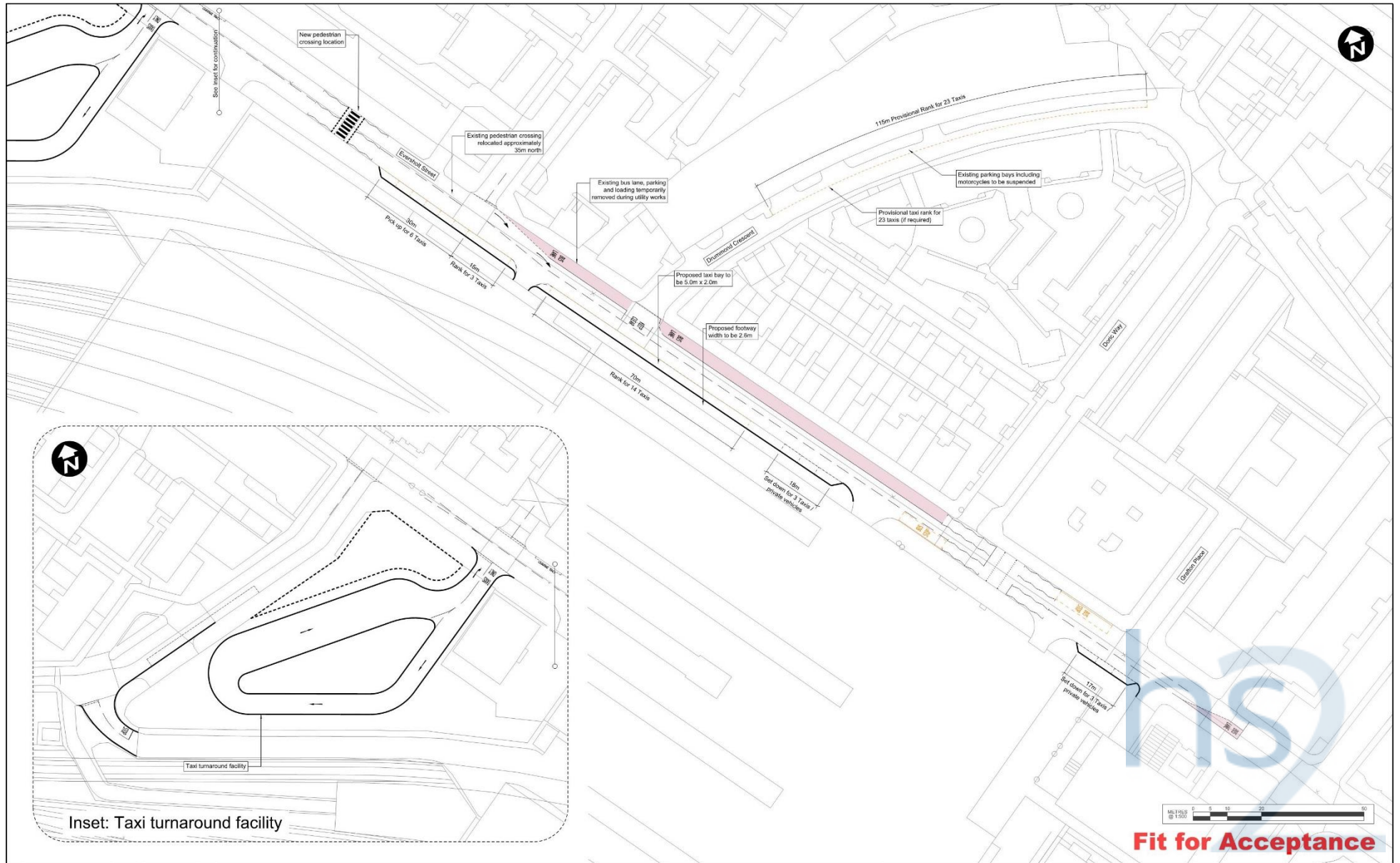


Figure 90: A4200 Eversholt Street temporary taxi facility



- 3.3.205 Access from the temporary taxi facilities to the NR and LU stations will be routed via the southern station entrances adjacent to the piazza.
- 3.3.206 The taxi concepts, during construction, will need to be developed in detail with NR, TfL, residents and taxi representatives, to ensure a series of operable schemes are devised. When making these decisions, consideration will need to be given to:
- The acceptability and available space for the location of the facilities;
  - The level of operational supervision;
  - User experience, wayfinding, convenience, waiting area infrastructure etc.;
  - Options for routeing incoming and departing taxis;
  - Additional journey lengths;
  - Passenger connections and queue lengths; and
  - Mobility assistance operations.
- 3.3.207 The temporary taxi facilities will continue to operate until late-2026, when the Phase One taxi facility at Euston station is expected to be in operation at the western side of the station (on Cobourg Street).

#### **Persons with restricted mobility (PRM) access**

- 3.3.208 Escorted and disabled pick-up and set-down facilities will be located within the station footprint. The location will vary depending on the stage of the construction programme. Mobility assistance buggies will operate from the conventional concourse to/from these locations and will provide users with a service direct to the appropriate platform/service for arrivals/departures.
- 3.3.209 The location of the escorted and disabled pick-up and set-down facilities will change at two points during construction. The existing access point will be closed in late-2016 and be relocated within the station footprint (north-east end of the station) to interface with the relocated taxi pick-up and set-down on A4200 Eversholt Street. It is anticipated that mobility assistance buggies will be available on demand, providing access to both the concourse mobility assistance reception and the appropriate platform/service for arrivals/departures. Engagement with NR is ongoing to develop the infrastructure and management processes required to enable this facility to be operated in a satisfactory manner.

#### **Taxi impacts**

- 3.3.210 Changes to taxi flows on roads around Euston station are shown in Table 86 for the AM peak hour and in Table 87 for PM peak hour. The 2017 to 2023 taxi flows are compared against the 2021 baseline and the 2032 flows are compared against the 2026 baseline.
- 3.3.211 The flow changes indicate that:
- there are limited differences in 2017 as taxis are operating from the basement (as existing);

- in 2018 and 2020, taxis are relocated to the Euston Square Gardens (west) with access still provided from Melton Street resulting in reductions on Cardington Street and increases on A400 Hampstead Road, Stanhope Street and Chalton Street, and the removal of southbound taxis on Gordon Street and reduction in northbound taxis on Gordon Street with consequential increases on A400 Gower Street and A4200 Upper Woburn Place;
- In 2023, increases on A4200 Eversholt Street due to relocation of taxi facilities and complete removal of taxis from Gordon Street with slightly greater changes south of A501 Euston Road to the 2018 and 2020 scenarios; and
- In 2032, complete removal of taxis from Gordon Street with corresponding transfer of taxis on to A400 Gower Street and A4200 Upper Woburn Place, and increases of taxis on New Cobourg Street due to relocation of taxi facilities and increases on A400 Hampstead Road.

3.3.212 Differences in taxi flows for the AM peak hour are shown for all scenarios in Figure 91 to Figure 95. The green bands represent a decrease in the taxi flow when compared with the baseline scenario while the red bands represent an increase in the taxi flow.



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Table 86: Changes in taxi flows - AM peak hour (08:00 to 09:00)

| Location  | Direction  | 2021 baseline | Scenario 1 2017 | Scenario 2 2018 | Scenario 3A 2020 | Scenario 3 2023 | 2026 baseline | Scenario 4 2032 |
|---|------------|---------------|-----------------|-----------------|------------------|-----------------|---------------|-----------------|
| Outer Circle (between Park Square East and Chester Road)        | Northbound | 23            | 27              | 13              | 15               | 16              | 25            | 21              |
|   | Southbound | 18            | 30              | 16              | 31               | 18              | 17            | 18              |
| A4201 Albany Street (between Robert Street and Longford Street) | Northbound | 13            | 14              | 11              | 14               | 13              | 14            | 13              |
|   | Southbound | 30            | 12              | 30              | 17               | 21              | 29            | 19              |
| Stanhope Street (between Longford Street and Robert Street)     | Northbound | 17            | 1               | 32              | 26               | 45              | 16            | 6               |
|   | Southbound | 4             | 24              | 47              | 28               | 137             | 6             | 72              |
| A400 Hampstead Road (between Drummond Street and Robert Street) | Northbound | 1             | 12              | 1               | 1                | 1               | 1             | 95              |
|   | Southbound | 41            | 57              | 84              | 102              | 34              | 41            | 317             |
| Cardington Street (north of Drummond Street)                    | Northbound | 2             | 0               | 0               | 0                | 0               | 2             | 0               |
|   | Southbound | 30            | 0               | 0               | 0                | 0               | 73            | 0               |
| New Cobourg Street (north of Starcross Street)                  | Northbound | 0             | 0               | 0               | 0                | 0               | 0             | 269             |
|   | Southbound | 0             | 0               | 0               | 0                | 0               | 0             | 269             |
| A4200 Eversholt St (between Phoenix Road and Polygon Road)      | Northbound | 38            | 38              | 35              | 33               | 123             | 44            | 121             |
|   | Southbound | 82            | 87              | 87              | 88               | 151             | 81            | 83              |

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| Location   | Direction  | 2021 baseline | Scenario 1 2017 | Scenario 2 2018 | Scenario 3A 2020 | Scenario 3 2023 | 2026 baseline | Scenario 4 2032 |
|--|------------|---------------|-----------------|-----------------|------------------|-----------------|---------------|-----------------|
| Chalton Street (between A501 Euston Road and Phoenix Road)                         | Northbound | 19            | 22              | 35              | 37               | 27              | 26            | 40              |
|  | Southbound | 22            | 22              | 21              | 21               | 63              | 22            | 23              |
| Midland Road (between Brill Place and A501 Euston Road)                            | Southbound | 72            | 71              | 76              | 76               | 80              | 75            | 78              |
| A5202 Pancras Road (between A501 Euston Road and Goods Way)                        | Northbound | 32            | 32              | 32              | 32               | 32              | 33            | 32              |
|  | Southbound | 31            | 35              | 31              | 31               | 40              | 32            | 30              |
| A5203 York Way (between Euston Road and Caledonia Street)                          | Northbound | 88            | 88              | 88              | 88               | 89              | 90            | 96              |
| A4201 Portland Place (between Devonshire Street and Park Crescent)                 | Northbound | 33            | 32              | 26              | 25               | 24              | 35            | 32              |
|  | Southbound | 10            | 12              | 10              | 10               | 10              | 11            | 11              |
| B506 Great Portland Street (between Park Crescent Mews East and Devonshire Street) | Southbound | 95            | 91              | 89              | 90               | 91              | 102           | 90              |
| Cleveland Street (between Greenwell Street and Clipstone Street)                   | Southbound | 11            | 6               | 8               | 9                | 8               | 12            | 10              |
| A400 Tottenham Court Road (between Grafton Way and Warren Street)                  | Northbound | 2             | 5               | 33              | 34               | 12              | 3             | 46              |
|  | Southbound | 0             | 0               | 0               | 0                | 0               | 0             | 0               |

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| Location  | Direction  | 2021 baseline | Scenario 1 2017 | Scenario 2 2018 | Scenario 3A 2020 | Scenario 3 2023 | 2026 baseline | Scenario 4 2032 |
|---|------------|---------------|-----------------|-----------------|------------------|-----------------|---------------|-----------------|
| A400 Gower Street (between Grafton Way and Gower Place)                   | Northbound | 4             | 4               | 13              | 11               | 8               | 4             | 8               |
|   | Southbound | 46            | 33              | 131             | 129              | 63              | 56            | 266             |
| Gordon Street (between Endsleigh Gardens and A501 Euston Road)            | Northbound | 358           | 340             | 241             | 241              | 0               | 369           | 0               |
|   | Southbound | 258           | 275             | 0               | 0                | 0               | 291           | 0               |
| A4200 Upper Woburn Place (between Endsleigh Gardens and A501 Euston Road) | Northbound | 22            | 25              | 62              | 64               | 174             | 31            | 128             |
|   | Southbound | 154           | 142             | 316             | 318              | 312             | 153           | 147             |
| B504 Judd Street (between Bidborough Street and A501 Euston Road)         | Northbound | 70            | 68              | 69              | 67               | 96              | 53            | 85              |
|   | Southbound | 22            | 21              | 46              | 46               | 30              | 25            | 28              |
| A501 Gray's Inn Road (east of Birkenhead Street)                          | Northbound | 249           | 251             | 262             | 263              | 288             | 271           | 279             |

Table 87: Changes in taxi flows - PM peak hour (17:00 to 18:00)

| Location  | Direction  | 2021 baseline | Scenario 1 2017 | Scenario 2 2018 | Scenario 3A 2020 | Scenario 3 2023 | 2026 baseline | Scenario 4 2032 |
|---|------------|---------------|-----------------|-----------------|------------------|-----------------|---------------|-----------------|
| Outer Circle (between Park Square East and Chester Road)        | Northbound | 54            | 55              | 40              | 49               | 53              | 55            | 0               |
|   | Southbound | 4             | 12              | 3               | 4                | 4               | 4             | 0               |
| A4201 Albany Street (between Robert Street and Longford Street) | Northbound | 55            | 29              | 101             | 101              | 91              | 62            | 2               |
|   | Southbound | 4             | 3               | 6               | 11               | 4               | 6             | 2               |

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| Location  | Direction  | 2021 baseline | Scenario 1 2017 | Scenario 2 2018 | Scenario 3A 2020 | Scenario 3 2023 | 2026 baseline | Scenario 4 2032 |
|---|------------|---------------|-----------------|-----------------|------------------|-----------------|---------------|-----------------|
| Stanhope Street (between Longford Street and Robert Street)     | Northbound | 1             | 1               | 1               | 1                | 1               | 1             | 0               |
|   | Southbound | 6             | 3               | 29              | 18               | 28              | 5             | 1               |
| A400 Hampstead Road (between Drummond Street and Robert Street) | Northbound | 1             | 30              | 9               | 8                | 8               | 155           | 154             |
|   | Southbound | 25            | 49              | 47              | 54               | 17              | 196           | 172             |
| Cardington Street (north of Drummond Street)                    | Northbound | 63            | 0               | 0               | 0                | 0               | 0             | -66             |
|   | Southbound | 15            | 0               | 0               | 0                | 0               | 0             | -21             |
| New Cobourg Street (north of Starcross Street)                  | Northbound | 0             | 0               | 0               | 0                | 0               | 292           | 292             |
|   | Southbound | 0             | 0               | 0               | 0                | 0               | 292           | 292             |
| A4200 Eversholt St (between Phoenix Road and Polygon Road)      | Northbound | 77            | 99              | 98              | 97               | 145             | 216           | 132             |
|   | Southbound | 78            | 79              | 84              | 85               | 141             | 96            | 10              |
| Chalton Street (between A501 Euston Road and Phoenix Road)      | Northbound | 111           | 92              | 77              | 87               | 91              | 95            | -11             |
|   | Southbound | 86            | 85              | 91              | 90               | 97              | 97            | 18              |
| Midland Road (between Brill Place and A501 Euston Road)         | Southbound | 59            | 57              | 57              | 58               | 50              | 133           | 73              |
| A5202 Pancras Road (between A501 Euston Road and Goods Way)     | Northbound | 41            | 50              | 47              | 43               | 55              | 56            | 19              |
|   | Southbound | 180           | 184             | 182             | 184              | 181             | 178           | 0               |

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| Location   | Direction  | 2021 baseline | Scenario 1 2017 | Scenario 2 2018 | Scenario 3A 2020 | Scenario 3 2023 | 2026 baseline | Scenario 4 2032 |
|--|------------|---------------|-----------------|-----------------|------------------|-----------------|---------------|-----------------|
| A5203 York Way (between Euston Road and Caledonia Street)                          | Northbound | 167           | 175             | 171             | 172              | 178             | 182           | 8               |
| A4201 Portland Place (between Devonshire Street and Park Crescent)                 | Northbound | 144           | 115             | 128             | 134              | 139             | 139           | -12             |
|  | Southbound | 12            | 12              | 11              | 11               | 11              | 11            | -2              |
| B506 Great Portland Street (between Park Crescent Mews East and Devonshire Street) | Southbound | 30            | 48              | 16              | 17               | 18              | 18            | -14             |
| Cleveland Street (between Greenwell Street and Clipstone Street)                   | Southbound | 3             | 3               | 30              | 30               | 5               | 14            | 11              |
| A400 Tottenham Court Road (between Grafton Way and Warren Street)                  | Northbound | 15            | 20              | 39              | 41               | 16              | 53            | 32              |
|  | Southbound | 0             | 0               | 0               | 0                | 0               | 0             | 0               |
| A400 Gower Street (between Grafton Way and Gower Place)                            | Northbound | 17            | 17              | 29              | 26               | 29              | 34            | 17              |
|  | Southbound | 101           | 104             | 161             | 165              | 111             | 236           | 129             |
| Gordon Street (between Endsleigh Gardens and A501 Euston Road)                     | Northbound | 305           | 272             | 126             | 126              | 0               | 0             | -318            |
|  | Southbound | 137           | 161             | 0               | 0                | 0               | 0             | -151            |
| A4200 Upper Woburn Place (between Endsleigh Gardens and A501 Euston Road)          | Northbound | 120           | 135             | 204             | 204              | 275             | 263           | 137             |
|  | Southbound | 203           | 197             | 236             | 236              | 344             | 199           | -1              |

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| Location  | Direction  | 2021 baseline | Scenario 1 2017 | Scenario 2 2018 | Scenario 3A 2020 | Scenario 3 2023 | 2026 baseline | Scenario 4 2032 |
|---|------------|---------------|-----------------|-----------------|------------------|-----------------|---------------|-----------------|
| B504 Judd Street (between Bidborough Street and A501 Euston Road) | Northbound | 53            | 58              | 74              | 75               | 61              | 73            | 16              |
|   | Southbound | 23            | 24              | 28              | 30               | 20              | 21            | -4              |
| A501 Gray's Inn Road (east of Birkenhead Street)                  | Northbound | 303           | 301             | 296             | 295              | 312             | 309           | 7               |

Figure 91: Taxi impacts on the local highway network - 2021 baseline vs Scenario 1 (2017) AM peak hour (08:00 to 09:00)

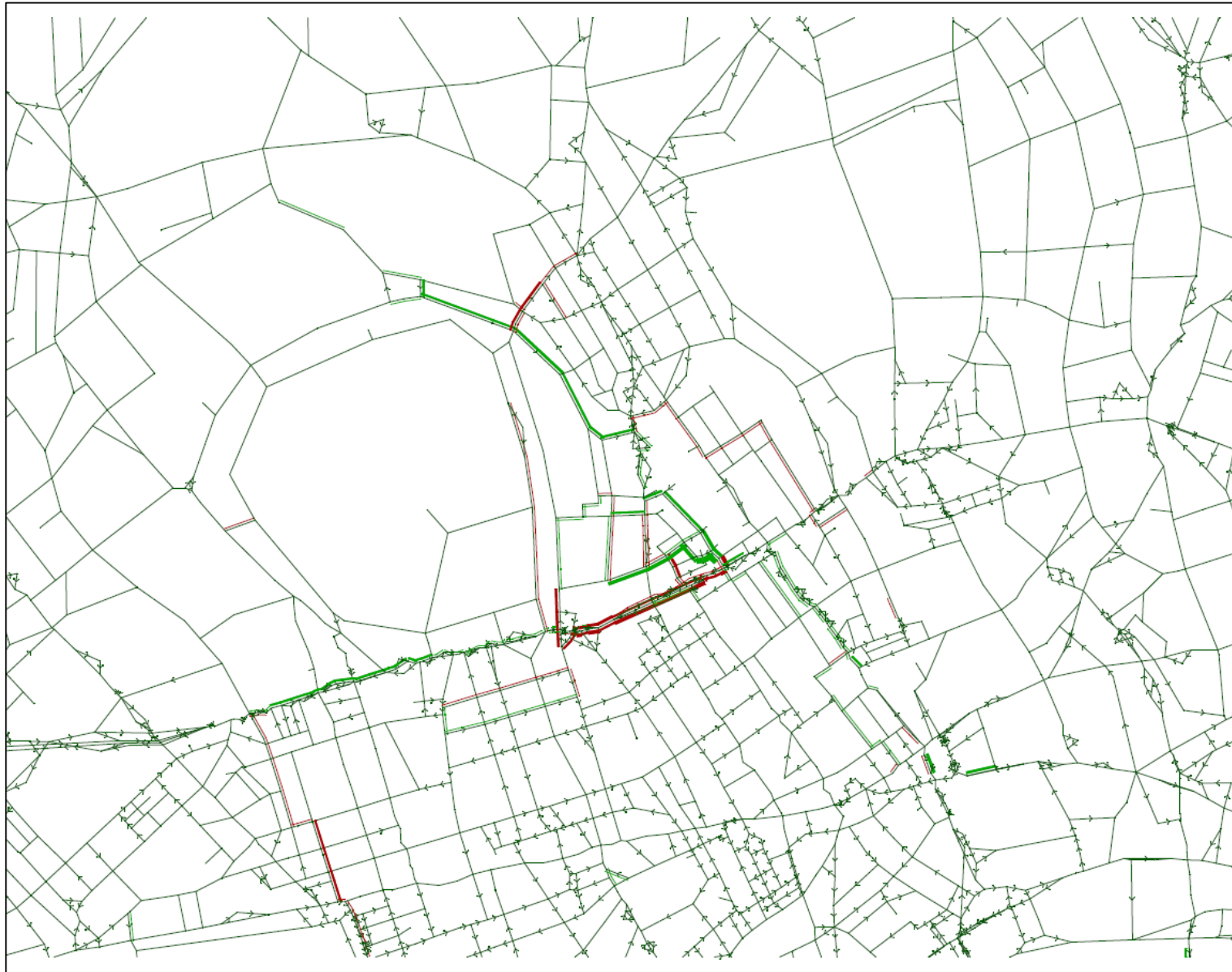


Figure 92: Taxi impacts on the local highway network - 2021 baseline vs Scenario 2 (2018) AM peak hour (08:00 to 09:00)

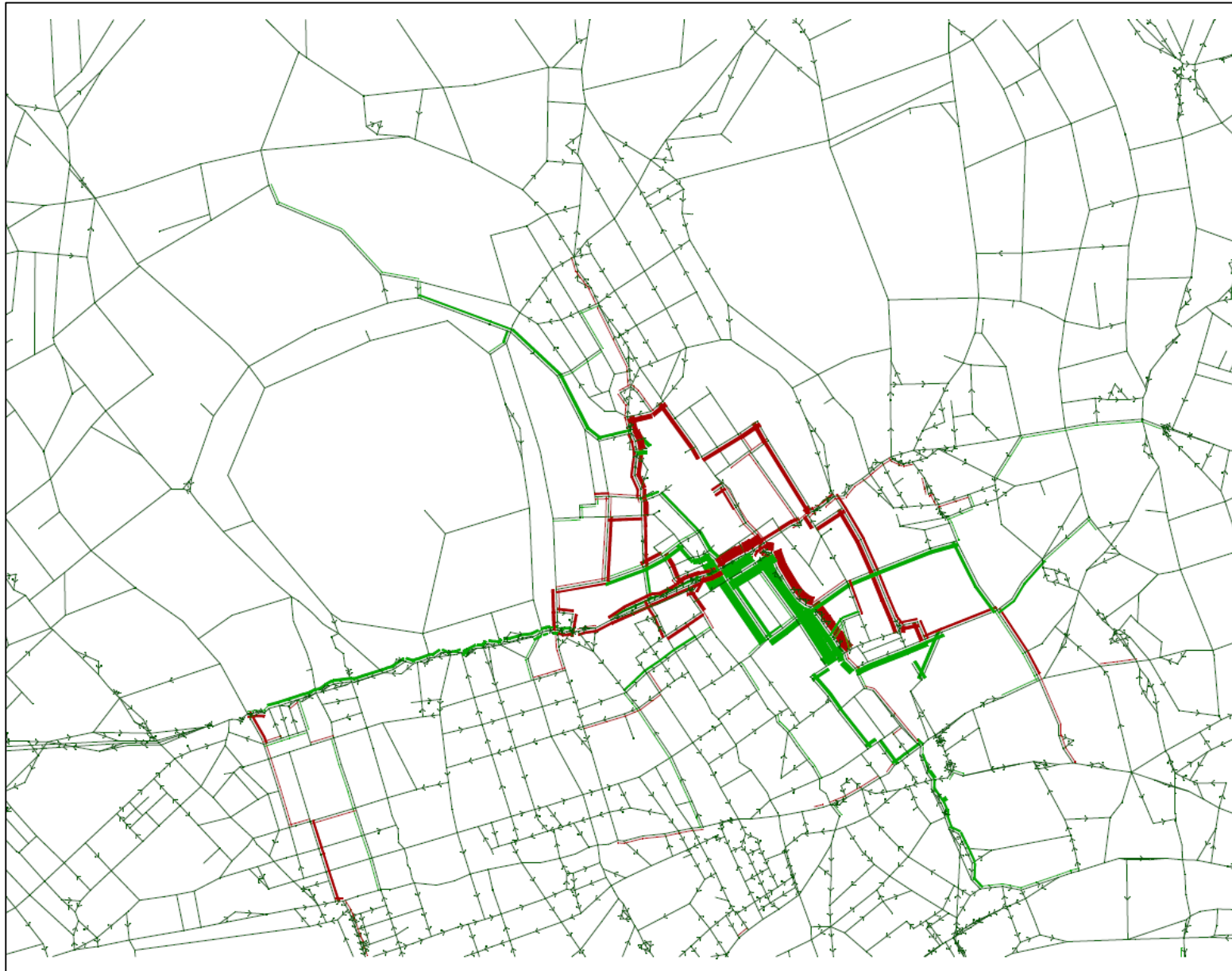




Figure 93: Taxi impacts on the local highway network - 2021 baseline vs Scenario 3A (2020) AM peak hour (08:00 to 09:00)

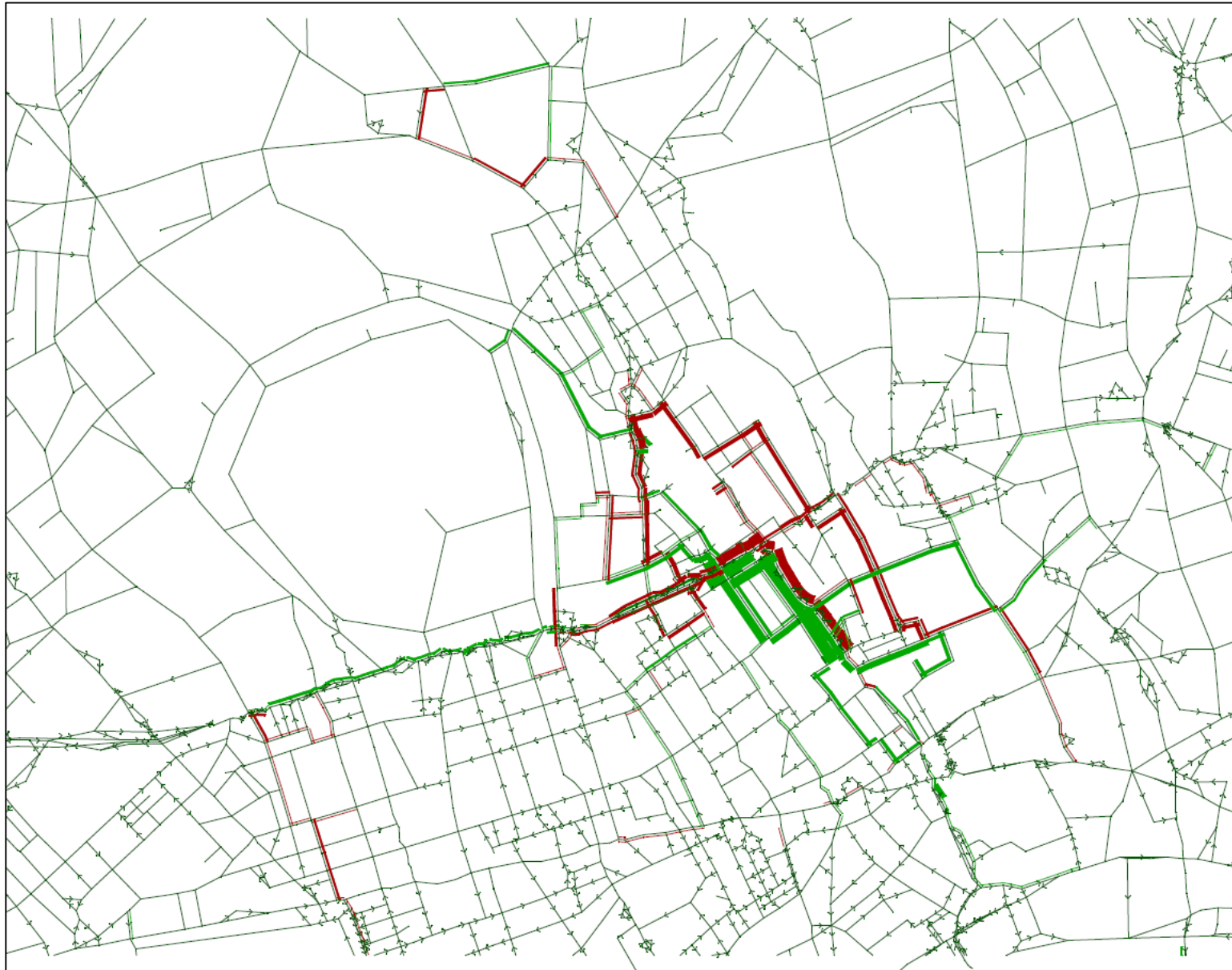


Figure 94: Taxi impacts on the local highway network - 2021 baseline vs Scenario 3 (2023) AM peak hour (08:00 to 09:00)

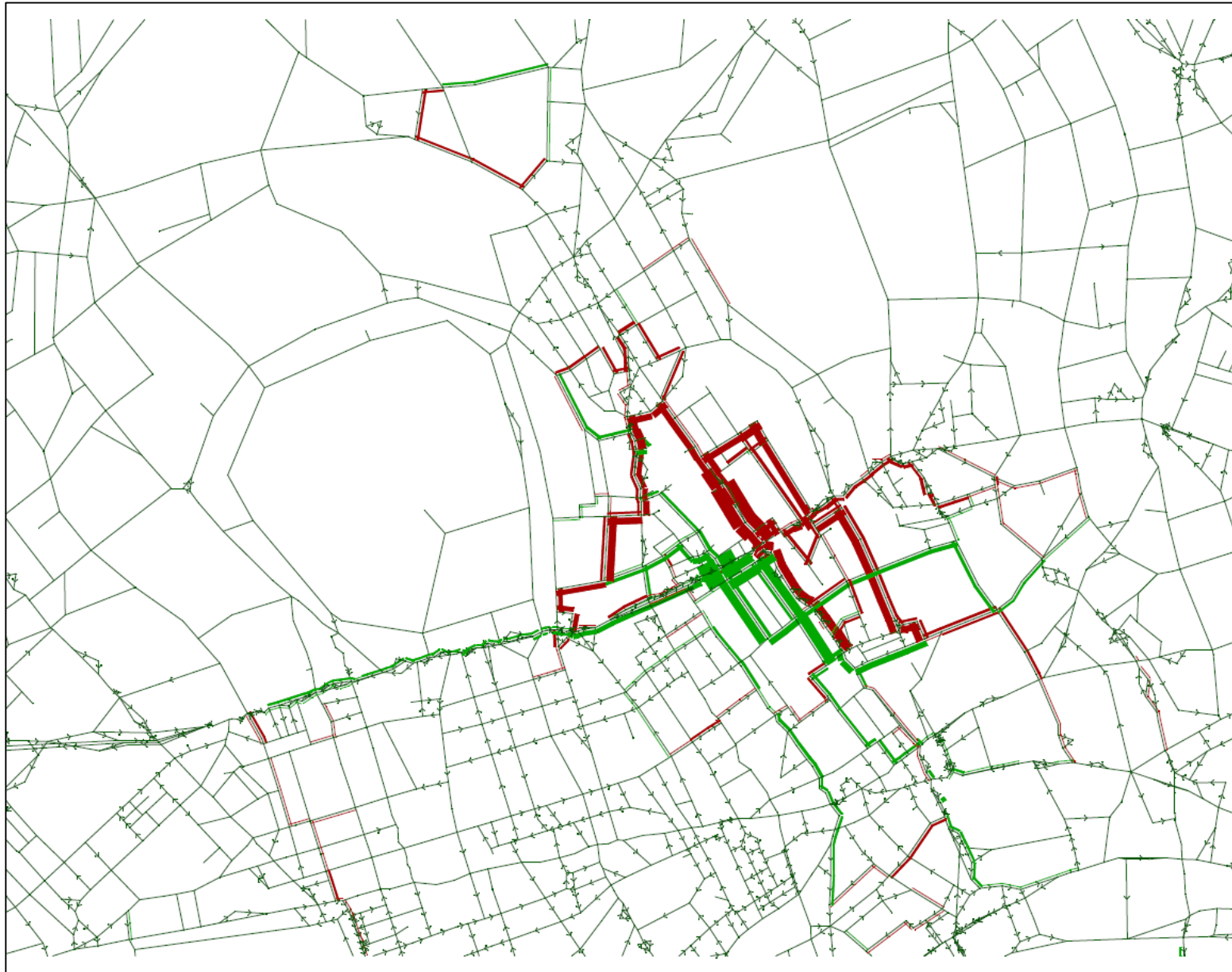
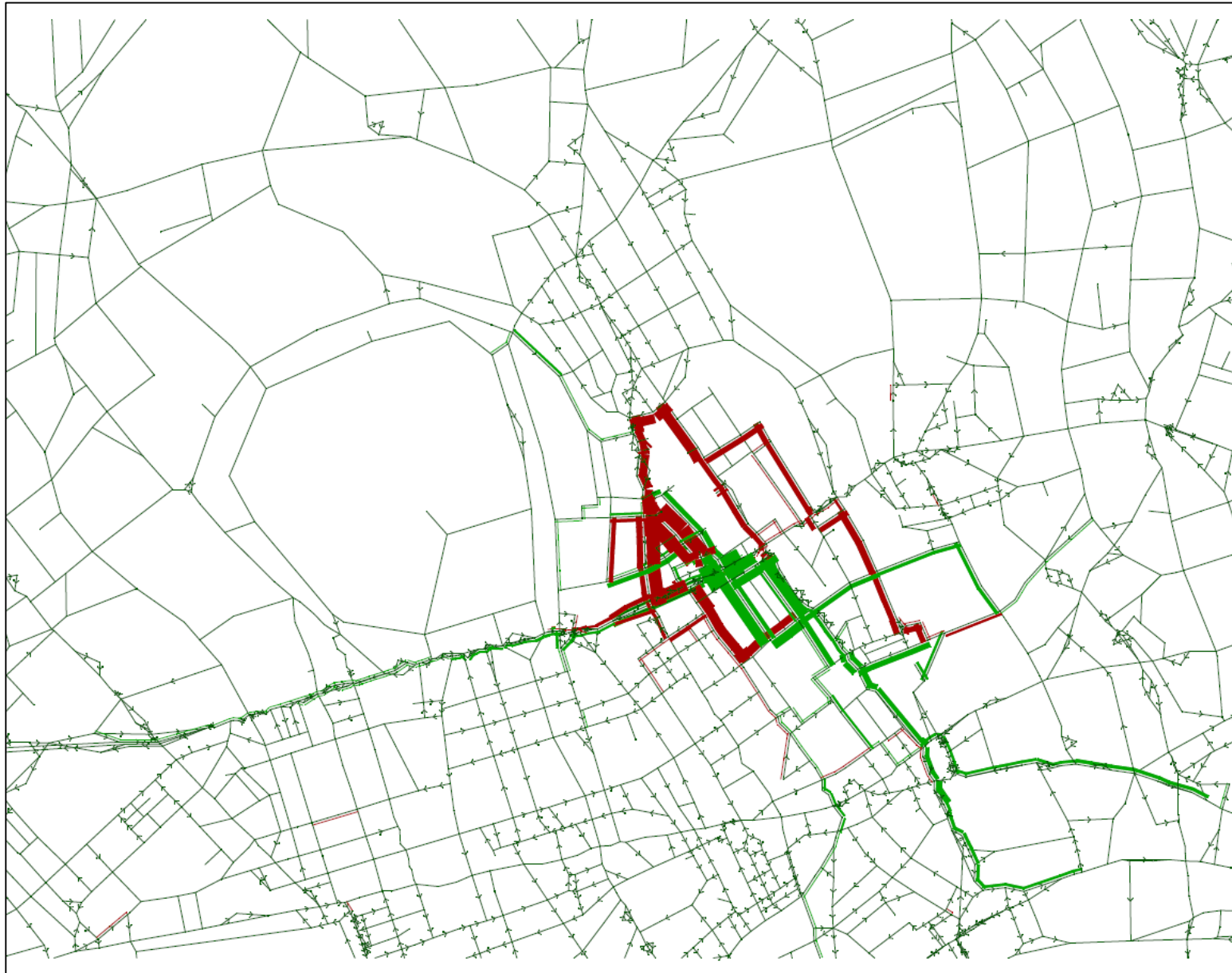


Figure 95: Taxi impacts on the local highway network - 2026 baseline vs Scenario 4 (2032) AM peak hour (08:00 to 09:00)



### Highway impacts

3.3.213 In order to assess the different combinations of enabling works, utility diversions and construction lorry movements through the construction programme, the impacts have been considered for five distinct temporal phases as summarised below:

- Scenario 1, 2017: this corresponds with a combination of advance works and utilities on the highway network together with around 24% of the peak construction traffic.
- Scenario 2, 2018: this corresponds with a different combination of advance works and utilities on the highway network together with around 49% of the peak construction traffic.
- Scenario 3A, 2020<sup>14</sup>: this corresponds with the main station works and accounts for the likely actual timing of the B509 Adelaide Road (CFA3) works with around 27% of the peak construction traffic.
- Scenario 3, 2023: this corresponds with the main station works and is, overall, the busiest scenario assessed for construction traffic related to the removal of excavated material. It also includes the short-term highway works at B509 Adelaide Road (CFA3).
- Scenario 4, 2031: this corresponds with the peak construction traffic associated with construction Stage B1, post commencement of HS2 Phase One operation in 2026.

3.3.214 For each scenario, there are different levels of construction traffic, together with different patterns of road closures and traffic management, impacting the highway network.

### Lorry holding area

3.3.215 A lorry holding area at ZSL London Zoo coach park has been assessed to support the Euston station construction works. The lorry holding area is shown on CT-05-001. As a result of the amount of utility works taking place on roads surrounding the lorry holding area early on in the construction programme, it has been assumed that the site will not be operational until after these utility works are complete at the end of 2017. The lorry holding area will, therefore, be operational during construction Scenarios 2, 3A and 3 and 4 but not Scenario 1. For the purpose of this assessment, access and egress to the lorry holding area will be via A5205 Prince Albert Road. The lorry holding area is expected to generate a maximum of 80 combined daily two-way vehicles. The main route to the lorry holding area is from A501 Euston Road via A4201 Albany Street.

### Highway impacts - Scenario 1, 2017 (construction Stage A)

3.3.216 The traffic flow impacts of the revised scheme were assessed strategically through CLoHAM by comparing the change in traffic flow between the 2021 future baseline and the 2017 construction scenario (Scenario 1). The flow differences for the AM and

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<sup>14</sup> This is not reported in the ES but has been report in the TA to assess the impacts of the B509 Adelaide Road closure

PM peak hours are shown on Figure 96 and Figure 97 respectively. The width of the band indicates the proportional change in traffic with red representing an increase and green a decrease compared with the 2021 future baseline scenario.

3.3.217 In order to capture flow changes of the revised scheme in the Euston area and further to the north of Euston, three screenlines were defined, namely:

- one running east-west immediately south of A501 Euston Road;
- one running east-west immediately north of A501 Euston Road; and
- one further north running east-west between A5203 Caledonian Road and A5 Kilburn High Road (the Camden screenlines).

3.3.218 The final screenline is outside of CFA1 and runs through CFA2 and CFA3. The traffic flows across these screenlines are shown in Table 88 and Table 89 for the screenlines immediately to the north and south of A501 Euston Road for the AM and PM peak hours respectively. This includes three locations on A501 Euston Road. Table 90 and Table 91 show the traffic flows for the Camden screenline for the AM and PM peak hours.

Figure 96: Traffic flow changes (PCU) 2021 future baseline vs Scenario 1 (2017) AM peak hour (08:00 to 09:00)

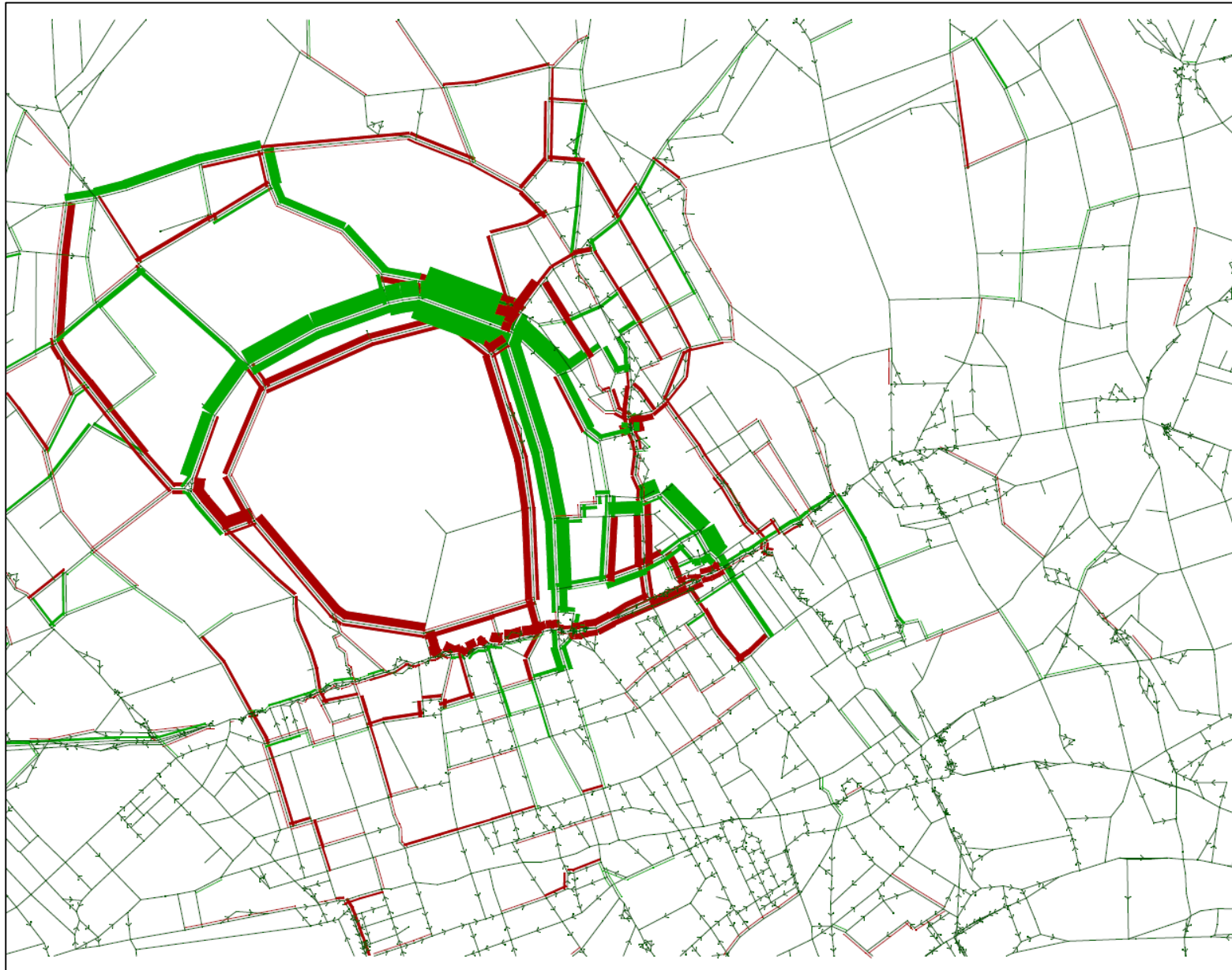
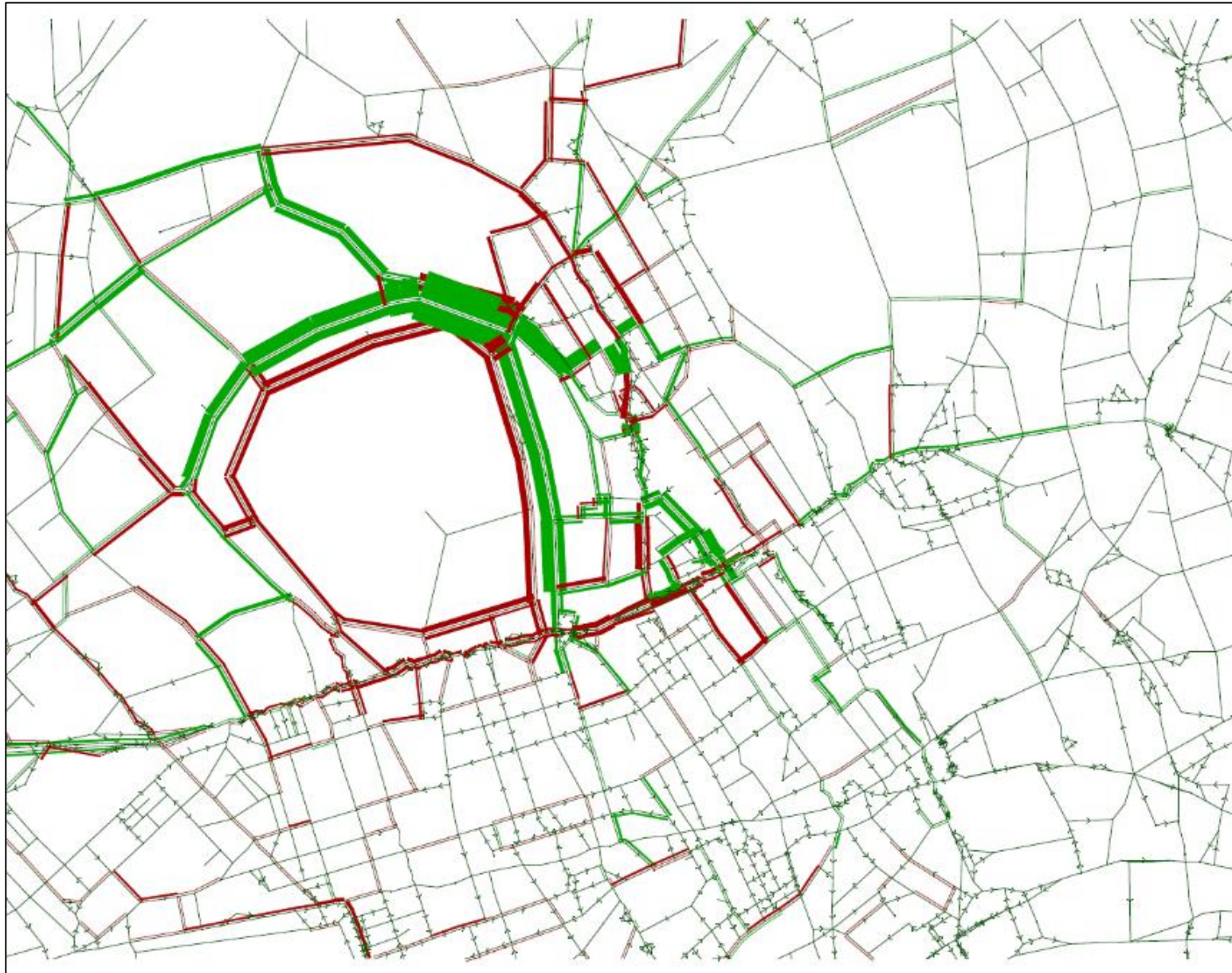


Figure 97: Traffic flow changes (PCU) 2021 future baseline vs Scenario 1 (2017) PM peak hour (17:00 to 18:00)



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Table 88: Baseline and with HS2 traffic flows Euston screenlines 2017 AM peak hour (08:00 to 09:00)

| Location  | Direction  | 2021 baseline flows |     | 2017 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2026 baseline |       |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|-------|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV   |
| Outer Circle (between Park Square East and Chester Road)        | Northbound | 96                  | 0   | 219                              | 0   | 123  | 0   | 129%  | 0%    |
|   | Southbound | 203                 | 7   | 249                              | 7   | 46   | 0   | 23%   | 0%    |
| A4201 Albany Street (between Robert Street and Longford Street) | Northbound | 358                 | 9   | 228                              | 12  | -130   | 4   | -36%  | 42%   |
|   | Southbound | 378                 | 19  | 152                              | 2   | -226   | -17 | -60%  | -89%  |
| Stanhope Street (between Longford Street and Robert Street)     | Northbound | 103                 | 11  | 40                               | 5   | -63  | -6  | -61%  | -56%  |
|   | Southbound | 155                 | 3   | 279                              | 2   | 124  | 0   | 80%   | -14%  |
| A400 Hampstead Road (between Drummond Street and Robert Street) | Northbound | 262                 | 37  | 377                              | 49  | 115  | 11  | 44%   | 31%   |
|   | Southbound | 763                 | 2   | 879                              | 10  | 116  | 8   | 15%   | 317%  |
| Cardington Street (north of Drummond Street)                    | Northbound | 22                  | 0   | 0                                | 0   | -22  | 0   | -100%   | -100% |
|   | Southbound | 277                 | 3   | 0                                | 0   | -277   | -3  | -100%   | -100% |
| New Cobourg Street (north of Starcross Street)                  | Northbound | 0                   | 0   | 0                                | 0   | 0  | 0   | 0%  | 0%    |
|   | Southbound | 0                   | 0   | 0                                | 0   | 0  | 0   | 0%  | 0%    |
| A4200 Eversholt Street (between Phoenix Road and Polygon Road)  | Northbound | 193                 | 6   | 201                              | 13  | 8  | 6   | 4%  | 101%  |
|   | Southbound | 430                 | 20  | 454                              | 21  | 24   | 2   | 6%  | 8%    |



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| Location   | Direction  | 2021 baseline flows |     | 2017 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2026 baseline |      |
|--|------------|---------------------|-----|----------------------------------|-----|--|-----|---|------|
|  |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV  |
| Chalton Street (between A501 Euston Road and Phoenix Road)                         | Northbound | 180                 | 56  | 178                              | 51  | -2   | -5  | -1%   | -10% |
|  | Southbound | 202                 | 12  | 215                              | 14  | 13   | 2   | 7%  | 17%  |
| Midland Road (between Brill Place and A501 Euston Road)                            | Southbound | 659                 | 27  | 677                              | 26  | 18   | 0   | 3%  | -2%  |
| A5202 Pancras Road (between A501 Euston Road and Goods Way)                        | Northbound | 209                 | 7   | 209                              | 7   | 0  | 0   | 0%  | 0%   |
|  | Southbound | 93                  | 6   | 96                               | 6   | 3  | 0   | 4%  | 3%   |
| A5203 York Way between A501 Euston Road and Caledonia Street                       | Northbound | 508                 | 60  | 514                              | 60  | 6  | 1   | 1%  | 1%   |
| A4201 Portland Place (between Devonshire Street and Park Crescent)                 | Northbound | 187                 | 38  | 246                              | 39  | 59   | 1   | 32%   | 3%   |
|  | Southbound | 314                 | 5   | 300                              | 16  | -14  | 10  | -4%   | 199% |
| B506 Great Portland Street (between Park Crescent Mews East and Devonshire Street) | Southbound | 619                 | 25  | 566                              | 6   | -53  | -18 | -9%   | -74% |
| Cleveland Street (between Greenwell Street and Clipstone Street)                   | Southbound | 202                 | 2   | 198                              | 2   | -4   | 0   | -2%   | -1%  |
| A400 Tottenham Court Road (between Grafton Way and Warren Street)                  | Northbound | 447                 | 56  | 430                              | 62  | -16  | 6   | -4%   | 10%  |
|  | Southbound | 71                  | 0   | 71                               | 0   | 0  | 0   | 0%  | 0%   |

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| Location  | Direction  | 2021 baseline flows |     | 2017 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2026 baseline |       |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|-------|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV   |
| A400 Gower Street (between Grafton Way and Gower Place)                   | Northbound | 38                  | 2   | 38                               | 2   | 0  | 0   | 0%  | -1%   |
|   | Southbound | 660                 | 35  | 697                              | 38  | 38   | 4   | 6%  | 11%   |
| Gordon Street (between Endsleigh Gardens and A501 Euston Road)            | Northbound | 457                 | 7   | 439                              | 7   | -17  | 0   | -4%   | 0%    |
|   | Southbound | 394                 | 7   | 279                              | 0   | -115   | -7  | -29%  | -100% |
| A4200 Upper Woburn Place (between Endsleigh Gardens and A501 Euston Road) | Northbound | 188                 | 8   | 214                              | 8   | 26   | 0   | 14%   | 3%    |
|   | Southbound | 544                 | 60  | 568                              | 65  | 24   | 5   | 4%  | 8%    |
| B504 Judd Street (between Bidborough Street and A501 Euston Road)         | Northbound | 94                  | 4   | 86                               | 3   | -8   | -1  | -8%   | -20%  |
|   | Southbound | 264                 | 19  | 222                              | 21  | -42  | 1   | -16%  | 7%    |
| A501 Gray's Inn Road (east of Birkenhead Street)                          | Northbound | 1,800               | 138 | 1,796                            | 148 | -4   | 10  | 0%  | 7%    |
| A501 Euston Road between Euston Circus and Melton Street                  | Eastbound  | 1,605               | 175 | 1,674                            | 190 | 69   | 15  | 4%  | 8%    |
|   | Westbound  | 1,915               | 98  | 1,984                            | 109 | 68   | 10  | 4%  | 11%   |
| A501 Euston Road between Melton Street and A4200 Upper Woburn Place       | Eastbound  | 1,721               | 178 | 1,660                            | 188 | -60  | 10  | -4%   | 5%    |
|   | Westbound  | 1,727               | 91  | 1,733                            | 100 | 6  | 10  | 0%  | 11%   |

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| Location  | Direction | 2021 baseline flows |     | 2017 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2026 baseline |     |
|---|-----------|---------------------|-----|----------------------------------|-----|--|-----|---|-----|
|   |           | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV |
| A501 Euston Road between A4200 Upper Woburn Place and Churchway | Eastbound | 1,456               | 145 | 1,409                            | 148 | -47  | 2   | -3%   | 2%  |
|   | Westbound | 1,704               | 96  | 1,705                            | 102 | 1  | 6   | 0%  | 6%  |

Table 89: Baseline and with HS2 traffic flows Euston screenlines 2017 PM peak hour (17:00 to 18:00)

| Location  | Direction  | 2021 baseline flows |     | 2017 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2026 baseline |      |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|------|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV  |
| Outer Circle (between Park Square East and Chester Road)        | Northbound | 297                 | 0   | 401                              | 0   | 105  | 0   | 35%   | 0%   |
|   | Southbound | 206                 | 1   | 223                              | 1   | 17   | 0   | 8%  | 0%   |
| A4201 Albany Street (between Robert Street and Longford Street) | Northbound | 483                 | 11  | 253                              | 14  | -230   | 3   | -48%  | 23%  |
|   | Southbound | 271                 | 3   | 148                              | 1   | -123   | -2  | -45%  | -66% |
| Stanhope Street (between Longford Street and Robert Street)     | Northbound | 103                 | 5   | 127                              | 1   | 24   | -4  | 24%   | -72% |
|   | Southbound | 124                 | 2   | 135                              | 3   | 11   | 1   | 9%  | 61%  |
| A400 Hampstead Road (between Drummond Street and Robert Street) | Northbound | 355                 | 11  | 467                              | 23  | 112  | 12  | 32%   | 101% |
|   | Southbound | 430                 | 10  | 484                              | 15  | 54   | 5   | 13%   | 53%  |

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| Location   | Direction  | 2021 baseline flows |     | 2017 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2026 baseline |       |
|--|------------|---------------------|-----|----------------------------------|-----|--|-----|---|-------|
|  |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV   |
| Cardington Street (north of Drummond Street)                   | Northbound | 87                  | 7   | 0                                | 0   | -87  | -7  | -100%   | -100% |
|  | Southbound | 71                  | 4   | 0                                | 0   | -71  | -4  | -100%   | -100% |
| New Cobourg Street (north of Starcross Street)                 | Northbound | 0                   | 0   | 0                                | 0   | 0  | 0   | 0%  | 0%    |
|  | Southbound | 0                   | 0   | 0                                | 0   | 0  | 0   | 0%  | 0%    |
| A4200 Eversholt Street (between Phoenix Road and Polygon Road) | Northbound | 356                 | 11  | 362                              | 11  | 7  | 1   | 2%  | 5%    |
|  | Southbound | 279                 | 3   | 249                              | 6   | -31  | 3   | -11%  | 77%   |
| Chalton Street (between A501 Euston Road and Phoenix Road)     | Northbound | 291                 | 6   | 321                              | 6   | 31   | 0   | 11%   | -2%   |
|  | Southbound | 179                 | 4   | 179                              | 4   | 1  | 0   | 0%  | 7%    |
| Midland Road (between Brill Place and A501 Euston Road)        | Southbound | 534                 | 14  | 536                              | 15  | 2  | 1   | 0%  | 7%    |
| A5202 Pancras Road (between A501 Euston Road and Goods Way)    | Northbound | 108                 | 6   | 117                              | 6   | 9  | 0   | 9%  | 3%    |
|  | Southbound | 287                 | 2   | 292                              | 2   | 4  | 0   | 1%  | 2%    |
| A5203 York Way between A501 Euston Road and Caledonia Street   | Northbound | 704                 | 37  | 725                              | 37  | 21   | 0   | 3%  | 0%    |

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| Location   | Direction  | 2021 baseline flows |     | 2017 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2026 baseline |       |
|--|------------|---------------------|-----|----------------------------------|-----|--|-----|---|-------|
|  |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV   |
| A4201 Portland Place (between Devonshire Street and Park Crescent)                 | Northbound | 378                 | 2   | 391                              | 2   | 13   | 0   | 3%  | 8%    |
|  | Southbound | 262                 | 3   | 280                              | 4   | 19   | 0   | 7%  | 10%   |
| B506 Great Portland Street (between Park Crescent Mews East and Devonshire Street) | Southbound | 318                 | 7   | 289                              | 7   | -28  | 0   | -9%   | -4%   |
| Cleveland Street (between Greenwell Street and Clipstone Street)                   | Southbound | 160                 | 4   | 131                              | 5   | -29  | 1   | -18%  | 27%   |
| A400 Tottenham Court Road (between Grafton Way and Warren Street)                  | Northbound | 527                 | 14  | 531                              | 21  | 5  | 8   | 1%  | 55%   |
|  | Southbound | 67                  | 0   | 67                               | 0   | 0  | 0   | 0%  | 0%    |
| A400 Gower Street (between Grafton Way and Gower Place)                            | Northbound | 86                  | 10  | 85                               | 10  | -2   | 0   | -2%   | 1%    |
|  | Southbound | 708                 | 13  | 761                              | 23  | 54   | 10  | 8%  | 80%   |
| Gordon Street (between Endsleigh Gardens and A501 Euston Road)                     | Northbound | 435                 | 24  | 390                              | 16  | -46  | -7  | -10%  | -32%  |
|  | Southbound | 290                 | 14  | 169                              | 0   | -121   | -14 | -42%  | -100% |
| A4200 Upper Woburn Place (between Endsleigh Gardens and A501 Euston Road)          | Northbound | 369                 | 8   | 381                              | 8   | 11   | 0   | 3%  | -3%   |
|  | Southbound | 643                 | 7   | 648                              | 16  | 5  | 9   | 1%  | 124%  |

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| Location  | Direction  | 2021 baseline flows |     | 2017 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2026 baseline |     |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|-----|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV |
| B504 Judd Street (between Bidborough Street and A501 Euston Road)   | Northbound | 64                  | 4   | 66                               | 4   | 2  | 0   | 3%  | 0%  |
|   | Southbound | 253                 | 6   | 263                              | 6   | 10   | 0   | 4%  | 0%  |
| A501 Gray's Inn Road (east of Birkenhead Street)                    | Northbound | 1,691               | 57  | 1,694                            | 57  | 3  | 0   | 0%  | 0%  |
| A501 Euston Road between Euston Circus and Melton Street            | Eastbound  | 1,767               | 28  | 1,830                            | 37  | 63   | 9   | 4%  | 32% |
|   | Westbound  | 1,786               | 51  | 1,816                            | 53  | 29   | 2   | 2%  | 5%  |
| A501 Euston Road between Melton Street and A4200 Upper Woburn Place | Eastbound  | 1,830               | 28  | 1,859                            | 37  | 28   | 8   | 2%  | 29% |
|   | Westbound  | 1,550               | 34  | 1,546                            | 37  | -4   | 3   | 0%  | 8%  |
| A501 Euston Road between A4200 Upper Woburn Place and Churchway     | Eastbound  | 1,638               | 28  | 1,670                            | 27  | 31   | -1  | 2%  | -3% |
|   | Westbound  | 1,527               | 33  | 1,524                            | 34  | -3   | 1   | 0%  | 2%  |

Table 90: Baseline and with HS2 traffic flows Camden screenline 2017 AM peak hour (08:00 to 09:00)

| Location  | Direction  | 2021 baseline flows |     | 2017 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |     |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|-----|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV |
| A5203 Caledonian Road (south of Wheelwright Road) | Northbound | 657                 | 8   | 658                              | 9   | 0  | 0   | 0%  | 2%  |
|   | Southbound | 799                 | 40  | 818                              | 45  | 19   | 5   | 2%  | 13% |

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| Location   | Direction  | 2021 baseline flows |     | 2017 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |      |
|--|------------|---------------------|-----|----------------------------------|-----|--|-----|---|------|
|  |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV  |
| A5200 York Way (north of Vale Road)              | Northbound | 257                 | 24  | 261                              | 24  | 4  | 1   | 2%  | 3%   |
|  | Southbound | 499                 | 13  | 506                              | 13  | 6  | 0   | 1%  | 3%   |
| A5202 St Pancras Way (north of Baynes Street)    | Southbound | 845                 | 51  | 856                              | 51  | 11   | 0   | 1%  | 0%   |
| Randolph Street (East of Royal College Street)   | Eastbound  | 93                  | 6   | 92                               | 5   | -1   | -1  | -1%   | -9%  |
| Royal College Street (south of A503 Camden Road) | Northbound | 741                 | 60  | 713                              | 62  | -27  | 3   | -4%   | 5%   |
| A503 Camden Road (south of Royal College Street) | Northbound | 462                 | 26  | 485                              | 23  | 23   | -3  | 5%  | -13% |
|  | Southbound | 886                 | 55  | 855                              | 49  | -31  | -6  | -4%   | -11% |
| A400 Camden Street (south of Camden Gardens)     | Southbound | 953                 | 56  | 1001                             | 54  | 48   | -1  | 5%  | -2%  |
| A400 Kentish Town Road (south of Camden Gardens) | Northbound | 350                 | 21  | 302                              | 21  | -47  | -1  | -14%  | -3%  |
|  | Southbound | 447                 | 24  | 454                              | 26  | 7  | 3   | 2%  | 12%  |
| Hawley Road                                      | Northbound | 789                 | 40  | 842                              | 43  | 53   | 3   | 7%  | 8%   |
| A502 Chalk Farm Road (west of Hawley Street)     | Northbound | 413                 | 17  | 436                              | 18  | 23   | 1   | 6%  | 3%   |
|  | Southbound | 598                 | 24  | 608                              | 27  | 9  | 3   | 2%  | 13%  |

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| Location  | Direction  | 2021 baseline flows |     | 2017 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |      |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|------|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV  |
| Primrose Hill Road (south of B509 Adelaide Road)  | Northbound | 305                 | 22  | 330                              | 31  | 25   | 9   | 8%  | 41%  |
|   | Southbound | 765                 | 46  | 602                              | 24  | -163   | -22 | -21%  | -48% |
| Avenue Road (south of B509 Adelaide Road)         | Northbound | 192                 | 11  | 201                              | 1   | 9  | -10 | 5%  | -91% |
|   | Southbound | 93                  | 1   | 123                              | 1   | 31   | 0   | 33%   | 11%  |
| A41 Finchley Road (south of B509 Adelaide Road)   | Northbound | 405                 | 46  | 412                              | 53  | 6  | 7   | 2%  | 15%  |
|   | Southbound | 582                 | 20  | 686                              | 47  | 104  | 27  | 18%   | 138% |
| Loudoun Road (south of Alexandra Place)           | Northbound | 438                 | 3   | 444                              | 3   | 6  | 0   | 1%  | 4%   |
|   | Southbound | 226                 | 19  | 213                              | 20  | -14  | 1   | -6%   | 5%   |
| A507 Abbey Road (south of B509 Belsize Road)      | Northbound | 230                 | 5   | 219                              | 5   | -10  | 0   | -5%   | -5%  |
|   | Southbound | 416                 | 12  | 429                              | 13  | 13   | 1   | 3%  | 6%   |
| A5 Kilburn High Road (south of B509 Belsize Road) | Northbound | 614                 | 27  | 640                              | 27  | 26   | 0   | 4%  | 1%   |
|   | Southbound | 920                 | 55  | 919                              | 55  | -1   | 0   | 0%  | 0%   |



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Table 91: Baseline and with HS2 traffic flows Camden screenline 2017 PM peak hour (17:00 to 18:00)

| Location  | Direction  | 2021 baseline flows |     | 2017 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |      |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|------|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV  |
| A5203 Caledonian Road (south of Wheelwright Road) | Northbound | 554                 | 5   | 553                              | 5   | -1   | 0   | 0%  | 0%   |
|   | Southbound | 727                 | 3   | 724                              | 3   | -3   | 0   | 0%  | 8%   |
| A5200 York Way (north of Vale Road)               | Northbound | 364                 | 20  | 365                              | 19  | 1  | 0   | 0%  | -1%  |
|   | Southbound | 335                 | 6   | 338                              | 7   | 3  | 0   | 1%  | 6%   |
| A5202 St Pancras Way (north of Baynes Street)     | Southbound | 589                 | 11  | 587                              | 10  | -3   | 0   | 0%  | -2%  |
| Randolph Street (East of Royal College Street)    | Eastbound  | 285                 | 3   | 264                              | 3   | -21  | 0   | -7%   | 2%   |
| Royal College Street (south of A503 Camden Road)  | Northbound | 642                 | 13  | 662                              | 15  | 20   | 2   | 3%  | 13%  |
| A503 Camden Road (south of Royal College Street)  | Northbound | 705                 | 20  | 670                              | 18  | -35  | -1  | -5%   | -7%  |
|   | Southbound | 619                 | 21  | 609                              | 20  | -10  | -1  | -2%   | -5%  |
| A400 Camden Street (south of Camden Gardens)      | Southbound | 795                 | 17  | 822                              | 20  | 27   | 3   | 3%  | 19%  |
| A400 Kentish Town Road (south of Camden Gardens)  | Northbound | 392                 | 15  | 365                              | 14  | -28  | -1  | -7%   | -6%  |
|   | Southbound | 303                 | 1   | 296                              | 3   | -7   | 2   | -2%   | 147% |

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| Location   | Direction  | 2021 baseline flows |     | 2017 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |      |
|--|------------|---------------------|-----|----------------------------------|-----|--|-----|---|------|
|  |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV  |
| Hawley Road                                      | Northbound | 540                 | 12  | 579                              | 17  | 39   | 5   | 7%  | 43%  |
| A502 Chalk Farm Road (west of Hawley Street)     | Northbound | 524                 | 9   | 575                              | 9   | 51   | 1   | 10%   | 7%   |
|  | Southbound | 274                 | 1   | 270                              | 6   | -4   | 5   | -2%   | 671% |
| Primrose Hill Road (south of B509 Adelaide Road) | Northbound | 295                 | 18  | 246                              | 17  | -49  | -1  | -17%  | -3%  |
|  | Southbound | 667                 | 16  | 558                              | 8   | -109   | -7  | -16%  | -47% |
| Avenue Road (south of B509 Adelaide Road)        | Northbound | 182                 | 1   | 169                              | 0   | -13  | -1  | -7%   | -80% |
|  | Southbound | 80                  | 9   | 109                              | 12  | 28   | 2   | 35%   | 26%  |
| A41 Finchley Road (south of B509 Adelaide Road)  | Northbound | 404                 | 35  | 401                              | 43  | -3   | 8   | -1%   | 24%  |
|  | Southbound | 541                 | 17  | 584                              | 24  | 42   | 7   | 8%  | 41%  |
| Loudoun Road (south of Alexandra Place)          | Northbound | 541                 | 2   | 555                              | 2   | 14   | 0   | 3%  | 0%   |
|  | Southbound | 91                  | 3   | 96                               | 3   | 5  | 0   | 5%  | 13%  |
| A507 Abbey Road (south of B509 Belsize Road)     | Northbound | 348                 | 3   | 350                              | 3   | 2  | 0   | 1%  | 6%   |
|  | Southbound | 284                 | 1   | 290                              | 1   | 6  | 0   | 2%  | 0%   |

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| Location  | Direction  | 2021 baseline flows |     | 2017 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |     |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|-----|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV |
| A5 Kilburn High Road (south of B509 Belsize Road) | Northbound | 593                 | 11  | 604                              | 12  | 12   | 0   | 2%  | 3%  |
|   | Southbound | 652                 | 6   | 663                              | 6   | 11   | 0   | 2%  | 0%  |

- 3.3.219 The diversion impacts for Scenario 1 (2017) for the AM and PM peak hours are described as follows:
- removal of traffic from A5205 Prince Albert Road and Park Village East due to their closure to general traffic and flow reductions on Regents Park Road and Primrose Hill Road approaching A5205 Prince Albert Road;
  - Consequential increases in traffic on the Outer Circle and B509 Adelaide Road and A502 Chalk Farm Road as alternative routes;
  - traffic flow reductions on A4201 Albany Street, and Robert Street due to utilities works;
  - traffic flow reductions on A400 Hampstead Road (north of Cardington Street) due to the closures of, Cardington Street and Melton Street;
  - increase in traffic on A400 Hampstead Road (south of Cardington Street), which is an alternative northbound and southbound route to Cardington Street;
  - removal of traffic from those roads closed as part of the station works; and
  - increase in traffic on A4200 Eversholt Street as an alternative north-south route.
- 3.3.220 There are limited changes to HGV flows due to the relatively low level of construction traffic in scenario 1. There are limited impacts on the Camden screenline with the exception of the flow reductions on Primrose Hill Road noted above with percentage reductions generally below 5%. Overall, across the Camden screenline flow differences between the 2021 baseline and the 2017 construction scenario are less than 1% in both directions for both peak hours. Due to the lower absolute numbers of HGVs in the baseline, differences in HGVs are higher in percentage terms but still generally lower than 10%.
- 3.3.221 The pattern of flow changes across the screenlines is similar for the AM and PM peak hours.
- 3.3.222 In addition to the screenline comparisons, roads that will experience a substantial increase in traffic flow have been identified. Table 92 and Table 93 outline those traffic flows for the 2017 construction scenario are reported in CFA1.
- 3.3.223 It should be noted that, because this is based on daily traffic, the flows in either the AM or PM peak hour may not show a substantial increase. This indicates a limited impact both in terms of increases in HGVs, which are concentrated on the construction lorry routes around Euston, and for all vehicles, with most roads changing by less than 100 vehicles per hour.
- 3.3.224 Roads identified in CFAs 2-3 as having a substantial increase in daily traffic flow are reported in Table 94 and Table 95 for the AM and PM peak hours respectively.

SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

Table g2: Links with traffic increase, 2017 Construction AM Peak (08:00-09:00), CFA1

| Location  | Direction | CFA  | 2021 Baseline       |     | 2017 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|---|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|   |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
| A41 Baker St  | NB        | CFA1 | 0                   | 0   | 0                          | 0   | 0   | 0   | 50%                                  | -    |
| A41 Gloucester Place  | NB        | CFA1 | 198                 | 36  | 231                        | 46  | 33  | 10  | 17%                                  | 28%  |
| A41 Park Rd   | NB        | CFA1 | 0                   | 0   | 0                          | 0   | 0   | 0   | 50%                                  | -    |
| A4200 Southampton Row                                       | NB        | CFA1 | 235                 | 29  | 229                        | 31  | -6  | 2   | -3%                                  | 9%   |
| A4201 Park Crescent   | SB        | CFA1 | 50                  | 9   | 50                         | 13  | 0   | 4   | 0%                                   | 39%  |
| Albert St   | SB        | CFA1 | 25                  | 5   | 140                        | 16  | 115                                       | 11  | 450%                                 | 246% |
| B502 Brunswick Square/ Lansdowne Terrace/ B504 Grenville St | WB        | CFA1 | 85                  | 22  | 89                         | 21  | 4   | 0   | 5%                                   | -1%  |
| Bickenhall St   | EB        | CFA1 | 156                 | 34  | 183                        | 45  | 27  | 10  | 17%                                  | 31%  |
| Charlbert St  | EB        | CFA1 | 51                  | 2   | 30                         | 15  | -21                                       | 13  | -42%                                 | 625% |
| Colonnade   | WB        | CFA1 | 26                  | 2   | 11                         | 2   | -16                                       | 0   | -59%                                 | -7%  |
| Cumberland Market   | SB        | CFA1 | 109                 | 1   | 62                         | 2   | -47                                       | 1   | -43%                                 | 49%  |
| Drummond St (West of North Gower St)                        | EB        | CFA1 | 72                  | 7   | 160                        | 19  | 88  | 12  | 123%                                 | 178% |

SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

| Location            | Direction | CFA  | 2021 Baseline       |     | 2017 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|---------------------|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|                     |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
| Endsleigh Gardens   | EB        | CFA1 | 207                 | 2   | 200                        | 1   | -7  | -1  | -3%                                  | -34% |
| Grafton Way         | WB        | CFA1 | 7                   | 0   | 9                          | 0   | 2   | 0   | 36%                                  | 0%   |
| Harrington Square   | SB        | CFA1 | 156                 | 34  | 183                        | 45  | 27  | 10  | 17%                                  | 31%  |
| Longford St         | EB        | CFA1 | 94                  | 4   | 80                         | 2   | -14                                       | -2  | -15%                                 | -46% |
| Mabledon Place      | NB        | CFA1 | 5                   | 1   | 17                         | 1   | 12  | 0   | 242%                                 | 26%  |
| Manchester St       | NB        | CFA1 | 8                   | 0   | 16                         | 0   | 8   | 0   | 111%                                 | -    |
| Mornington Crescent | SB        | CFA1 | 18                  | 7   | 55                         | 14  | 36  | 7   | 196%                                 | 107% |
| Mornington Place    | EB        | CFA1 | 0                   | 0   | 20                         | 6   | 20  | 6   | -                                    | -    |
| North Gower St      | SB        | CFA1 | 72                  | 8   | 166                        | 19  | 93  | 11  | 129%                                 | 135% |
| Ossulston Street    | NB        | CFA1 | 2                   | 0   | 14                         | 0   | 11  | 0   | 475%                                 | -21% |
| Park Village East   | NB        | CFA1 | 57                  | 18  | 100                        | 14  | 43  | -4  | 76%                                  | -21% |
| Plender Street      | EB        | CFA1 | 95                  | 20  | 78                         | 24  | -17                                       | 4   | -18%                                 | 19%  |
| Robert Street       | EB        | CFA1 | 0                   | 0   | 0                          | 0   | 0   | 0   | -                                    | -    |

SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

| Location         | Direction | CFA  | 2021 Baseline       |     | 2017 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|------------------|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|                  |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
| Torrington Place | EB        | CFA1 | 144                 | 15  | 230                        | 20  | 86  | 5   | 60%                                  | 35%  |
| Varndell St      | EB        | CFA1 | 172                 | 14  | 113                        | 11  | -59                                       | -3  | -34%                                 | -20% |

Table g3: Links with traffic increase, 2017 Construction PM Peak (17:00-18:00), CFA1

| Location  | Direction | CFA  | 2021 Baseline       |     | 2017 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|---|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|   |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
| A41 Baker St  | NB        | CFA1 | 51                  | 13  | 72                         | 13  | 21  | 0   | 42%                                  | 3%   |
| A41 Gloucester Place  | NB        | CFA1 | 281                 | 5   | 279                        | 5   | -2  | 0   | -1%                                  | -7%  |
| A41 Park Rd   | NB        | CFA1 | 51                  | 13  | 72                         | 13  | 21  | 0   | 42%                                  | 3%   |
| A4200 Southampton Row                                       | NB        | CFA1 | 41                  | 0   | 41                         | 0   | 0   | 0   | 0%                                   | -    |
| A4201 Park Crescent   | SB        | CFA1 | 70                  | 7   | 51                         | 7   | -19                                       | 0   | -27%                                 | -4%  |
| Albert St   | SB        | CFA1 | 2                   | 0   | 53                         | 3   | 51  | 3   | 2265%                                | 806% |
| B502 Brunswick Square/ Lansdowne Terrace/ B504 Grenville St | WB        | CFA1 | 56                  | 7   | 59                         | 6   | 3   | -1  | 6%                                   | -21% |
| Bickenhall St   | EB        | CFA1 | 85                  | 3   | 84                         | 3   | -1  | 0   | -2%                                  | -8%  |

SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

| Location                             | Direction | CFA  | 2021 Baseline       |     | 2017 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |       |
|--------------------------------------|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|-------|
|                                      |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV   |
| Charlbert St                         | EB        | CFA1 | 12                  | 1   | 10                         | 0   | -2  | -1  | -20%                                 | -64%  |
| Colonnade                            | WB        | CFA1 | 15                  | 1   | 16                         | 0   | 1   | -1  | 5%                                   | -65%  |
| Cumberland Market                    | SB        | CFA1 | 53                  | 1   | 25                         | 0   | -28                                       | -1  | -53%                                 | -57%  |
| Drummond St (West of North Gower St) | EB        | CFA1 | 111                 | 12  | 116                        | 7   | 5   | -5  | 4%                                   | -38%  |
| Endsleigh Gardens                    | EB        | CFA1 | 217                 | 27  | 209                        | 18  | -9  | -9  | -4%                                  | -34%  |
| Grafton Way                          | WB        | CFA1 | 5                   | 0   | 5                          | 0   | 0   | 0   | 3%                                   | -     |
| Harrington Square                    | SB        | CFA1 | 85                  | 3   | 84                         | 3   | -1  | 0   | -2%                                  | -8%   |
| Longford St                          | EB        | CFA1 | 64                  | 1   | 28                         | 1   | -36                                       | 0   | -56%                                 | -17%  |
| Mabledon Place                       | NB        | CFA1 | 13                  | 3   | 14                         | 3   | 1   | 1   | 11%                                  | 22%   |
| Manchester St                        | NB        | CFA1 | 28                  | 0   | 43                         | 0   | 15  | 0   | 53%                                  | -100% |
| Mornington Crescent                  | SB        | CFA1 | 4                   | 2   | 26                         | 2   | 22  | 0   | 585%                                 | 14%   |
| Mornington Place                     | EB        | CFA1 | 0                   | 0   | 6                          | 0   | 6   | 0   | -                                    | -     |
| North Gower St                       | SB        | CFA1 | 87                  | 8   | 125                        | 8   | 38  | 1   | 44%                                  | 8%    |
| Ossulston Street                     | NB        | CFA1 | 7                   | 0   | 7                          | 0   | 0   | 0   | -1%                                  | 0%    |



SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

| Location          | Direction | CFA  | 2021 Baseline       |     | 2017 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |       |
|-------------------|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|-------|
|                   |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV   |
| Park Village East | NB        | CFA1 | 20                  | 12  | 19                         | 8   | -2  | -4  | -9%                                  | -35%  |
| Plender Street    | EB        | CFA1 | 169                 | 12  | 161                        | 12  | -7  | 0   | -4%                                  | 3%    |
| Robert Street     | EB        | CFA1 | 49                  | 1   | 0                          | 0   | -49                                       | -1  | -100%                                | -100% |
| Torrington Place  | EB        | CFA1 | 335                 | 25  | 418                        | 25  | 82  | 0   | 25%                                  | 0%    |
| Varndell St       | EB        | CFA1 | 23                  | 6   | 3                          | 1   | -20                                       | -5  | -88%                                 | -83%  |

Table 94: Links with traffic increase, 2017 Construction AM Peak (08:00-09:00), CFA2, CFA3 and CFA4

| Location       | Direction | CFA  | 2021 Baseline       |     | 2017 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|----------------|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|                |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
| Albert Street  | SB        | CFA2 | 25                  | 5   | 140                        | 16  | 115                                       | 11  | 450%                                 | 246% |
| Castle Road    | EB        | CFA2 | 139                 | 18  | 170                        | 18  | 32  | 0   | 23%                                  | 1%   |
|                | WB        |      | 102                 | 20  | 104                        | 20  | 2   | 0   | 2%                                   | 0%   |
| Greenland Road | EB        | CFA2 | 156                 | 33  | 231                        | 37  | 75  | 4   | 48%                                  | 12%  |
| Jamestown Road | EB        | CFA2 | 54                  | 7   | 99                         | 7   | 44  | 0   | 81%                                  | -2%  |
|                | WB        |      | 165                 | 22  | 167                        | 25  | 3   | 3   | 2%                                   | 15%  |

SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

| Location  | Direction | CFA  | 2021 Baseline       |     | 2017 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|---|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|   |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
| Oval Road                                       | NB        | CFA2 | 172                 | 14  | 219                        | 14  | 47  | 0   | 27%                                  | -1%  |
|   | SB        |      | 191                 | 24  | 193                        | 27  | 2   | 3   | 1%                                   | 12%  |
| Pratt Street                                    | EB        | CFA2 | 38                  | 14  | 48                         | 13  | 10  | -1  | 26%                                  | -9%  |
|   | WB        |      | 76                  | 14  | 76                         | 14  | 0   | 0   | 0%                                   | 0%   |
| Westbourne Road                                 | NB        | CFA2 | 80                  | 11  | 77                         | 11  | -4  | 0   | -4%                                  | 0%   |
|   | SB        |      | 13                  | 1   | 19                         | 2   | 6   | 1   | 47%                                  | 98%  |
|   | SB        |      | 382                 | 61  | 446                        | 94  | 64  | 33  | 17%                                  | 54%  |
| A502 Chalk Farm Road                            | EB        | CFA3 | 441                 | 46  | 478                        | 55  | 37  | 9   | 8%                                   | 20%  |
|   | WB        |      | 358                 | 75  | 380                        | 76  | 22  | 1   | 6%                                   | 1%   |
| Albert Terrace                                  | NB        | CFA3 | 497                 | 64  | 449                        | 56  | -48                                       | -8  | -10%                                 | -12% |
| B509 Adelaide Road (East of Primrose Hill Road) | EB        | CFA3 | 416                 | 41  | 450                        | 48  | 34  | 7   | 8%                                   | 17%  |
|   | WB        |      | 186                 | 52  | 204                        | 53  | 18  | 1   | 10%                                  | 2%   |
| B525 Avenue Road                                | NB        | CFA3 | 178                 | 24  | 187                        | 15  | 9   | -10 | 5%                                   | -40% |
|   | SB        |      | 90                  | 4   | 115                        | 10  | 25  | 6   | 28%                                  | 161% |

SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

| Location           | Direction | CFA  | 2021 Baseline       |     | 2017 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|--------------------|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|                    |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
| Gloucester Avenue  | NB        | CFA3 | 326                 | 47  | 480                        | 86  | 155                                       | 39  | 48%                                  | 84%  |
|                    | SB        |      | 413                 | 56  | 487                        | 67  | 74  | 11  | 18%                                  | 20%  |
| Princess Road      | SB        | CFA3 | 683                 | 108 | 577                        | 81  | -106                                      | -27 | -15%                                 | -25% |
| Regent's Park Road | NB        | CFA3 | 155                 | 21  | 157                        | 30  | 2   | 9   | 1%                                   | 42%  |
|                    | SB        |      | 315                 | 71  | 227                        | 29  | -88                                       | -43 | -28%                                 | -60% |
| Randolph Avenue    | NB        | CFA4 | 0                   | 0   | 0                          | 0   | 0   | 0   | -26%                                 | 0%   |
|                    | SB        |      | 34                  | 6   | 53                         | 7   | 19  | 1   | 56%                                  | 14%  |

Table 95: Links with traffic increase, 2017 Construction PM Peak (17:00-18:00), CFA2, CFA3 and CFA4

| Location       | Direction | CFA  | 2021 Baseline       |     | 2017 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|----------------|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|                |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
| Albert Street  | SB        | CFA2 | 2                   | 0   | 53                         | 3   | 51  | 3   | 2265%                                | 806% |
| Castle Road    | EB        | CFA2 | 91                  | 9   | 142                        | 8   | 52  | 0   | 57%                                  | -1%  |
|                | WB        |      | 84                  | 19  | 84                         | 19  | 0   | 0   | 0%                                   | 0%   |
| Greenland Road | EB        | CFA2 | 124                 | 16  | 210                        | 19  | 87  | 3   | 70%                                  | 21%  |

SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

| Location  | Direction | CFA  | 2021 Baseline       |     | 2017 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|---|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|   |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
| Jamestown Road                                  | EB        | CFA2 | 40                  | 2   | 89                         | 3   | 50  | 2   | 124%                                 | 96%  |
|   | WB        |      | 112                 | 14  | 114                        | 16  | 2   | 2   | 1%                                   | 18%  |
| Oval Road                                       | NB        | CFA2 | 113                 | 5   | 163                        | 7   | 50  | 2   | 45%                                  | 37%  |
|   | SB        |      | 213                 | 19  | 208                        | 22  | -5  | 3   | -2%                                  | 13%  |
| Pratt Street                                    | EB        | CFA2 | 10                  | 4   | 36                         | 3   | 26  | -1  | 259%                                 | -28% |
|   | WB        |      | 31                  | 5   | 32                         | 5   | 0   | 0   | 1%                                   | 1%   |
| Westbourne Road                                 | NB        | CFA2 | 165                 | 10  | 166                        | 10  | 0   | 0   | 0%                                   | 0%   |
|   | SB        |      | 16                  | 0   | 21                         | 0   | 5   | 0   | 32%                                  | 63%  |
| A502 Chalk Farm Road                            | EB        | CFA3 | 383                 | 28  | 399                        | 33  | 16  | 6   | 4%                                   | 21%  |
|   | WB        |      | 455                 | 72  | 506                        | 70  | 52  | -2  | 11%                                  | -3%  |
| Albert Terrace                                  | NB        | CFA3 | 407                 | 36  | 450                        | 47  | 43  | 11  | 11%                                  | 30%  |
| B509 Adelaide Road (East of Primrose Hill Road) | EB        | CFA3 | 335                 | 24  | 351                        | 30  | 16  | 6   | 5%                                   | 24%  |
|   | WB        |      | 244                 | 41  | 289                        | 39  | 45  | -2  | 19%                                  | -5%  |
| B525 Avenue Road                                | NB        | CFA3 | 172                 | 11  | 159                        | 10  | -14                                       | -1  | -8%                                  | -9%  |

SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

| Location           | Direction | CFA  | 2021 Baseline       |     | 2017 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|--------------------|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|                    |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
|                    | SB        |      | 72                  | 18  | 104                        | 17  | 31  | -1  | 44%                                  | -3%  |
| Gloucester Avenue  | NB        | CFA3 | 363                 | 39  | 462                        | 53  | 99  | 15  | 27%                                  | 38%  |
|                    | SB        |      | 341                 | 27  | 419                        | 41  | 78  | 13  | 23%                                  | 48%  |
| Princess Road      | SB        | CFA3 | 498                 | 48  | 493                        | 52  | -4  | 4   | -1%                                  | 9%   |
| Regent's Park Road | NB        | CFA3 | 322                 | 38  | 227                        | 35  | -95                                       | -3  | -29%                                 | -7%  |
|                    | SB        |      | 280                 | 23  | 177                        | 11  | -104                                      | -11 | -37%                                 | -50% |
| Randolph Avenue    | NB        | CFA4 | 18                  | 0   | 15                         | 0   | -3  | 0   | -18%                                 | 0%   |
|                    | SB        |      | 9                   | 0   | 14                         | 1   | 5   | 1   | 48%                                  | -    |

### **Highway impacts - Scenario 2, 2018 (construction Stage A)**

- 3.3.225 The traffic flow impacts of the revised scheme were assessed strategically through CLoHAM by comparing the change in traffic flow between the 2021 future baseline and the 2018 construction scenario (Scenario 2). The flow differences for the AM and PM peak hours are shown on Figure 98 and Figure 99 respectively. The width of the band indicates the proportional change in traffic with red representing an increase and green a decrease compared with the 2021 future baseline scenario.
- 3.3.226 The traffic flows for the screenlines immediately to the north and south of A501 Euston Road are shown in Table 96 and Table 97 for the AM and PM peak hours respectively. Table 98 and Table 99 show the traffic flows for the Camden screenline for the AM and PM peak hours.

Figure 98: Traffic flow changes (PCU) 2021 future baseline vs Scenario 2 (2018) AM peak hour (08:00 to 09:00)

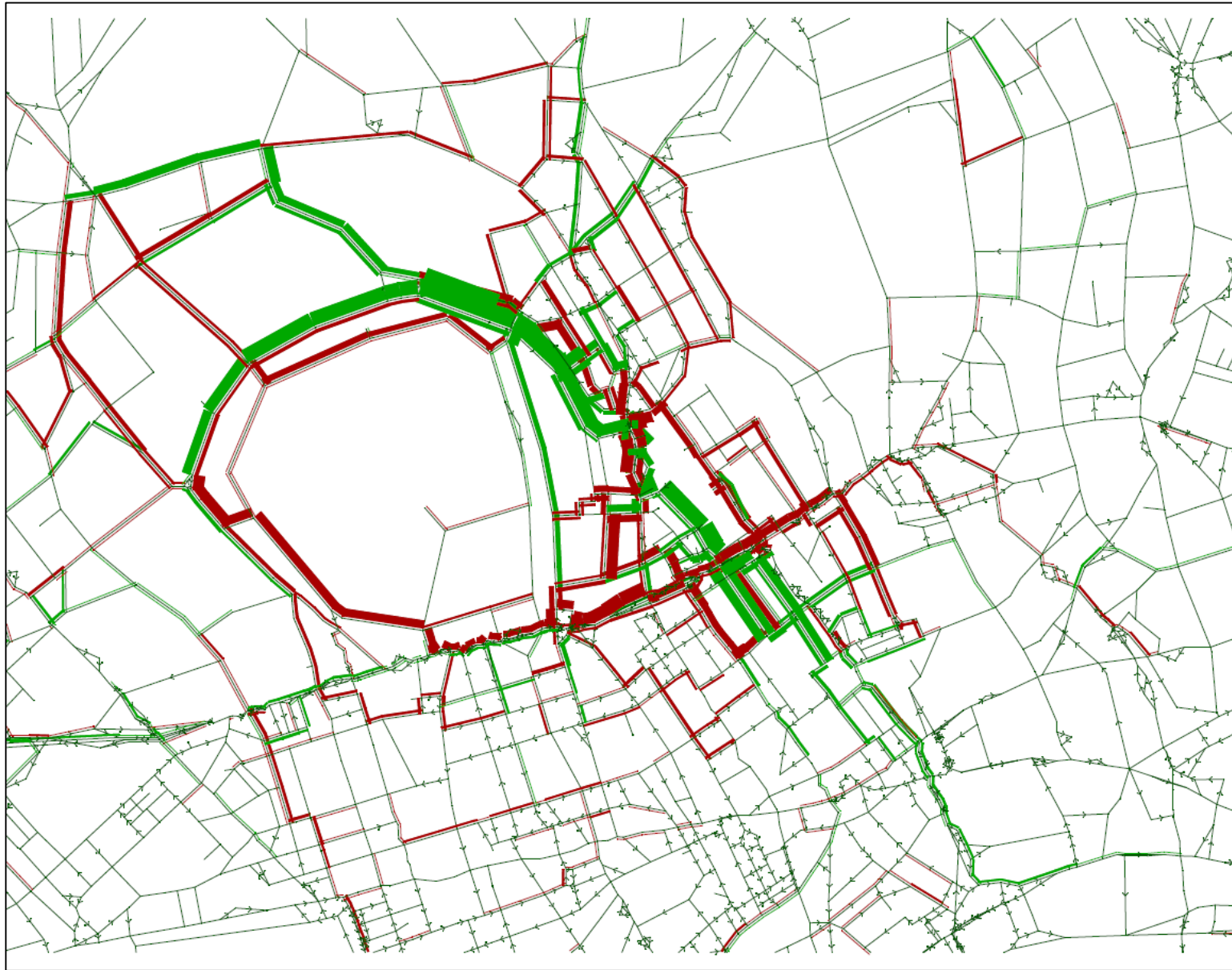
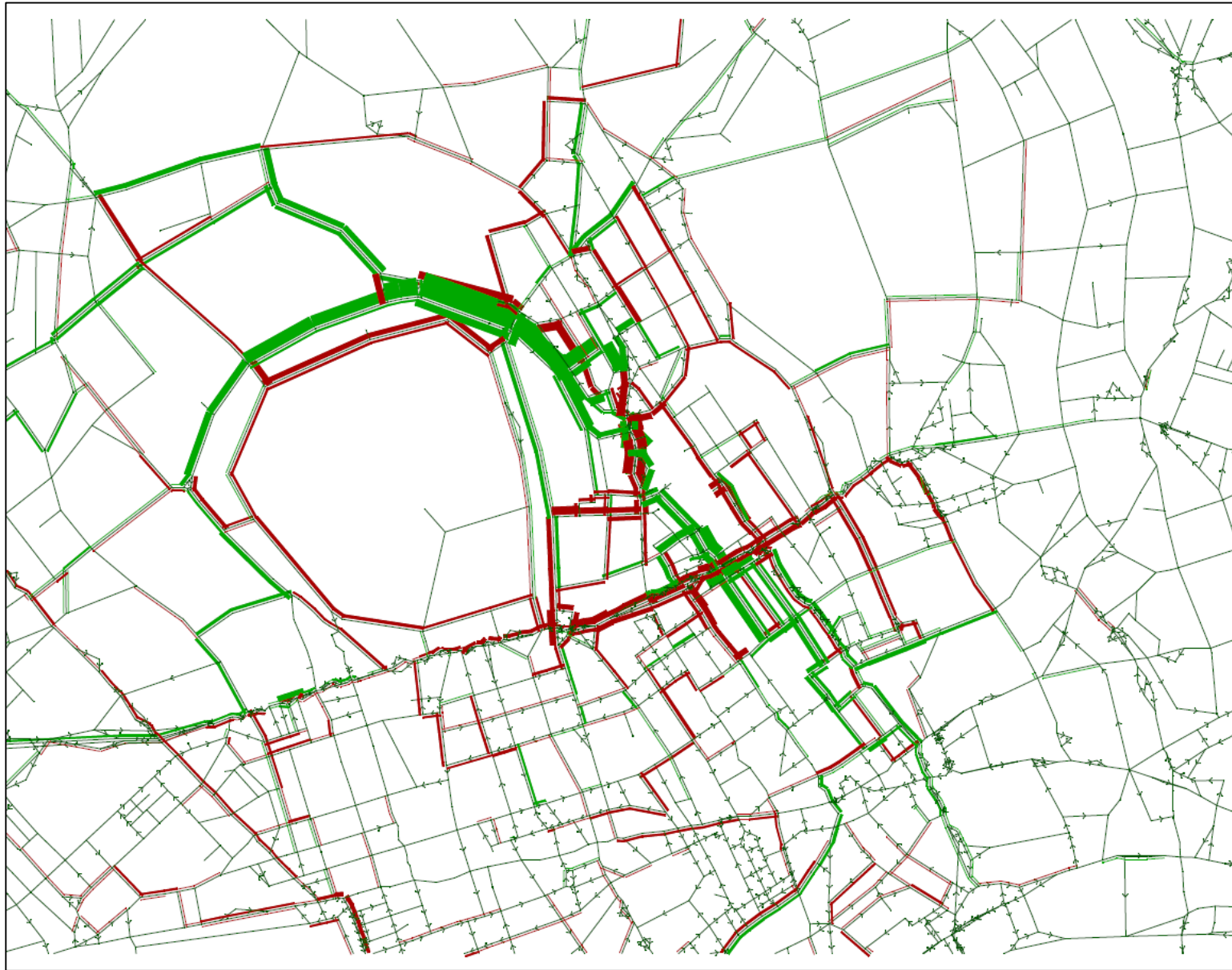


Figure 99: Traffic flow changes (PCU) 2021 future baseline vs Scenario 2 (2018) PM peak hour (17:00 to 18:00)





SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

Table 96: Baseline and with HS2 traffic flows Euston screenlines 2018 AM peak hour (08:00 to 09:00)

| Location  | Direction  | 2021 baseline flows |     | 2018 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |       |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|-------|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV   |
| Outer Circle (between Park Square East and Chester Road)        | Northbound | 96                  | 0   | 90                               | 0   | -6   | 0   | -6%   | 0%    |
|   | Southbound | 203                 | 7   | 200                              | 7   | -3   | 0   | -1%   | 0%    |
| A4201 Albany Street (between Robert Street and Longford Street) | Northbound | 358                 | 9   | 356                              | 14  | -2   | 6   | -1%   | 66%   |
|   | Southbound | 378                 | 19  | 317                              | 1   | -61  | -17 | -16%  | -92%  |
| Stanhope Street (between Longford Street and Robert Street)     | Northbound | 103                 | 11  | 136                              | 6   | 33   | -4  | 32%   | -41%  |
|   | Southbound | 155                 | 3   | 361                              | 2   | 206  | 0   | 133%  | -16%  |
| A400 Hampstead Road (between Drummond Street and Robert Street) | Northbound | 262                 | 37  | 284                              | 47  | 23   | 9   | 9%  | 24%   |
|   | Southbound | 763                 | 2   | 764                              | 18  | 1  | 15  | 0%  | 630%  |
| Cardington Street (north of Drummond Street)                    | Northbound | 22                  | 0   | 0                                | 0   | -22  | 0   | -100%   | -100% |
|   | Southbound | 277                 | 3   | 0                                | 0   | -277   | -3  | -100%   | -100% |
| New Cobourg Street (north of Starcross Street)                  | Northbound | 0                   | 0   | 0                                | 0   | 0  | 0   | 0%  | 0%    |
|   | Southbound | 0                   | 0   | 0                                | 0   | 0  | 0   | 0%  | 0%    |
| A4200 Eversholt Street (between Phoenix Road and Polygon Road)  | Northbound | 193                 | 6   | 246                              | 14  | 52   | 8   | 27%   | 121%  |
|   | Southbound | 430                 | 20  | 448                              | 19  | 18   | -1  | 4%  | -7%   |

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| Location   | Direction  | 2021 baseline flows |     | 2018 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |      |
|--|------------|---------------------|-----|----------------------------------|-----|--|-----|---|------|
|  |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV  |
| Chalton Street (between A501 Euston Road and Phoenix Road)                         | Northbound | 180                 | 56  | 190                              | 52  | 10   | -5  | 5%  | -8%  |
|  | Southbound | 202                 | 12  | 220                              | 10  | 18   | -1  | 9%  | -10% |
| Midland Road (between Brill Place and A501 Euston Road)                            | Southbound | 659                 | 27  | 656                              | 31  | -3   | 4   | 0%  | 16%  |
| A5202 Pancras Road (between A501 Euston Road and Goods Way)                        | Northbound | 209                 | 7   | 209                              | 7   | 0  | 0   | 0%  | 0%   |
|  | Southbound | 93                  | 6   | 93                               | 6   | 0  | 0   | 0%  | 0%   |
| A5203 York Way between A501 Euston Road and Caledonia Street                       | Northbound | 508                 | 60  | 511                              | 59  | 4  | 0   | 1%  | -1%  |
| A4201 Portland Place (between Devonshire Street and Park Crescent)                 | Northbound | 187                 | 38  | 189                              | 38  | 2  | 0   | 1%  | -1%  |
|  | Southbound | 314                 | 5   | 309                              | 16  | -5   | 11  | -2%   | 216% |
| B506 Great Portland Street (between Park Crescent Mews East and Devonshire Street) | Southbound | 619                 | 25  | 571                              | 7   | -48  | -18 | -8%   | -73% |
| Cleveland Street (between Greenwell Street and Clipstone Street)                   | Southbound | 202                 | 2   | 232                              | 3   | 31   | 0   | 15%   | 7%   |
| A400 Tottenham Court Road (between Grafton Way and Warren Street)                  | Northbound | 447                 | 56  | 455                              | 63  | 9  | 7   | 2%  | 12%  |
|  | Southbound | 71                  | 0   | 71                               | 0   | -1   | 0   | -1%   | 0%   |

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| Location  | Direction  | 2021 baseline flows |     | 2018 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |       |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|-------|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV   |
| A400 Gower Street (between Grafton Way and Gower Place)                   | Northbound | 38                  | 2   | 60                               | 5   | 22   | 3   | 58%   | 148%  |
|   | Southbound | 660                 | 35  | 786                              | 47  | 127  | 13  | 19%   | 36%   |
| Gordon Street (between Endsleigh Gardens and A501 Euston Road)            | Northbound | 457                 | 7   | 243                              | 0   | -213   | -7  | -47%  | -100% |
|   | Southbound | 394                 | 7   | 0                                | 0   | -394   | -7  | -100%   | -100% |
| A4200 Upper Woburn Place (between Endsleigh Gardens and A501 Euston Road) | Northbound | 188                 | 8   | 294                              | 9   | 105  | 1   | 56%   | 10%   |
|   | Southbound | 544                 | 60  | 600                              | 51  | 56   | -10 | 10%   | -16%  |
| B504 Judd Street (between Bidborough Street and A501 Euston Road)         | Northbound | 94                  | 4   | 94                               | 4   | 0  | 0   | 0%  | -6%   |
|   | Southbound | 264                 | 19  | 362                              | 29  | 98   | 10  | 37%   | 51%   |
| A501 Gray's Inn Road (east of Birkenhead Street)                          | Northbound | 1,800               | 138 | 1,824                            | 143 | 24   | 5   | 1%  | 4%    |
| A501 Euston Road between Euston Circus and Melton Street                  | Eastbound  | 1,605               | 175 | 1,628                            | 187 | 22   | 12  | 1%  | 7%    |
|   | Westbound  | 1,915               | 98  | 1,937                            | 99  | 22   | 1   | 1%  | 1%    |
| A501 Euston Road between Melton Street and A4200 Upper Woburn Place       | Eastbound  | 1,721               | 178 | 1,884                            | 185 | 163  | 6   | 9%  | 3%    |
|   | Westbound  | 1,727               | 91  | 1,801                            | 95  | 74   | 4   | 4%  | 5%    |

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| Location  | Direction | 2021 baseline flows |     | 2018 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |     |
|---|-----------|---------------------|-----|----------------------------------|-----|--|-----|---|-----|
|   |           | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV |
| A501 Euston Road between A4200 Upper Woburn Place and Churchway | Eastbound | 1,456               | 145 | 1,587                            | 155 | 131  | 10  | 9%  | 7%  |
|   | Westbound | 1,704               | 96  | 1,717                            | 95  | 14   | -1  | 1%  | -1% |

Table 97: Baseline and with HS2 traffic flows Euston screenlines 2018 PM peak hour (17:00 to 18:00)

| Location  | Direction  | 2021 baseline flows |     | 2018 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |      |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|------|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV  |
| Outer Circle (between Park Square East and Chester Road)        | Northbound | 297                 | 0   | 311                              | 0   | 14   | 0   | 5%  | 0%   |
|   | Southbound | 206                 | 1   | 194                              | 1   | -11  | 0   | -6%   | 0%   |
| A4201 Albany Street (between Robert Street and Longford Street) | Northbound | 483                 | 11  | 557                              | 15  | 73   | 4   | 15%   | 34%  |
|   | Southbound | 271                 | 3   | 225                              | 3   | -46  | 0   | -17%  | -14% |
| Stanhope Street (between Longford Street and Robert Street)     | Northbound | 103                 | 5   | 101                              | 2   | -2   | -3  | -2%   | -68% |
|   | Southbound | 124                 | 2   | 149                              | 3   | 25   | 1   | 20%   | 59%  |
| A400 Hampstead Road (between Drummond Street and Robert Street) | Northbound | 355                 | 11  | 346                              | 20  | -9   | 8   | -3%   | 71%  |
|   | Southbound | 430                 | 10  | 466                              | 14  | 37   | 4   | 8%  | 46%  |

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| Location   | Direction  | 2021 baseline flows |     | 2018 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |       |
|--|------------|---------------------|-----|----------------------------------|-----|--|-----|---|-------|
|  |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV   |
| Cardington Street (north of Drummond Street)                   | Northbound | 87                  | 7   | 0                                | 0   | -87  | -7  | -100%   | -100% |
|  | Southbound | 71                  | 4   | 0                                | 0   | -71  | -4  | -100%   | -100% |
| New Cobourg Street (north of Starcross Street)                 | Northbound | 0                   | 0   | 0                                | 0   | 0  | 0   | 0%  | 0%    |
|  | Southbound | 0                   | 0   | 0                                | 0   | 0  | 0   | 0%  | 0%    |
| A4200 Eversholt Street (between Phoenix Road and Polygon Road) | Northbound | 356                 | 11  | 412                              | 11  | 56   | 1   | 16%   | 7%    |
|  | Southbound | 279                 | 3   | 269                              | 5   | -10  | 1   | -4%   | 41%   |
| Chalton Street (between A501 Euston Road and Phoenix Road)     | Northbound | 291                 | 6   | 317                              | 6   | 26   | 0   | 9%  | 0%    |
|  | Southbound | 179                 | 4   | 184                              | 4   | 5  | 0   | 3%  | 3%    |
| Midland Road (between Brill Place and A501 Euston Road)        | Southbound | 534                 | 14  | 553                              | 15  | 19   | 1   | 3%  | 7%    |
| A5202 Pancras Road (between A501 Euston Road and Goods Way)    | Northbound | 108                 | 6   | 116                              | 7   | 8  | 1   | 8%  | 26%   |
|  | Southbound | 287                 | 2   | 290                              | 2   | 2  | 0   | 1%  | 0%    |
| A5203 York Way between A501 Euston Road and Caledonia Street   | Northbound | 704                 | 37  | 720                              | 37  | 16   | 0   | 2%  | -1%   |

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| Location   | Direction  | 2021 baseline flows |     | 2018 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |       |
|--|------------|---------------------|-----|----------------------------------|-----|--|-----|---|-------|
|  |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV   |
| A4201 Portland Place (between Devonshire Street and Park Crescent)                 | Northbound | 378                 | 2   | 372                              | 2   | -6   | 0   | -2%   | 0%    |
|  | Southbound | 262                 | 3   | 281                              | 4   | 19   | 0   | 7%  | 13%   |
| B506 Great Portland Street (between Park Crescent Mews East and Devonshire Street) | Southbound | 318                 | 7   | 287                              | 7   | -31  | 0   | -10%  | -4%   |
| Cleveland Street (between Greenwell Street and Clipstone Street)                   | Southbound | 160                 | 4   | 182                              | 5   | 22   | 1   | 14%   | 34%   |
| A400 Tottenham Court Road (between Grafton Way and Warren Street)                  | Northbound | 527                 | 14  | 544                              | 20  | 17   | 7   | 3%  | 48%   |
|  | Southbound | 67                  | 0   | 67                               | 0   | 1  | 0   | 1%  | 0%    |
| A400 Gower Street (between Grafton Way and Gower Place)                            | Northbound | 86                  | 10  | 122                              | 18  | 35   | 9   | 41%   | 89%   |
|  | Southbound | 708                 | 13  | 834                              | 22  | 126  | 9   | 18%   | 69%   |
| Gordon Street (between Endsleigh Gardens and A501 Euston Road)                     | Northbound | 435                 | 24  | 126                              | 0   | -309   | -24 | -71%  | -100% |
|  | Southbound | 290                 | 14  | 0                                | 0   | -290   | -14 | -100%   | -100% |
| A4200 Upper Woburn Place (between Endsleigh Gardens and A501 Euston Road)          | Northbound | 369                 | 8   | 435                              | 12  | 65   | 4   | 18%   | 46%   |
|  | Southbound | 643                 | 7   | 663                              | 16  | 20   | 9   | 3%  | 128%  |

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| Location  | Direction  | 2021 baseline flows |     | 2018 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |      |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|------|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV  |
| B504 Judd Street (between Bidborough Street and A501 Euston Road)   | Northbound | 64                  | 4   | 99                               | 4   | 35   | 0   | 54%   | 4%   |
|   | Southbound | 253                 | 6   | 291                              | 6   | 38   | 0   | 15%   | 2%   |
| A501 Gray's Inn Road (east of Birkenhead Street)                    | Northbound | 1,691               | 57  | 1,737                            | 61  | 46   | 4   | 3%  | 7%   |
| A501 Euston Road between Euston Circus and Melton Street            | Eastbound  | 1,767               | 28  | 1,842                            | 38  | 76   | 10  | 4%  | 36%  |
|   | Westbound  | 1,786               | 51  | 1,862                            | 42  | 76   | -9  | 4%  | -17% |
| A501 Euston Road between Melton Street and A4200 Upper Woburn Place | Eastbound  | 1,830               | 28  | 1,894                            | 37  | 64   | 8   | 3%  | 28%  |
|   | Westbound  | 1,550               | 34  | 1,666                            | 41  | 115  | 7   | 7%  | 19%  |
| A501 Euston Road between A4200 Upper Woburn Place and Churchway     | Eastbound  | 1,638               | 28  | 1,699                            | 29  | 61   | 1   | 4%  | 4%   |
|   | Westbound  | 1,527               | 33  | 1,612                            | 34  | 85   | 1   | 6%  | 3%   |

Table 98: Baseline and with HS2 traffic flows Camden screenline 2018 AM peak hour (08:00 to 09:00)

| Location  | Direction  | 2021 baseline flows |     | 2018 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |     |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|-----|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV |
| A5203 Caledonian Road (south of Wheelwright Road) | Northbound | 657                 | 8   | 660                              | 9   | 2  | 0   | 0%  | 1%  |
|   | Southbound | 799                 | 40  | 820                              | 41  | 21   | 1   | 3%  | 2%  |

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| Location   | Direction  | 2021 baseline flows |     | 2018 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |      |
|--|------------|---------------------|-----|----------------------------------|-----|--|-----|---|------|
|  |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV  |
| A5200 York Way (north of Vale Road)              | Northbound | 257                 | 24  | 258                              | 23  | 1  | 0   | 1%  | -1%  |
|  | Southbound | 499                 | 13  | 506                              | 11  | 7  | -2  | 1%  | -12% |
| A5202 St Pancras Way (north of Baynes Street)    | Southbound | 845                 | 51  | 874                              | 58  | 29   | 7   | 3%  | 14%  |
| Randolph Street (East of Royal College Street)   | Eastbound  | 93                  | 6   | 93                               | 7   | 0  | 1   | 0%  | 10%  |
| Royal College Street (south of A503 Camden Road) | Northbound | 741                 | 60  | 768                              | 67  | 28   | 7   | 4%  | 12%  |
| A503 Camden Road (south of Royal College Street) | Northbound | 462                 | 26  | 435                              | 20  | -27  | -6  | -6%   | -24% |
|  | Southbound | 886                 | 55  | 847                              | 53  | -39  | -2  | -4%   | -4%  |
| A400 Camden Street (south of Camden Gardens)     | Southbound | 953                 | 56  | 984                              | 52  | 32   | -3  | 3%  | -6%  |
| A400 Kentish Town Road (south of Camden Gardens) | Northbound | 350                 | 21  | 298                              | 20  | -51  | -1  | -15%  | -4%  |
|  | Southbound | 447                 | 24  | 449                              | 24  | 2  | 0   | 0%  | -1%  |
| Hawley Road                                      | Northbound | 789                 | 40  | 836                              | 41  | 47   | 0   | 6%  | 1%   |
| A502 Chalk Farm Road (west of Hawley Street)     | Northbound | 413                 | 17  | 422                              | 17  | 9  | 0   | 2%  | -2%  |
|  | Southbound | 598                 | 24  | 610                              | 24  | 12   | 1   | 2%  | 2%   |



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| Location  | Direction  | 2021 baseline flows |     | 2018 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |      |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|------|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV  |
| Primrose Hill Road (south of B509 Adelaide Road)  | Northbound | 305                 | 22  | 290                              | 22  | -16  | 0   | -5%   | 1%   |
|   | Southbound | 765                 | 46  | 599                              | 26  | -165   | -20 | -22%  | -43% |
| Avenue Road (south of B509 Adelaide Road)         | Northbound | 192                 | 11  | 193                              | 10  | 2  | -1  | 1%  | -7%  |
|   | Southbound | 93                  | 1   | 163                              | 1   | 70   | 0   | 75%   | 3%   |
| A41 Finchley Road (south of B509 Adelaide Road)   | Northbound | 405                 | 46  | 413                              | 54  | 8  | 8   | 2%  | 17%  |
|   | Southbound | 582                 | 20  | 640                              | 45  | 58   | 26  | 10%   | 129% |
| Loudoun Road (south of Alexandra Place)           | Northbound | 438                 | 3   | 447                              | 3   | 9  | 0   | 2%  | 4%   |
|   | Southbound | 226                 | 19  | 226                              | 19  | -1   | 0   | 0%  | 1%   |
| A507 Abbey Road (south of B509 Belsize Road)      | Northbound | 230                 | 5   | 215                              | 4   | -15  | -1  | -7%   | -11% |
|   | Southbound | 416                 | 12  | 432                              | 13  | 16   | 1   | 4%  | 7%   |
| A5 Kilburn High Road (south of B509 Belsize Road) | Northbound | 614                 | 27  | 637                              | 27  | 23   | 0   | 4%  | 1%   |
|   | Southbound | 920                 | 55  | 913                              | 55  | -7   | 0   | -1%   | 0%   |

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Table 99: Baseline and with HS2 traffic flows Camden screenline 2018 PM peak hour (17:00 to 18:00)

| Location  | Direction  | 2021 baseline flows |     | 2018 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |      |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|------|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV  |
| A5203 Caledonian Road (south of Wheelwright Road) | Northbound | 554                 | 5   | 554                              | 5   | -1   | 0   | 0%  | 0%   |
|   | Southbound | 727                 | 3   | 727                              | 3   | 0  | 0   | 0%  | 13%  |
| A5200 York Way (north of Vale Road)               | Northbound | 364                 | 20  | 366                              | 19  | 2  | 0   | 0%  | -1%  |
|   | Southbound | 335                 | 6   | 339                              | 6   | 5  | 0   | 1%  | 1%   |
| A5202 St Pancras Way (north of Baynes Street)     | Southbound | 589                 | 11  | 599                              | 11  | 10   | 0   | 2%  | 1%   |
| Randolph Street (East of Royal College Street)    | Eastbound  | 285                 | 3   | 264                              | 3   | -21  | 0   | -7%   | 13%  |
| Royal College Street (south of A503 Camden Road)  | Northbound | 642                 | 13  | 694                              | 22  | 52   | 8   | 8%  | 63%  |
| A503 Camden Road (south of Royal College Street)  | Northbound | 705                 | 20  | 637                              | 16  | -68  | -4  | -10%  | -20% |
|   | Southbound | 619                 | 21  | 611                              | 20  | -8   | 0   | -1%   | -2%  |
| A400 Camden Street (south of Camden Gardens)      | Southbound | 795                 | 17  | 797                              | 21  | 3  | 4   | 0%  | 22%  |
| A400 Kentish Town Road (south of Camden Gardens)  | Northbound | 392                 | 15  | 351                              | 12  | -41  | -3  | -10%  | -21% |
|   | Southbound | 303                 | 1   | 299                              | 1   | -4   | 0   | -1%   | 0%   |

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| Location   | Direction  | 2021 baseline flows |     | 2018 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |      |
|--|------------|---------------------|-----|----------------------------------|-----|--|-----|---|------|
|  |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV  |
| Hawley Road                                      | Northbound | 540                 | 12  | 576                              | 14  | 36   | 3   | 7%  | 22%  |
| A502 Chalk Farm Road (west of Hawley Street)     | Northbound | 524                 | 9   | 537                              | 9   | 13   | 1   | 3%  | 7%   |
|  | Southbound | 274                 | 1   | 271                              | 5   | -4   | 4   | -1%   | 538% |
| Primrose Hill Road (south of B509 Adelaide Road) | Northbound | 295                 | 18  | 282                              | 16  | -14  | -1  | -5%   | -7%  |
|  | Southbound | 667                 | 16  | 567                              | 10  | -100   | -6  | -15%  | -37% |
| Avenue Road (south of B509 Adelaide Road)        | Northbound | 182                 | 1   | 179                              | 1   | -3   | 0   | -1%   | 9%   |
|  | Southbound | 80                  | 9   | 146                              | 9   | 66   | 0   | 82%   | -4%  |
| A41 Finchley Road (south of B509 Adelaide Road)  | Northbound | 404                 | 35  | 409                              | 38  | 5  | 3   | 1%  | 8%   |
|  | Southbound | 541                 | 17  | 550                              | 20  | 9  | 3   | 2%  | 20%  |
| Loudoun Road (south of Alexandra Place)          | Northbound | 541                 | 2   | 551                              | 2   | 10   | 0   | 2%  | 0%   |
|  | Southbound | 91                  | 3   | 95                               | 3   | 4  | 0   | 4%  | 1%   |
| A507 Abbey Road (south of B509 Belsize Road)     | Northbound | 348                 | 3   | 351                              | 3   | 3  | 0   | 1%  | 2%   |
|  | Southbound | 284                 | 1   | 285                              | 1   | 1  | 0   | 0%  | 0%   |

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| Location  | Direction  | 2021 baseline flows |     | 2018 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |     |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|-----|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV |
| A5 Kilburn High Road (south of B509 Belsize Road) | Northbound | 593                 | 11  | 604                              | 11  | 11   | 0   | 2%  | 0%  |
|   | Southbound | 652                 | 6   | 663                              | 6   | 11   | 0   | 2%  | 0%  |

- 3.3.227 The diversion impacts for Scenario 2 (2018) for the AM and PM peak hours are described as follows:
- removal of traffic from Park Village East due to their closure to general traffic and flow reductions on A5205 Prince Albert Road, Regents Park Road and Primrose Hill Road approaching Park Village East;
  - consequential increases in traffic on the Outer Circle, Albert Terrace and B509 Adelaide Road and A502 Chalk Farm Road as alternative routes;
  - traffic flow reductions in Camden on A4201 Parkway due to service diversion works;
  - traffic flow reductions on Mornington Terrace and Granby Terrace bridge due to closure to general traffic;
  - traffic flow increases on A400 Hampstead Road (north of Cardington Street), Robert Street and Stanhope Street due to the closures of Cardington Street and Melton Street;
  - traffic flow increase in traffic on A501 Euston Road;
  - removal of traffic from those roads closed as part of the station works; and
  - traffic flow reductions to the south of A501 Euston Road, particularly on Gordon Street due to the closure of Melton Street to the north.
- 3.3.228 North of A501 Euston Road, HGV flows across the screenline increase by approximately 7% northbound in the AM peak hour and by approximately 9% southbound in the PM peak hour. South of A501 Euston Road, the corresponding increases are approximately 3% and 9%.
- 3.3.229 There are very limited impacts on the Camden screenline with the exception of the flow reductions on Primrose Hill Road noted above. Overall across the Camden screenline flow differences between the 2021 baseline and the 2018 construction scenario 2 are less than 1% in both directions for both peak hours. Due to the lower absolute numbers of HGVs in the baseline, differences in HGVs are higher in percentage terms but still generally lower than 10%. The only notable exception is the A41 Finchley Road which is a construction route and which experiences a southbound AM peak hour increase of 26 HGVs.
- 3.3.230 In addition to the screenline comparisons, roads that will experience a substantial increase in traffic flow have been identified. Table 100 and Table 101 outline those traffic flows for the 2018 construction scenario are reported in CFA1.
- 3.3.231 This indicates that those flows with the greatest increase in HGVs in both absolute and percentage terms are around Euston station used by construction traffic increases in HGVs, which are concentrated on the construction lorry routes around Euston. For all vehicles, the increases are generally less than 150 vehicles per hour with the largest increases on North Gower Street, Drummond Street and Torrington Place in the AM peak and Robert Street in the PM peak. Roads identified as having a substantial increase in daily traffic flow are reported in Table 102 and Table 103 for the AM and PM peak hours respectively.

SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

Table 100: Links with traffic increase, 2018 Construction AM Peak (08:00-09:00), CFA1

| Location  | Direction | CFA  | 2021 Baseline       |     | 2018 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|---|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|   |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
| A41 Gloucester Place  | NB        | CFA1 | 198                 | 36  | 231                        | 44  | 33  | 8   | 17%                                  | 23%  |
| A41 Park Rd   | NB        | CFA1 | 0                   | 0   | 0                          | 0   | 0   | 0   | 0%                                   | -    |
| A4200 Russell Square  | SB        | CFA1 | 32                  | 0   | 24                         | 0   | -8  | 0   | -26%                                 | -    |
| A4201 Park Crescent   | SB        | CFA1 | 50                  | 9   | 55                         | 13  | 5   | 4   | 10%                                  | 48%  |
| A4201 Parkway   | EB        | CFA1 | 448                 | 55  | 405                        | 57  | -43                                       | 2   | -10%                                 | 4%   |
| A5202 Royal College Street                                  | NB        | CFA1 | 426                 | 86  | 453                        | 95  | 28  | 9   | 6%                                   | 10%  |
| Albert St   | SB        | CFA1 | 25                  | 5   | 106                        | 13  | 80  | 9   | 315%                                 | 192% |
| Arlington Road  | NB        | CFA1 | 3                   | 1   | 13                         | 1   | 9   | 0   | 269%                                 | 27%  |
| B502 Brunswick Square/ Lansdowne Terrace/ B504 Grenville St | WB        | CFA1 | 85                  | 22  | 132                        | 11  | 47  | -11 | 55%                                  | -50% |
| Bickenhall St   | EB        | CFA1 | 156                 | 34  | 182                        | 42  | 26  | 8   | 17%                                  | 24%  |
| Bidborough St   | WB        | CFA1 | 36                  | 17  | 96                         | 23  | 60  | 6   | 165%                                 | 36%  |
| Cartwright Gardens  | SB        | CFA1 | 25                  | 18  | 36                         | 28  | 11  | 10  | 46%                                  | 56%  |
| Charlbert St  | EB        | CFA1 | 51                  | 2   | 31                         | 15  | -21                                       | 13  | -41%                                 | 617% |

SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

| Location                             | Direction | CFA  | 2021 Baseline       |     | 2018 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|--------------------------------------|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|                                      |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
| Colonnade                            | WB        | CFA1 | 26                  | 2   | 33                         | 2   | 7   | 0   | 26%                                  | 6%   |
| Conway St                            | SB        | CFA1 | 156                 | 34  | 182                        | 42  | 26  | 8   | 17%                                  | 24%  |
| Cumberland Market                    | SB        | CFA1 | 109                 | 1   | 132                        | 10  | 23  | 9   | 21%                                  | 756% |
| Drummond St (West of North Gower St) | EB        | CFA1 | 72                  | 7   | 202                        | 15  | 130                                       | 8   | 181%                                 | 120% |
| Fitzroy St/ Charlotte St             | SB        | CFA1 | 7                   | 0   | 16                         | 0   | 9   | 0   | 143%                                 | 0%   |
| Grafton Way                          | WB        | CFA1 | 7                   | 0   | 16                         | 0   | 9   | 0   | 143%                                 | 0%   |
| Great Russell St                     | EB        | CFA1 | 20                  | 0   | 20                         | 0   | 1   | 0   | 3%                                   | -    |
| Harrington Square                    | SB        | CFA1 | 78                  | 13  | 160                        | 21  | 82  | 8   | 105%                                 | 60%  |
| Herbrand St                          | SB        | CFA1 | 28                  | 2   | 35                         | 2   | 7   | 0   | 24%                                  | 6%   |
| Longford St                          | EB        | CFA1 | 94                  | 4   | 157                        | 3   | 63  | -1  | 67%                                  | -26% |
| Mabledon Place                       | NB        | CFA1 | 5                   | 1   | 61                         | 1   | 56  | 0   | 1162%                                | -25% |
| Mornington Crescent                  | SB        | CFA1 | 18                  | 7   | 62                         | 15  | 43  | 8   | 235%                                 | 118% |
| Mornington Place                     | EB        | CFA1 | 0                   | 0   | 12                         | 5   | 12  | 5   | -                                    | -    |
| Mornington St                        | EB        | CFA1 | 71                  | 18  | 28                         | 6   | -43                                       | -12 | -61%                                 | -69% |

SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

| Location          | Direction | CFA  | 2021 Baseline       |     | 2018 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|-------------------|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|                   |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
| North Gower St    | SB        | CFA1 | 72                  | 8   | 207                        | 15  | 135                                       | 7   | 187%                                 | 87%  |
| Ossulston Street  | NB        | CFA1 | 2                   | 0   | 57                         | 0   | 55  | 0   | 2333%                                | 186% |
| Park Village East | NB        | CFA1 | 57                  | 18  | 1                          | 1   | -56                                       | -17 | -98%                                 | -95% |
| Plender Street    | EB        | CFA1 | 273                 | 27  | 221                        | 29  | -53                                       | 2   | -19%                                 | 8%   |
| Polygon Rd        | WB        | CFA1 | 41                  | 19  | 105                        | 14  | 64  | -5  | 159%                                 | -25% |
| Robert Street     | WB        | CFA1 | 40                  | 7   | 68                         | 10  | 29  | 4   | 72%                                  | 57%  |
| Russell Square    | NB        | CFA1 | 32                  | 0   | 24                         | 0   | -8  | 0   | -26%                                 | -    |
| Taviton St        | NB        | CFA1 | 1                   | 0   | 101                        | 1   | 100                                       | 1   | 9624%                                | 209% |
| Torrington Place  | EB        | CFA1 | 144                 | 15  | 290                        | 40  | 145                                       | 26  | 101%                                 | 177% |
| University St     | EB        | CFA1 | 57                  | 6   | 62                         | 10  | 5   | 4   | 8%                                   | 64%  |
| Varndell St       | EB        | CFA1 | 172                 | 14  | 276                        | 22  | 104                                       | 8   | 60%                                  | 58%  |
| Warren St         | WB        | CFA1 | 47                  | 3   | 48                         | 3   | 2   | 0   | 3%                                   | 5%   |



SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

Table 101: Links with traffic increase, 2018 Construction PM Peak (17:00-18:00), CFA1

| Location  | Direction | CFA  | 2021 Baseline       |     | 2018 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|---|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|   |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
| A41 Gloucester Place  | NB        | CFA1 | 281                 | 5   | 282                        | 4   | 1   | -1  | 0%                                   | -12% |
| A41 Park Rd   | NB        | CFA1 | 51                  | 13  | 59                         | 13  | 8   | 0   | 17%                                  | 1%   |
| A4200 Russell Square  | SB        | CFA1 | 85                  | 0   | 136                        | 0   | 51  | 0   | 60%                                  | -    |
| A4201 Park Crescent   | SB        | CFA1 | 70                  | 7   | 74                         | 7   | 4   | 0   | 6%                                   | 0%   |
| A4201 Parkway   | EB        | CFA1 | 611                 | 85  | 522                        | 73  | -89                                       | -12 | -15%                                 | -14% |
| A5202 Royal College Street                                  | NB        | CFA1 | 620                 | 61  | 650                        | 72  | 31  | 11  | 5%                                   | 19%  |
| Albert St   | SB        | CFA1 | 2                   | 0   | 21                         | 1   | 19  | 1   | 827%                                 | 270% |
| Arlington Road  | NB        | CFA1 | 21                  | 2   | 38                         | 2   | 18  | 0   | 86%                                  | -10% |
| B502 Brunswick Square/ Lansdowne Terrace/ B504 Grenville St | WB        | CFA1 | 56                  | 7   | 91                         | 7   | 35  | 0   | 63%                                  | -2%  |
| Bickenhall St   | EB        | CFA1 | 85                  | 3   | 87                         | 3   | 2   | -1  | 2%                                   | -16% |
| Bidborough St   | WB        | CFA1 | 41                  | 4   | 51                         | 4   | 11  | 0   | 27%                                  | -1%  |
| Cartwright Gardens  | SB        | CFA1 | 51                  | 2   | 51                         | 2   | 0   | 0   | -1%                                  | -3%  |
| Charlbert St  | EB        | CFA1 | 12                  | 1   | 9                          | 0   | -3  | -1  | -24%                                 | -67% |

SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

| Location                             | Direction | CFA  | 2021 Baseline       |     | 2018 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|--------------------------------------|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|                                      |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
| Colonnade                            | WB        | CFA1 | 15                  | 1   | 33                         | 0   | 18  | -1  | 116%                                 | -75% |
| Conway St                            | SB        | CFA1 | 85                  | 3   | 87                         | 3   | 2   | -1  | 2%                                   | -16% |
| Cumberland Market                    | SB        | CFA1 | 53                  | 1   | 42                         | 5   | -11                                       | 4   | -21%                                 | 374% |
| Drummond St (West of North Gower St) | EB        | CFA1 | 111                 | 12  | 128                        | 10  | 17  | -2  | 15%                                  | -17% |
| Fitzroy St/ Charlotte St             | SB        | CFA1 | 5                   | 0   | 18                         | 0   | 13  | 0   | 256%                                 | -    |
| Grafton Way                          | WB        | CFA1 | 5                   | 0   | 18                         | 0   | 13  | 0   | 256%                                 | -    |
| Great Russell St                     | EB        | CFA1 | 19                  | 0   | 36                         | 0   | 17  | 0   | 86%                                  | -    |
| Harrington Square                    | SB        | CFA1 | 57                  | 2   | 93                         | 3   | 36  | 1   | 63%                                  | 43%  |
| Herbrand St                          | SB        | CFA1 | 17                  | 1   | 35                         | 0   | 18  | -1  | 104%                                 | -74% |
| Longford St                          | EB        | CFA1 | 64                  | 1   | 91                         | 1   | 28  | 0   | 44%                                  | -37% |
| Mabledon Place                       | NB        | CFA1 | 13                  | 3   | 21                         | 3   | 8   | 0   | 64%                                  | 1%   |
| Mornington Crescent                  | SB        | CFA1 | 4                   | 2   | 41                         | 3   | 38  | 1   | 1013%                                | 45%  |
| Mornington Place                     | EB        | CFA1 | 0                   | 0   | 4                          | 0   | 4   | 0   | -                                    | -    |
| Mornington St                        | EB        | CFA1 | 111                 | 3   | 57                         | 3   | -54                                       | 1   | -48%                                 | 26%  |

SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

| Location          | Direction | CFA  | 2021 Baseline       |     | 2018 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |       |
|-------------------|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|-------|
|                   |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV   |
| North Gower St    | SB        | CFA1 | 87                  | 8   | 138                        | 11  | 51  | 3   | 58%                                  | 41%   |
| Ossulston Street  | NB        | CFA1 | 7                   | 0   | 15                         | 0   | 8   | 0   | 114%                                 | 0%    |
| Park Village East | NB        | CFA1 | 20                  | 12  | 0                          | 0   | -20                                       | -12 | -100%                                | -100% |
| Plender Street    | EB        | CFA1 | 393                 | 17  | 278                        | 23  | -114                                      | 7   | -29%                                 | 40%   |
| Polygon Rd        | WB        | CFA1 | 125                 | 11  | 148                        | 12  | 23  | 0   | 18%                                  | 1%    |
| Robert Street     | WB        | CFA1 | 161                 | 2   | 304                        | 10  | 143                                       | 8   | 89%                                  | 304%  |
| Russell Square    | NB        | CFA1 | 85                  | 0   | 136                        | 0   | 51  | 0   | 60%                                  | -     |
| Taviton St        | NB        | CFA1 | 0                   | 0   | 24                         | 0   | 24  | 0   | -                                    | -20%  |
| Torrington Place  | EB        | CFA1 | 335                 | 25  | 434                        | 26  | 99  | 1   | 29%                                  | 3%    |
| University St     | EB        | CFA1 | 74                  | 13  | 74                         | 11  | 0   | -2  | 0%                                   | -15%  |
| Varndell St       | EB        | CFA1 | 23                  | 6   | 46                         | 14  | 23  | 8   | 104%                                 | 134%  |
| Warren St         | WB        | CFA1 | 33                  | 1   | 73                         | 1   | 40  | 0   | 119%                                 | 12%   |

SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

Table 102: Links with traffic increase, 2018 Construction AM Peak (08:00-09:00), CFA2, CFA3 and CFA4

| Location                   | Direction | CFA  | 2021 Baseline       |     | 2018 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|----------------------------|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|                            |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
| A503 Delancey Street       | WB        | CFA2 | 488                 | 79  | 616                        | 120 | 128                                       | 40  | 26%                                  | 51%  |
| A5202 Royal College Street | NB        | CFA2 | 426                 | 86  | 453                        | 95  | 28  | 9   | 6%                                   | 10%  |
| Albert Street              | SB        | CFA2 | 25                  | 5   | 106                        | 13  | 80  | 9   | 315%                                 | 192% |
| Arlington Road             | NB        | CFA2 | 2                   | 1   | 12                         | 1   | 10  | 0   | 505%                                 | 0%   |
|                            | SB        |      | 47                  | 3   | 46                         | 3   | -1  | 0   | -2%                                  | 15%  |
| Castle Road                | EB        | CFA2 | 139                 | 18  | 167                        | 18  | 28  | 0   | 20%                                  | 1%   |
|                            | WB        |      | 102                 | 20  | 101                        | 20  | -1  | 0   | -1%                                  | 0%   |
| Greenland Road             | EB        | CFA2 | 156                 | 33  | 225                        | 37  | 69  | 4   | 44%                                  | 13%  |
| Jamestown Road             | EB        | CFA2 | 54                  | 7   | 91                         | 8   | 37  | 1   | 67%                                  | 20%  |
|                            | WB        |      | 165                 | 22  | 165                        | 22  | 1   | 0   | 0%                                   | -1%  |
| Oval Road                  | NB        | CFA2 | 172                 | 14  | 209                        | 16  | 38  | 1   | 22%                                  | 9%   |
|                            | SB        |      | 191                 | 24  | 192                        | 24  | 1   | 0   | 0%                                   | 0%   |

SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

| Location  | Direction | CFA  | 2021 Baseline       |     | 2018 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|---|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|   |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
| Pratt Street                                    | EB        | CFA2 | 38                  | 14  | 47                         | 14  | 9   | -1  | 24%                                  | -5%  |
|   | WB        |      | 76                  | 14  | 76                         | 14  | 0   | 0   | 0%                                   | 0%   |
| Westbourne Road                                 | NB        | CFA2 | 80                  | 11  | 77                         | 11  | -3  | 0   | -4%                                  | -1%  |
|   | SB        |      | 13                  | 1   | 21                         | 2   | 8   | 1   | 59%                                  | 137% |
| A41 Finchley Road                               | NB        | CFA3 | 451                 | 67  | 464                        | 71  | 13  | 4   | 3%                                   | 6%   |
|   | SB        |      | 382                 | 61  | 422                        | 89  | 40  | 28  | 10%                                  | 45%  |
| A502 Chalk Farm Road                            | EB        | CFA3 | 441                 | 46  | 475                        | 51  | 33  | 6   | 8%                                   | 12%  |
|   | WB        |      | 358                 | 75  | 366                        | 75  | 8   | 0   | 2%                                   | 0%   |
| Albert Terrace                                  | NB        | CFA3 | 497                 | 64  | 498                        | 67  | 1   | 3   | 0%                                   | 5%   |
| B509 Adelaide Road (East of Primrose Hill Road) | EB        | CFA3 | 416                 | 41  | 446                        | 45  | 31  | 4   | 7%                                   | 9%   |
|   | WB        |      | 186                 | 52  | 190                        | 52  | 4   | 0   | 2%                                   | 0%   |
| B525 Avenue Road                                | NB        | CFA3 | 178                 | 24  | 179                        | 24  | 1   | 0   | 0%                                   | 1%   |
|   | SB        |      | 90                  | 4   | 151                        | 13  | 61  | 9   | 68%                                  | 242% |

SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

| Location           | Direction | CFA  | 2021 Baseline       |     | 2018 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|--------------------|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|                    |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
| Elsworthy Road     | EB        | CFA3 | 108                 | 26  | 164                        | 27  | 56  | 2   | 51%                                  | 7%   |
|                    | WB        |      | 371                 | 43  | 333                        | 42  | -38                                       | -1  | -10%                                 | -2%  |
| Gloucester Avenue  | NB        | CFA3 | 326                 | 47  | 370                        | 45  | 44  | -2  | 14%                                  | -4%  |
|                    | SB        |      | 413                 | 56  | 486                        | 69  | 74  | 12  | 18%                                  | 22%  |
| Regent's Park Road | NB        | CFA3 | 155                 | 21  | 107                        | 18  | -48                                       | -3  | -31%                                 | -14% |
|                    | SB        |      | 315                 | 71  | 229                        | 32  | -86                                       | -39 | -27%                                 | -55% |
| Randolph Avenue    | NB        | CFA4 | 0                   | 0   | 0                          | 0   | 0   | 0   | -17%                                 | -5%  |
|                    | SB        |      | 34                  | 6   | 47                         | 5   | 13  | -1  | 39%                                  | -12% |

Table 103: Links with traffic increase, 2018 Construction PM Peak (17:00-18:00), CFA2, CFA3 and CFA4

| Location                   | Direction | CFA  | 2021 Baseline       |     | 2018 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |     |
|----------------------------|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|-----|
|                            |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV |
| A503 Delancey Street       | WB        | CFA2 | 437                 | 40  | 573                        | 55  | 137                                       | 15  | 31%                                  | 37% |
| A5202 Royal College Street | NB        | CFA2 | 620                 | 61  | 650                        | 72  | 31  | 11  | 5%                                   | 19% |
| Albert Street              | SB        | CFA2 | 2                   | 0   | 21                         | 1   | 19  | 1   | 827%                                 | -   |

SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

| Location        | Direction | CFA  | 2021 Baseline       |     | 2018 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |     |
|-----------------|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|-----|
|                 |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV |
| Arlington Road  | NB        | CFA2 | 1                   | 1   | 2                          | 1   | 2   | 0   | 264%                                 | 2%  |
|                 | SB        |      | 71                  | 3   | 70                         | 2   | -2  | 0   | -2%                                  | -6% |
| Castle Road     | EB        | CFA2 | 91                  | 9   | 141                        | 8   | 51  | 0   | 56%                                  | -1% |
|                 | WB        |      | 84                  | 19  | 84                         | 20  | 0   | 0   | 0%                                   | 2%  |
| Greenland Road  | EB        | CFA2 | 124                 | 16  | 213                        | 19  | 89  | 3   | 72%                                  | 20% |
| Jamestown Road  | EB        | CFA2 | 40                  | 2   | 89                         | 3   | 49  | 2   | 122%                                 | 92% |
|                 | WB        |      | 112                 | 14  | 109                        | 14  | -4  | 0   | -3%                                  | 0%  |
| Oval Road       | NB        | CFA2 | 113                 | 5   | 162                        | 7   | 50  | 2   | 44%                                  | 35% |
|                 | SB        |      | 213                 | 19  | 212                        | 19  | -2  | 0   | -1%                                  | 0%  |
| Pratt Street    | EB        | CFA2 | 10                  | 4   | 30                         | 4   | 20  | 0   | 202%                                 | -6% |
|                 | WB        |      | 31                  | 5   | 32                         | 5   | 0   | 0   | 1%                                   | 1%  |
| Westbourne Road | NB        | CFA2 | 165                 | 10  | 165                        | 10  | 0   | 0   | 0%                                   | 0%  |
|                 | SB        |      | 16                  | 0   | 21                         | 0   | 5   | 0   | 28%                                  | 13% |

SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

| Location  | Direction | CFA  | 2021 Baseline       |     | 2018 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|---|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|   |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
| A41 Finchley Road                               | NB        | CFA3 | 646                 | 72  | 653                        | 78  | 7   | 6   | 1%                                   | 8%   |
|   | SB        |      | 334                 | 14  | 333                        | 18  | -1  | 3   | 0%                                   | 24%  |
| A502 Chalk Farm Road                            | EB        | CFA3 | 383                 | 28  | 399                        | 32  | 16  | 5   | 4%                                   | 18%  |
|   | WB        |      | 455                 | 72  | 468                        | 71  | 13  | -1  | 3%                                   | -1%  |
| Albert Terrace                                  | NB        | CFA3 | 407                 | 36  | 508                        | 47  | 101                                       | 11  | 25%                                  | 32%  |
| B509 Adelaide Road (East of Primrose Hill Road) | EB        | CFA3 | 335                 | 24  | 351                        | 29  | 16  | 5   | 5%                                   | 20%  |
|   | WB        |      | 244                 | 41  | 253                        | 40  | 9   | -1  | 4%                                   | -3%  |
| B525 Avenue Road                                | NB        | CFA3 | 172                 | 11  | 169                        | 11  | -3  | 0   | -2%                                  | 2%   |
|   | SB        |      | 72                  | 18  | 141                        | 14  | 69  | -3  | 95%                                  | -18% |
| Elsworthy Road                                  | EB        | CFA3 | 108                 | 9   | 125                        | 9   | 17  | 0   | 16%                                  | 1%   |
|   | WB        |      | 448                 | 19  | 410                        | 19  | -39                                       | 0   | -9%                                  | -1%  |
| Gloucester Avenue                               | NB        | CFA3 | 363                 | 39  | 404                        | 34  | 41  | -5  | 11%                                  | -12% |
|   | SB        |      | 341                 | 27  | 424                        | 34  | 83  | 6   | 24%                                  | 23%  |
| Regent's Park Road                              | NB        | CFA3 | 322                 | 38  | 266                        | 32  | -56                                       | -5  | -17%                                 | -14% |



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| Location        | Direction | CFA  | 2021 Baseline       |     | 2018 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|-----------------|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|                 |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
|                 | SB        |      | 280                 | 23  | 194                        | 14  | -86                                       | -9  | -31%                                 | -39% |
| Randolph Avenue | NB        | CFA4 | 18                  | 0   | 15                         | 0   | -3  | 0   | -16%                                 | 0%   |
|                 | SB        |      | 9                   | 0   | 14                         | 0   | 4   | 0   | 47%                                  | 71%  |

### **Highway impacts - Scenario 3A, 2020 (construction Stage A)**

- 3.3.232 The traffic flow impacts of the revised scheme were assessed strategically through CLoHAM by comparing the change in traffic flow between the 2021 future baseline and the 2020 construction scenario (Scenario 3A). The flow differences for the AM and PM peak hours are shown on Figure 100 and Figure 101 respectively. The width of the band indicates the proportional change in traffic with red representing an increase and green a decrease compared with the 2021 future baseline scenario.
- 3.3.233 The traffic flows for the screenlines immediately to the north and south of A501 Euston Road are shown in Table 104 and Table 105 for the AM and PM peak hours respectively. Table 106 and Table 107 show the traffic flows for the Camden screenline for the AM and PM peak hours.

Figure 100: Traffic flow changes (PCU) 2021 future baseline vs Scenario 3A (2020) AM peak hour (08:00 to 09:00)

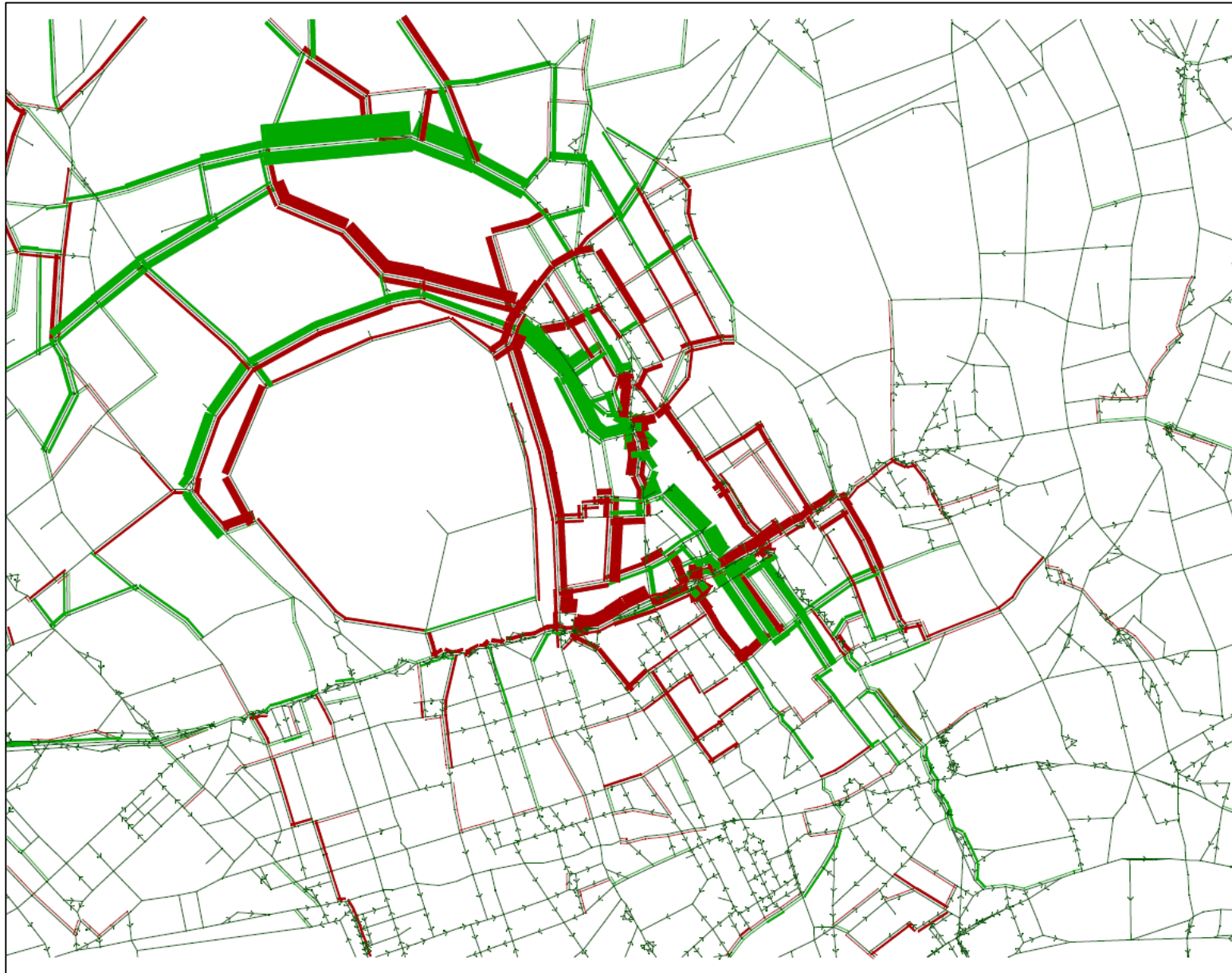
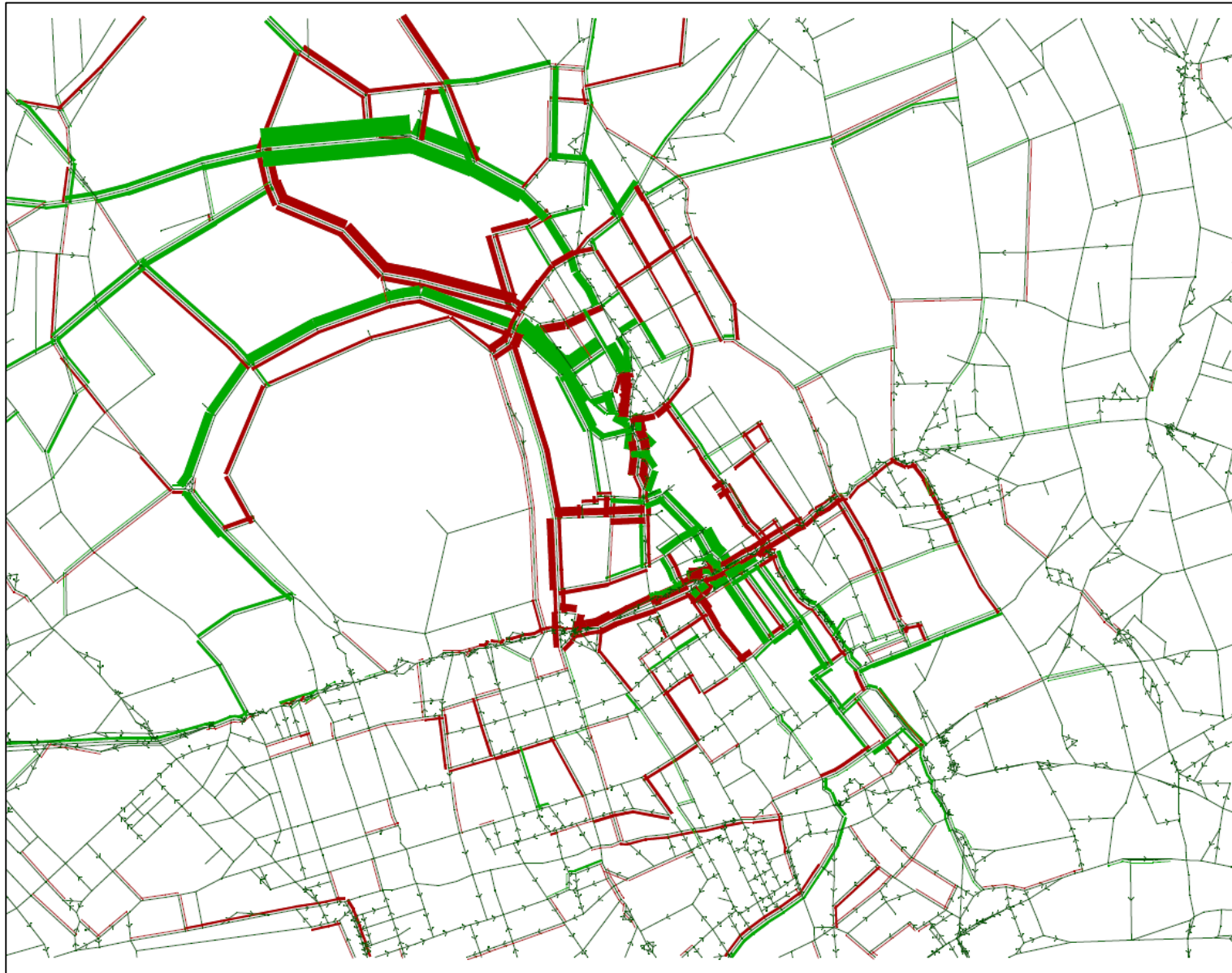


Figure 101: Traffic flow changes (PCU) 2021 future baseline vs Scenario 3A (2020) PM peak hour (17:00 to 18:00)



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Table 104: Baseline and with HS2 traffic flows Euston screenlines 2020 AM peak hour (08:00 to 09:00)

| Location  | Direction  | 2021 baseline flows |     | 2020 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |       |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|-------|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV   |
| Outer Circle (between Park Square East and Chester Road)        | Northbound | 96                  | 0   | 94                               | 0   | -2   | 0   | -2%   | 0%    |
|   | Southbound | 203                 | 7   | 230                              | 7   | 27   | 0   | 13%   | 0%    |
| A4201 Albany Street (between Robert Street and Longford Street) | Northbound | 358                 | 9   | 373                              | 15  | 15   | 6   | 4%  | 70%   |
|   | Southbound | 378                 | 19  | 493                              | 21  | 115  | 3   | 30%   | 16%   |
| Stanhope Street (between Longford Street and Robert Street)     | Northbound | 103                 | 11  | 131                              | 6   | 28   | -5  | 27%   | -44%  |
|   | Southbound | 155                 | 3   | 355                              | 2   | 200  | 0   | 129%  | -15%  |
| A400 Hampstead Road (between Drummond Street and Robert Street) | Northbound | 262                 | 37  | 255                              | 37  | -7   | -1  | -3%   | -1%   |
|   | Southbound | 763                 | 2   | 755                              | 12  | -8   | 9   | -1%   | 386%  |
| Cardington Street (north of Drummond Street)                    | Northbound | 22                  | 0   | 0                                | 0   | -22  | 0   | -100%   | -100% |
|   | Southbound | 277                 | 3   | 0                                | 0   | -277   | -3  | -100%   | -100% |
| New Cobourg Street (north of Starcross Street)                  | Northbound | 0                   | 0   | 0                                | 0   | 0  | 0   | 0%  | 0%    |
|   | Southbound | 0                   | 0   | 0                                | 0   | 0  | 0   | 0%  | 0%    |
| A4200 Eversholt Street (between Phoenix Road and Polygon Road)  | Northbound | 193                 | 6   | 239                              | 14  | 45   | 7   | 23%   | 117%  |
|   | Southbound | 430                 | 20  | 431                              | 15  | 2  | -5  | 0%  | -25%  |

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| Location   | Direction  | 2021 baseline flows |     | 2020 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |      |
|--|------------|---------------------|-----|----------------------------------|-----|--|-----|---|------|
|  |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV  |
| Chalton Street (between A501 Euston Road and Phoenix Road)                         | Northbound | 180                 | 56  | 194                              | 54  | 14   | -2  | 8%  | -4%  |
|  | Southbound | 202                 | 12  | 216                              | 10  | 14   | -2  | 7%  | -13% |
| Midland Road (between Brill Place and A501 Euston Road)                            | Southbound | 659                 | 27  | 646                              | 32  | -13  | 5   | -2%   | 19%  |
| A5202 Pancras Road (between A501 Euston Road and Goods Way)                        | Northbound | 209                 | 7   | 209                              | 7   | 0  | 0   | 0%  | 0%   |
|  | Southbound | 93                  | 6   | 92                               | 6   | -1   | 0   | -1%   | -1%  |
| A5203 York Way between A501 Euston Road and Caledonia Street                       | Northbound | 508                 | 60  | 519                              | 63  | 12   | 3   | 2%  | 5%   |
| A4201 Portland Place (between Devonshire Street and Park Crescent)                 | Northbound | 187                 | 38  | 190                              | 38  | 3  | 0   | 2%  | -1%  |
|  | Southbound | 314                 | 5   | 298                              | 4   | -16  | -1  | -5%   | -25% |
| B506 Great Portland Street (between Park Crescent Mews East and Devonshire Street) | Southbound | 619                 | 25  | 617                              | 26  | -2   | 1   | 0%  | 5%   |
| Cleveland Street (between Greenwell Street and Clipstone Street)                   | Southbound | 202                 | 2   | 267                              | 8   | 66   | 6   | 32%   | 247% |
| A400 Tottenham Court Road (between Grafton Way and Warren Street)                  | Northbound | 447                 | 56  | 461                              | 57  | 15   | 0   | 3%  | 1%   |
|  | Southbound | 71                  | 0   | 71                               | 0   | 0  | 0   | -1%   | 0%   |

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| Location  | Direction  | 2021 baseline flows |     | 2020 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |       |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|-------|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV   |
| A400 Gower Street (between Grafton Way and Gower Place)                   | Northbound | 38                  | 2   | 54                               | 5   | 16   | 3   | 44%   | 147%  |
|   | Southbound | 660                 | 35  | 803                              | 40  | 144  | 5   | 22%   | 14%   |
| Gordon Street (between Endsleigh Gardens and A501 Euston Road)            | Northbound | 457                 | 7   | 243                              | 0   | -213   | -7  | -47%  | -100% |
|   | Southbound | 394                 | 7   | 0                                | 0   | -394   | -7  | -100%   | -100% |
| A4200 Upper Woburn Place (between Endsleigh Gardens and A501 Euston Road) | Northbound | 188                 | 8   | 293                              | 13  | 104  | 5   | 55%   | 68%   |
|   | Southbound | 544                 | 60  | 600                              | 46  | 56   | -14 | 10%   | -24%  |
| B504 Judd Street (between Bidborough Street and A501 Euston Road)         | Northbound | 94                  | 4   | 89                               | 4   | -5   | 0   | -5%   | -4%   |
|   | Southbound | 264                 | 19  | 366                              | 31  | 103  | 11  | 39%   | 58%   |
| A501 Gray's Inn Road (east of Birkenhead Street)                          | Northbound | 1,800               | 138 | 1,830                            | 138 | 30   | 0   | 2%  | 0%    |
| A501 Euston Road between Euston Circus and Melton Street                  | Eastbound  | 1,605               | 175 | 1,795                            | 250 | 190  | 75  | 12%   | 43%   |
|   | Westbound  | 1,915               | 98  | 1,936                            | 90  | 20   | -8  | 1%  | -8%   |
| A501 Euston Road between Melton Street and A4200 Upper Woburn Place       | Eastbound  | 1,721               | 178 | 1,912                            | 178 | 191  | 0   | 11%   | 0%    |
|   | Westbound  | 1,727               | 91  | 1,803                            | 89  | 76   | -2  | 4%  | -2%   |

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| Location  | Direction | 2021 baseline flows |     | 2020 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |     |
|---|-----------|---------------------|-----|----------------------------------|-----|--|-----|---|-----|
|   |           | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV |
| A501 Euston Road between A4200 Upper Woburn Place and Churchway | Eastbound | 1,456               | 145 | 1,614                            | 152 | 158  | 7   | 11%   | 5%  |
|   | Westbound | 1,704               | 96  | 1,721                            | 92  | 18   | -4  | 1%  | -4% |

Table 105: Baseline and with HS2 traffic flows Euston screenlines 2020 PM peak hour (17:00 to 18:00)

| Location  | Direction  | 2021 baseline flows |     | 2018 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |       |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|-------|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV   |
| Outer Circle (between Park Square East and Chester Road)        | Northbound | 297                 | 0   | 314                              | 0   | 17   | 0   | 6%  | 0%    |
|   | Southbound | 206                 | 1   | 219                              | 1   | 13   | 0   | 7%  | 0%    |
| A4201 Albany Street (between Robert Street and Longford Street) | Northbound | 483                 | 11  | 603                              | 15  | 120  | 4   | 25%   | 32%   |
|   | Southbound | 271                 | 3   | 316                              | 4   | 45   | 1   | 17%   | 39%   |
| Stanhope Street (between Longford Street and Robert Street)     | Northbound | 103                 | 5   | 101                              | 1   | -2   | -4  | -2%   | -73%  |
|   | Southbound | 124                 | 2   | 141                              | 3   | 17   | 1   | 14%   | 55%   |
| A400 Hampstead Road (between Drummond Street and Robert Street) | Northbound | 355                 | 11  | 298                              | 16  | -57  | 4   | -16%  | 39%   |
|   | Southbound | 430                 | 10  | 468                              | 12  | 38   | 2   | 9%  | 22%   |
| Cardington Street (north of Drummond Street)                    | Northbound | 87                  | 7   | 0                                | 0   | -87  | -7  | -100%   | -100% |
|   | Southbound | 71                  | 4   | 0                                | 0   | -71  | -4  | -100%   | -100% |



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| Location   | Direction  | 2021 baseline flows |     | 2018 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |      |
|--|------------|---------------------|-----|----------------------------------|-----|--|-----|---|------|
|  |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV  |
| New Cobourg Street (north of Starcross Street)                     | Northbound | 0                   | 0   | 0                                | 0   | 0  | 0   | 0%  | 0%   |
|  | Southbound | 0                   | 0   | 0                                | 0   | 0  | 0   | 0%  | 0%   |
| A4200 Eversholt Street (between Phoenix Road and Polygon Road)     | Northbound | 356                 | 11  | 409                              | 11  | 54   | 0   | 15%   | 2%   |
|  | Southbound | 279                 | 3   | 257                              | 4   | -23  | 1   | -8%   | 21%  |
| Chalton Street (between A501 Euston Road and Phoenix Road)         | Northbound | 291                 | 6   | 322                              | 6   | 31   | 0   | 11%   | 1%   |
|  | Southbound | 179                 | 4   | 183                              | 4   | 4  | 0   | 2%  | 2%   |
| Midland Road (between Brill Place and A501 Euston Road)            | Southbound | 534                 | 14  | 547                              | 15  | 13   | 1   | 2%  | 9%   |
| A5202 Pancras Road (between A501 Euston Road and Goods Way)        | Northbound | 108                 | 6   | 111                              | 7   | 3  | 1   | 3%  | 27%  |
|  | Southbound | 287                 | 2   | 292                              | 2   | 5  | 0   | 2%  | 1%   |
| A5203 York Way between A501 Euston Road and Caledonia Street       | Northbound | 704                 | 37  | 718                              | 37  | 14   | 0   | 2%  | -1%  |
| A4201 Portland Place (between Devonshire Street and Park Crescent) | Northbound | 378                 | 2   | 382                              | 5   | 3  | 3   | 1%  | 186% |
|  | Southbound | 262                 | 3   | 279                              | 4   | 17   | 0   | 6%  | 7%   |

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| Location   | Direction  | 2021 baseline flows |     | 2018 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |       |
|--|------------|---------------------|-----|----------------------------------|-----|--|-----|---|-------|
|  |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV   |
| B506 Great Portland Street (between Park Crescent Mews East and Devonshire Street) | Southbound | 318                 | 7   | 308                              | 7   | -10  | 0   | -3%   | -1%   |
| Cleveland Street (between Greenwell Street and Clipstone Street)                   | Southbound | 160                 | 4   | 193                              | 5   | 33   | 1   | 21%   | 39%   |
| A400 Tottenham Court Road (between Grafton Way and Warren Street)                  | Northbound | 527                 | 14  | 546                              | 18  | 19   | 4   | 4%  | 32%   |
|  | Southbound | 67                  | 0   | 68                               | 0   | 1  | 0   | 1%  | 0%    |
| A400 Gower Street (between Grafton Way and Gower Place)                            | Northbound | 86                  | 10  | 111                              | 18  | 24   | 8   | 28%   | 86%   |
|  | Southbound | 708                 | 13  | 841                              | 21  | 133  | 9   | 19%   | 67%   |
| Gordon Street (between Endsleigh Gardens and A501 Euston Road)                     | Northbound | 435                 | 24  | 126                              | 0   | -309   | -24 | -71%  | -100% |
|  | Southbound | 290                 | 14  | 0                                | 0   | -290   | -14 | -100%   | -100% |
| A4200 Upper Woburn Place (between Endsleigh Gardens and A501 Euston Road)          | Northbound | 369                 | 8   | 435                              | 14  | 66   | 5   | 18%   | 62%   |
|  | Southbound | 643                 | 7   | 660                              | 16  | 17   | 9   | 3%  | 126%  |
| B504 Judd Street (between Bidborough Street and A501 Euston Road)                  | Northbound | 64                  | 4   | 99                               | 4   | 35   | 0   | 56%   | 4%    |
|  | Southbound | 253                 | 6   | 292                              | 6   | 39   | 0   | 15%   | 2%    |

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| Location  | Direction  | 2021 baseline flows |     | 2018 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |      |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|------|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV  |
| A501 Gray's Inn Road (east of Birkenhead Street)                    | Northbound | 1,691               | 57  | 1,736                            | 59  | 45   | 2   | 3%  | 4%   |
| A501 Euston Road between Euston Circus and Melton Street            | Eastbound  | 1,767               | 28  | 1,976                            | 107 | 209  | 79  | 12%   | 285% |
|   | Westbound  | 1,786               | 51  | 1,869                            | 40  | 83   | -11 | 5%  | -21% |
| A501 Euston Road between Melton Street and A4200 Upper Woburn Place | Eastbound  | 1,830               | 28  | 1,907                            | 35  | 76   | 6   | 4%  | 23%  |
|   | Westbound  | 1,550               | 34  | 1,672                            | 40  | 122  | 6   | 8%  | 16%  |
| A501 Euston Road between A4200 Upper Woburn Place and Churchway     | Eastbound  | 1,638               | 28  | 1,716                            | 28  | 78   | -1  | 5%  | -2%  |
|   | Westbound  | 1,527               | 33  | 1,619                            | 34  | 92   | 1   | 6%  | 4%   |

Table 106: Baseline and with HS2 traffic flows Camden screenline 2020 AM peak hour (08:00 to 09:00)

| Location  | Direction  | 2021 baseline flows |     | 2020 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |     |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|-----|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV |
| A5203 Caledonian Road (south of Wheelwright Road) | Northbound | 657                 | 8   | 660                              | 9   | 3  | 0   | 0%  | 2%  |
|   | Southbound | 799                 | 40  | 793                              | 41  | -6   | 0   | -1%   | 0%  |
| A5200 York Way (north of Vale Road)               | Northbound | 257                 | 24  | 260                              | 27  | 3  | 4   | 1%  | 16% |
|   | Southbound | 499                 | 13  | 496                              | 15  | -3   | 3   | -1%   | 21% |

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| Location   | Direction  | 2021 baseline flows |     | 2020 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |      |
|--|------------|---------------------|-----|----------------------------------|-----|--|-----|---|------|
|  |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV  |
| A5202 St Pancras Way (north of Baynes Street)    | Southbound | 845                 | 51  | 880                              | 59  | 35   | 8   | 4%  | 15%  |
| Randolph Street (East of Royal College Street)   | Eastbound  | 93                  | 6   | 103                              | 7   | 10   | 1   | 11%   | 11%  |
| Royal College Street (south of A503 Camden Road) | Northbound | 741                 | 60  | 768                              | 73  | 27   | 13  | 4%  | 22%  |
| A503 Camden Road (south of Royal College Street) | Northbound | 462                 | 26  | 412                              | 20  | -50  | -6  | -11%  | -22% |
|  | Southbound | 886                 | 55  | 845                              | 55  | -41  | 0   | -5%   | 0%   |
| A400 Camden Street (south of Camden Gardens)     | Southbound | 953                 | 56  | 868                              | 48  | -84  | -7  | -9%   | -13% |
| A400 Kentish Town Road (south of Camden Gardens) | Northbound | 350                 | 21  | 334                              | 18  | -15  | -3  | -4%   | -13% |
|  | Southbound | 447                 | 24  | 377                              | 21  | -69  | -3  | -16%  | -12% |
| Hawley Road                                      | Northbound | 789                 | 40  | 742                              | 30  | -47  | -10 | -6%   | -24% |
| A502 Chalk Farm Road (west of Hawley Street)     | Northbound | 413                 | 17  | 273                              | 10  | -139   | -7  | -34%  | -40% |
|  | Southbound | 598                 | 24  | 455                              | 15  | -143   | -9  | -24%  | -38% |
| Primrose Hill Road (south of B509 Adelaide Road) | Northbound | 305                 | 22  | 265                              | 21  | -40  | -1  | -13%  | -3%  |
|  | Southbound | 765                 | 46  | 840                              | 49  | 76   | 3   | 10%   | 6%   |

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| Location  | Direction  | 2021 baseline flows |     | 2020 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |     |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|-----|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV |
| Avenue Road (south of B509 Adelaide Road)         | Northbound | 192                 | 11  | 192                              | 10  | 0  | 0   | 0%  | -4% |
|   | Southbound | 93                  | 1   | 101                              | 1   | 8  | 0   | 9%  | 2%  |
| A41 Finchley Road (south of B509 Adelaide Road)   | Northbound | 405                 | 46  | 399                              | 56  | -7   | 10  | -2%   | 21% |
|   | Southbound | 582                 | 20  | 618                              | 23  | 36   | 3   | 6%  | 17% |
| Loudoun Road (south of Alexandra Place)           | Northbound | 438                 | 3   | 480                              | 3   | 42   | 0   | 10%   | -3% |
|   | Southbound | 226                 | 19  | 207                              | 19  | -20  | 1   | -9%   | 4%  |
| A507 Abbey Road (south of B509 Belsize Road)      | Northbound | 230                 | 5   | 238                              | 5   | 9  | 0   | 4%  | 2%  |
|   | Southbound | 416                 | 12  | 390                              | 13  | -26  | 1   | -6%   | 7%  |
| A5 Kilburn High Road (south of B509 Belsize Road) | Northbound | 614                 | 27  | 615                              | 27  | 1  | 0   | 0%  | 1%  |
|   | Southbound | 920                 | 55  | 912                              | 55  | -8   | 0   | -1%   | 0%  |

Table 107: Baseline and with HS2 traffic flows Camden screenline 2020 PM peak hour (17:00 to 18:00)

| Location  | Direction  | 2021 baseline flows |     | 2020 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |     |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|-----|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV |
| A5203 Caledonian Road (south of Wheelwright Road) | Northbound | 554                 | 5   | 555                              | 5   | 1  | 0   | 0%  | 0%  |
|   | Southbound | 727                 | 3   | 719                              | 3   | -7   | 0   | -1%   | 18% |

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| Location   | Direction  | 2021 baseline flows |     | 2020 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |      |
|--|------------|---------------------|-----|----------------------------------|-----|--|-----|---|------|
|  |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV  |
| A5200 York Way (north of Vale Road)              | Northbound | 364                 | 20  | 375                              | 19  | 11   | 0   | 3%  | -1%  |
|  | Southbound | 335                 | 6   | 339                              | 6   | 4  | 0   | 1%  | 1%   |
| A5202 St Pancras Way (north of Baynes Street)    | Southbound | 589                 | 11  | 605                              | 11  | 15   | 0   | 3%  | 4%   |
| Randolph Street (East of Royal College Street)   | Eastbound  | 285                 | 3   | 257                              | 3   | -28  | 0   | -10%  | 10%  |
| Royal College Street (south of A503 Camden Road) | Northbound | 642                 | 13  | 713                              | 22  | 71   | 9   | 11%   | 65%  |
| A503 Camden Road (south of Royal College Street) | Northbound | 705                 | 20  | 605                              | 17  | -100   | -3  | -14%  | -13% |
|  | Southbound | 619                 | 21  | 607                              | 21  | -11  | 0   | -2%   | 0%   |
| A400 Camden Street (south of Camden Gardens)     | Southbound | 795                 | 17  | 698                              | 20  | -97  | 3   | -12%  | 15%  |
| A400 Kentish Town Road (south of Camden Gardens) | Northbound | 392                 | 15  | 393                              | 12  | 1  | -3  | 0%  | -21% |
|  | Southbound | 303                 | 1   | 256                              | 1   | -47  | 0   | -15%  | -13% |
| Hawley Road                                      | Northbound | 540                 | 12  | 563                              | 12  | 23   | 1   | 4%  | 5%   |
| A502 Chalk Farm Road (west of Hawley Street)     | Northbound | 524                 | 9   | 278                              | 10  | -246   | 1   | -47%  | 11%  |
|  | Southbound | 274                 | 1   | 220                              | 2   | -55  | 1   | -20%  | 190% |

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| Location  | Direction  | 2021 baseline flows |     | 2020 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |      |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|------|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV  |
| Primrose Hill Road (south of B509 Adelaide Road)  | Northbound | 295                 | 18  | 381                              | 18  | 86   | 0   | 29%   | 0%   |
|   | Southbound | 667                 | 16  | 790                              | 14  | 123  | -1  | 18%   | -7%  |
| Avenue Road (south of B509 Adelaide Road)         | Northbound | 182                 | 1   | 195                              | 0   | 13   | -1  | 7%  | -82% |
|   | Southbound | 80                  | 9   | 75                               | 9   | -5   | 0   | -7%   | 0%   |
| A41 Finchley Road (south of B509 Adelaide Road)   | Northbound | 404                 | 35  | 408                              | 38  | 4  | 3   | 1%  | 10%  |
|   | Southbound | 541                 | 17  | 551                              | 18  | 10   | 1   | 2%  | 7%   |
| Loudoun Road (south of Alexandra Place)           | Northbound | 541                 | 2   | 561                              | 2   | 20   | 0   | 4%  | 0%   |
|   | Southbound | 91                  | 3   | 83                               | 3   | -9   | 0   | -10%  | -4%  |
| A507 Abbey Road (south of B509 Belsize Road)      | Northbound | 348                 | 3   | 355                              | 3   | 7  | 0   | 2%  | 3%   |
|   | Southbound | 284                 | 1   | 293                              | 1   | 8  | 0   | 3%  | 0%   |
| A5 Kilburn High Road (south of B509 Belsize Road) | Northbound | 593                 | 11  | 604                              | 11  | 12   | 0   | 2%  | -2%  |
|   | Southbound | 652                 | 6   | 649                              | 6   | -3   | 0   | 0%  | 1%   |

- 3.3.234 The diversion impacts for Scenario 3A (2020) for the AM and PM peak hours are described as follows:
- removal of traffic from Park Village East due to their closure to general traffic and flow reductions on A5205 Prince Albert Road, approaching Park Village East;
  - increases in traffic on the Outer Circle and A4201 Albany Street which are used as alternatives to Park Village East;
  - traffic flow reductions on B509 Adelaide Road due to its closure and associated reductions on A502 Chalk Farm Road;
  - consequential increases on Primrose Hill Road and Regents Park Road, A4201 Parkway and A503 Delancey Street;
  - traffic flow reductions on Granby Terrace bridge due to closure to general traffic;
  - traffic flow increases on A400 Hampstead Road (north of Cardington Street), Robert Street and Stanhope Street due to the closures of Cardington Street and Melton Street;
  - traffic flow increase in traffic on A501 Euston Road;
  - removal of traffic from those roads closed as part of the station works;
  - traffic flow reductions to the south of A501 Euston Road, particularly on Gordon Street due to the closure of Melton Street to the north; and
  - Increases on A400 Gower Street and B504 Judd Street

3.3.235 North of A501 Euston Road, general traffic flows across the screenline increase by between 2% and 4% with HGVs increasing by less than 10 vehicles. South of A501 Euston Road, the corresponding increases are a 1% to 3% reduction in general traffic with a very limited impact on HGV flows.

3.3.236 There is a general reduction of traffic on the Camden screenline of between 2% and 5% as a result of the Adelaide Road closure in this scenario 3A, which is reflected in reductions on Chalk Farm Road of 140 vehicles northbound in the AM peak and 55 vehicles in the PM peak. Southbound reductions on Chalk Farm Road are 140 and 250 vehicles for the AM and PM peak hours respectively. Differences in HGVs are higher in the AM than the PM peak with the larger increases on A5203 York Way and A5202 St. Pancras Way due to construction traffic associated with concrete batching. The pattern of flow changes is similar for the AM and PM peak hours.

### **Highway impacts - Scenario 3, 2023 (construction Stage A)**

3.3.237 The traffic flow impacts of the revised scheme were assessed strategically through CLoHAM by comparing the change in traffic flow between the 2021 future baseline and the 2023 construction scenario (Scenario 3). The flow differences for the AM and PM peak hours are shown on Figure 102 and Figure 103 respectively. The width of the band indicates the proportional change in traffic with red representing an increase and green a decrease compared with the 2021 future baseline scenario.



- 3.3.238 The traffic flows for the screenlines immediately to the north and south of A501 Euston Road are shown in Table 108 and Table 109 for the AM and PM peak hours respectively. Table 110 and Table 111 show the traffic flows for the Camden screenline for the AM and PM peak hours.
- 3.3.239 The diversion impacts for Scenario 3 (2023) for the AM and PM peak hours are described as follows:
- traffic flow reductions on B509 Adelaide Road due to its closure and associated reductions on A502 Chalk Farm Road;
  - consequential increases on Primrose Hill Road and Regents Park Road, A4201 Parkway and A503 Delancey Street;
  - traffic flow reductions on Granby Terrace bridge due to closure to general traffic;
  - two-way traffic flow increases on A4200 Eversholt Street due to relocation of Euston station taxi facility;
  - traffic flow increases on Chalton Street and Ossulston Street;
  - traffic flow reduction on A501 Euston Road between A4200 Eversholt Street and A400 Gower Street due to lane reductions;
  - traffic flow reductions to the south of A501 Euston Road, particularly on Gordon Street due to its closure and on Taviton Street and Endsleigh Gardens ;
  - traffic flow increases on B504 Judd Street and A5200 Gray's Inn Road due to the closure Gordon Street; and
  - removal of traffic from those roads closed as part of the station works.
- 3.3.240 North of A501 Euston Road, HGV flows across the screenline increase by 11% in northbound direction the AM peak hour and by 10% southbound in the PM peak hour. However, south of A501 Euston road, there are flow reductions of 5% in the northbound direction in the AM peak hour and 1% in the southbound direction during the PM peak hour. This is a direct result of the closure of Gordon Street and consequential traffic diversion. There is an increase in both general traffic and HGVs along A501 Euston Road, particularly on the section between A400 Gower Street and Gordon Street (where general traffic increases by between 11% during the AM peak and 6% during the PM peak) due to construction traffic routing.
- 3.3.241 There is a general reduction of traffic on the Camden screenline of between 2% and 5% as a result of the B509 Adelaide Road closure in this scenario which is reflected in reductions on A502 Chalk Farm Road of 160 vehicles northbound direction in the AM peak hour and 250 vehicles in the same direction in the PM peak hour. Southbound reductions on Chalk Farm Road are 140 and 30 vehicles for the AM and PM peak hours respectively. Differences in HGVs are higher in the AM peak hour than the PM peak hour with the larger increases on A5203 York Way and A5202 St. Pancras Way due to construction traffic associated with concrete batching.

Figure 102: Traffic flow changes (PCU) 2021 future baseline vs Scenario 3 (2023) AM peak hour (08:00 to 09:00)

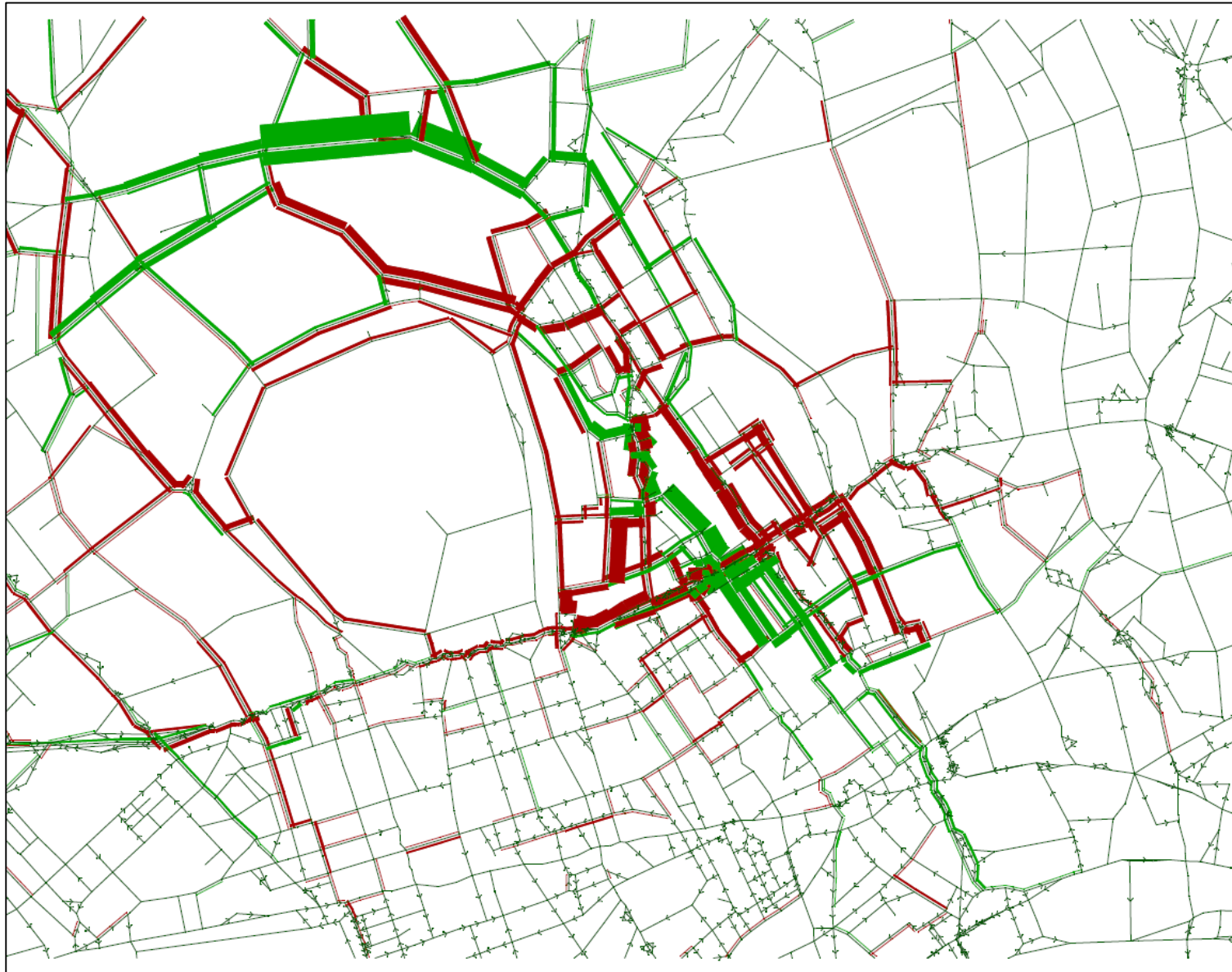
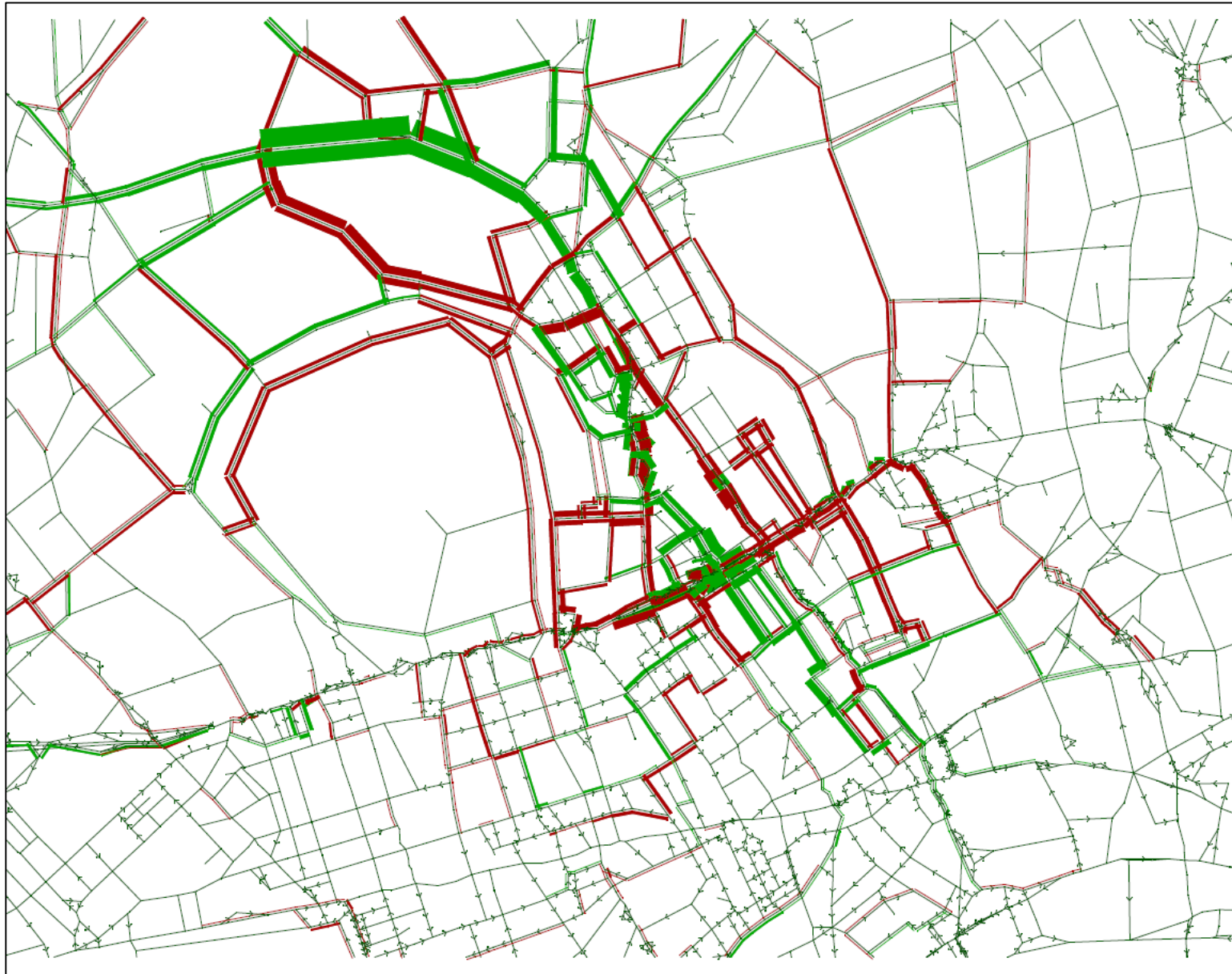


Figure 103: Traffic flow changes (PCU) 2021 future baseline vs Scenario 3 (2023) PM peak hour (17:00 to 18:00)



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Table 108: Baseline and with HS2 traffic flows Euston screenlines 2023 AM peak hour (08:00 to 09:00)

| Location  | Direction  | 2021 baseline flows |     | 2023 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |       |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|-------|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV   |
| Outer Circle (between Park Square East and Chester Road)        | Northbound | 96                  | 0   | 90                               | 0   | -6   | 0   | -6%   | 0%    |
|   | Southbound | 203                 | 7   | 210                              | 7   | 7  | 0   | 4%  | 0%    |
| A4201 Albany Street (between Robert Street and Longford Street) | Northbound | 358                 | 9   | 351                              | 11  | -7   | 2   | -2%   | 25%   |
|   | Southbound | 378                 | 19  | 445                              | 21  | 67   | 2   | 18%   | 12%   |
| Stanhope Street (between Longford Street and Robert Street)     | Northbound | 103                 | 11  | 146                              | 9   | 43   | -2  | 42%   | -18%  |
|   | Southbound | 155                 | 3   | 456                              | 4   | 301  | 1   | 194%  | 53%   |
| A400 Hampstead Road (between Drummond Street and Robert Street) | Northbound | 262                 | 37  | 275                              | 64  | 14   | 26  | 5%  | 70%   |
|   | Southbound | 763                 | 2   | 778                              | 53  | 15   | 50  | 2%  | 2050% |
| Cardington Street (north of Drummond Street)                    | Northbound | 22                  | 0   | 0                                | 0   | -22  | 0   | -100%   | -100% |
|   | Southbound | 277                 | 3   | 0                                | 0   | -277   | -3  | -100%   | -100% |
| New Cobourg Street (north of Starcross Street)                  | Northbound | 0                   | 0   | 0                                | 0   | 0  | 0   | 0%  | 0%    |
|   | Southbound | 0                   | 0   | 0                                | 0   | 0  | 0   | 0%  | 0%    |
| A4200 Eversholt Street (between Phoenix Road and Polygon Road)  | Northbound | 193                 | 6   | 335                              | 14  | 141  | 7   | 73%   | 119%  |
|   | Southbound | 430                 | 20  | 499                              | 5   | 69   | -15 | 16%   | -77%  |

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| Location   | Direction  | 2021 baseline flows |     | 2023 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |      |
|--|------------|---------------------|-----|----------------------------------|-----|--|-----|---|------|
|  |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV  |
| Chalton Street (between A501 Euston Road and Phoenix Road)                         | Northbound | 180                 | 56  | 221                              | 49  | 41   | -8  | 23%   | -14% |
|  | Southbound | 202                 | 12  | 250                              | 13  | 48   | 1   | 24%   | 10%  |
| Midland Road (between Brill Place and A501 Euston Road)                            | Southbound | 659                 | 27  | 655                              | 40  | -4   | 14  | -1%   | 51%  |
| A5202 Pancras Road (between A501 Euston Road and Goods Way)                        | Northbound | 209                 | 7   | 209                              | 7   | 0  | 0   | 0%  | 0%   |
|  | Southbound | 93                  | 6   | 101                              | 6   | 8  | 0   | 8%  | 0%   |
| A5203 York Way between A501 Euston Road and Caledonia Street                       | Northbound | 508                 | 60  | 519                              | 67  | 11   | 7   | 2%  | 12%  |
| A4201 Portland Place (between Devonshire Street and Park Crescent)                 | Northbound | 187                 | 38  | 190                              | 38  | 3  | 0   | 2%  | 0%   |
|  | Southbound | 314                 | 5   | 308                              | 12  | -6   | 7   | -2%   | 136% |
| B506 Great Portland Street (between Park Crescent Mews East and Devonshire Street) | Southbound | 619                 | 25  | 611                              | 22  | -8   | -3  | -1%   | -12% |
| Cleveland Street (between Greenwell Street and Clipstone Street)                   | Southbound | 202                 | 2   | 210                              | 3   | 8  | 0   | 4%  | 8%   |
| A400 Tottenham Court Road (between Grafton Way and Warren Street)                  | Northbound | 447                 | 56  | 455                              | 63  | 9  | 7   | 2%  | 12%  |
|  | Southbound | 71                  | 0   | 71                               | 0   | 0  | 0   | 0%  | 0%   |

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| Location  | Direction  | 2021 baseline flows |     | 2023 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |       |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|-------|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV   |
| A400 Gower Street (between Grafton Way and Gower Place)                   | Northbound | 38                  | 2   | 54                               | 4   | 17   | 2   | 44%   | 128%  |
|   | Southbound | 660                 | 35  | 755                              | 37  | 95   | 2   | 14%   | 6%    |
| Gordon Street (between Endsleigh Gardens and A501 Euston Road)            | Northbound | 457                 | 7   | 0                                | 0   | -457   | -7  | -100%   | -100% |
|   | Southbound | 394                 | 7   | 0                                | 0   | -394   | -7  | -100%   | -100% |
| A4200 Upper Woburn Place (between Endsleigh Gardens and A501 Euston Road) | Northbound | 188                 | 8   | 388                              | 8   | 200  | 0   | 106%  | -2%   |
|   | Southbound | 544                 | 60  | 638                              | 48  | 94   | -12 | 17%   | -20%  |
| B504 Judd Street (between Bidborough Street and A501 Euston Road)         | Northbound | 94                  | 4   | 117                              | 4   | 23   | 0   | 25%   | -4%   |
|   | Southbound | 264                 | 19  | 327                              | 39  | 63   | 20  | 24%   | 101%  |
| A501 Gray's Inn Road (east of Birkenhead Street)                          | Northbound | 1,800               | 138 | 1,859                            | 143 | 59   | 4   | 3%  | 3%    |
| A501 Euston Road between Euston Circus and Melton Street                  | Eastbound  | 1,605               | 175 | 1,786                            | 267 | 180  | 91  | 11%   | 52%   |
|   | Westbound  | 1,915               | 98  | 1,807                            | 95  | -108   | -3  | -6%   | -3%   |
| A501 Euston Road between Melton Street and A4200 Upper Woburn Place       | Eastbound  | 1,721               | 178 | 1,787                            | 195 | 67   | 17  | 4%  | 9%    |
|   | Westbound  | 1,727               | 91  | 1,807                            | 95  | 80   | 4   | 5%  | 4%    |

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| Location  | Direction | 2021 baseline flows |     | 2023 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |     |
|---|-----------|---------------------|-----|----------------------------------|-----|--|-----|---|-----|
|   |           | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV |
| A501 Euston Road between A4200 Upper Woburn Place and Churchway | Eastbound | 1,456               | 145 | 1,539                            | 157 | 83   | 12  | 6%  | 8%  |
|   | Westbound | 1,704               | 96  | 1,713                            | 97  | 10   | 1   | 1%  | 1%  |

Table 109: Baseline and with HS2 traffic flows Euston screenlines 2023 PM peak hour (17:00 to 18:00)

| Location  | Direction  | 2021 baseline flows |     | 2023 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |         |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|---------|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV     |
| Outer Circle (between Park Square East and Chester Road)        | Northbound | 297                 | 0   | 320                              | 0   | 23   | 0   | 8%  | #DIV/o! |
|   | Southbound | 206                 | 1   | 217                              | 1   | 12   | 0   | 6%  | 0%      |
| A4201 Albany Street (between Robert Street and Longford Street) | Northbound | 483                 | 11  | 547                              | 11  | 64   | 0   | 13%   | 1%      |
|   | Southbound | 271                 | 3   | 287                              | 5   | 16   | 2   | 6%  | 63%     |
| Stanhope Street (between Longford Street and Robert Street)     | Northbound | 103                 | 5   | 103                              | 5   | 0  | 0   | 0%  | 2%      |
|   | Southbound | 124                 | 2   | 159                              | 3   | 35   | 2   | 28%   | 109%    |
| A400 Hampstead Road (between Drummond Street and Robert Street) | Northbound | 355                 | 11  | 349                              | 28  | -6   | 17  | -2%   | 148%    |
|   | Southbound | 430                 | 10  | 496                              | 26  | 66   | 16  | 15%   | 166%    |
| Cardington Street (north of Drummond Street)                    | Northbound | 87                  | 7   | 0                                | 0   | -87  | -7  | -100%   | -100%   |
|   | Southbound | 71                  | 4   | 0                                | 0   | -71  | -4  | -100%   | -100%   |

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| Location   | Direction  | 2021 baseline flows |     | 2023 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |      |
|--|------------|---------------------|-----|----------------------------------|-----|--|-----|---|------|
|  |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV  |
| New Cobourg Street (north of Starcross Street)                     | Northbound | 0                   | 0   | 0                                | 0   | 0  | 0   | 0%  | 0%   |
|  | Southbound | 0                   | 0   | 0                                | 0   | 0  | 0   | 0%  | 0%   |
| A4200 Eversholt Street (between Phoenix Road and Polygon Road)     | Northbound | 356                 | 11  | 456                              | 6   | 100  | -4  | 28%   | -40% |
|  | Southbound | 279                 | 3   | 354                              | 1   | 75   | -2  | 27%   | -67% |
| Chalton Street (between A501 Euston Road and Phoenix Road)         | Northbound | 291                 | 6   | 315                              | 6   | 24   | -1  | 8%  | -8%  |
|  | Southbound | 179                 | 4   | 234                              | 5   | 56   | 1   | 31%   | 38%  |
| Midland Road (between Brill Place and A501 Euston Road)            | Southbound | 534                 | 14  | 582                              | 17  | 48   | 3   | 9%  | 19%  |
| A5202 Pancras Road (between A501 Euston Road and Goods Way)        | Northbound | 108                 | 6   | 124                              | 7   | 16   | 2   | 15%   | 28%  |
|  | Southbound | 287                 | 2   | 290                              | 2   | 3  | 0   | 1%  | 2%   |
| A5203 York Way between A501 Euston Road and Caledonia Street       | Northbound | 704                 | 37  | 745                              | 40  | 41   | 3   | 6%  | 8%   |
| A4201 Portland Place (between Devonshire Street and Park Crescent) | Northbound | 378                 | 2   | 383                              | 2   | 5  | 0   | 1%  | -5%  |
|  | Southbound | 262                 | 3   | 285                              | 5   | 23   | 1   | 9%  | 36%  |



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| Location   | Direction  | 2021 baseline flows |     | 2023 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |       |
|--|------------|---------------------|-----|----------------------------------|-----|--|-----|---|-------|
|  |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV   |
| B506 Great Portland Street (between Park Crescent Mews East and Devonshire Street) | Southbound | 318                 | 7   | 296                              | 8   | -22  | 0   | -7%   | 5%    |
| Cleveland Street (between Greenwell Street and Clipstone Street)                   | Southbound | 160                 | 4   | 162                              | 5   | 3  | 1   | 2%  | 40%   |
| A400 Tottenham Court Road (between Grafton Way and Warren Street)                  | Northbound | 527                 | 14  | 546                              | 25  | 20   | 12  | 4%  | 84%   |
|  | Southbound | 67                  | 0   | 67                               | 0   | 0  | 0   | 0%  | 0%    |
| A400 Gower Street (between Grafton Way and Gower Place)                            | Northbound | 86                  | 10  | 115                              | 18  | 29   | 8   | 33%   | 84%   |
|  | Southbound | 708                 | 13  | 841                              | 22  | 133  | 9   | 19%   | 73%   |
| Gordon Street (between Endsleigh Gardens and A501 Euston Road)                     | Northbound | 435                 | 24  | 0                                | 0   | -435   | -24 | -100%   | -100% |
|  | Southbound | 290                 | 14  | 0                                | 0   | -290   | -14 | -100%   | -100% |
| A4200 Upper Woburn Place (between Endsleigh Gardens and A501 Euston Road)          | Northbound | 369                 | 8   | 453                              | 7   | 84   | -1  | 23%   | -11%  |
|  | Southbound | 643                 | 7   | 705                              | 14  | 62   | 7   | 10%   | 98%   |
| B504 Judd Street (between Bidborough Street and A501 Euston Road)                  | Northbound | 64                  | 4   | 91                               | 4   | 27   | 0   | 42%   | 4%    |
|  | Southbound | 253                 | 6   | 305                              | 6   | 52   | 1   | 21%   | 13%   |

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| Location  | Direction  | 2021 baseline flows |     | 2023 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |      |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|------|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV  |
| A501 Gray's Inn Road (east of Birkenhead Street)                    | Northbound | 1,691               | 57  | 1,784                            | 62  | 93   | 5   | 5%  | 9%   |
| A501 Euston Road between Euston Circus and Melton Street            | Eastbound  | 1,767               | 28  | 1,867                            | 110 | 100  | 83  | 6%  | 299% |
|   | Westbound  | 1,786               | 51  | 1,680                            | 42  | -107   | -9  | -6%   | -18% |
| A501 Euston Road between Melton Street and A4200 Upper Woburn Place | Eastbound  | 1,830               | 28  | 1,869                            | 38  | 38   | 10  | 2%  | 35%  |
|   | Westbound  | 1,550               | 34  | 1,680                            | 42  | 129  | 7   | 8%  | 21%  |
| A501 Euston Road between A4200 Upper Woburn Place and Churchway     | Eastbound  | 1,638               | 28  | 1,679                            | 31  | 40   | 2   | 2%  | 9%   |
|   | Westbound  | 1,527               | 33  | 1,633                            | 37  | 106  | 4   | 7%  | 13%  |

Table 110: Baseline and with HS2 traffic flows Camden screenline 2023 AM peak hour (08:00 to 09:00)

| Location  | Direction  | 2021 baseline flows |     | 2023 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |     |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|-----|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV |
| A5203 Caledonian Road (south of Wheelwright Road) | Northbound | 657                 | 8   | 663                              | 9   | 5  | 0   | 1%  | 4%  |
|   | Southbound | 799                 | 40  | 811                              | 40  | 12   | 0   | 2%  | 0%  |
| A5200 York Way (north of Vale Road)               | Northbound | 257                 | 24  | 266                              | 32  | 9  | 8   | 4%  | 35% |
|   | Southbound | 499                 | 13  | 503                              | 19  | 4  | 6   | 1%  | 49% |

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| Location   | Direction  | 2021 baseline flows |     | 2023 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |      |
|--|------------|---------------------|-----|----------------------------------|-----|--|-----|---|------|
|  |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV  |
| A5202 St Pancras Way (north of Baynes Street)    | Southbound | 845                 | 51  | 844                              | 57  | -1   | 7   | 0%  | 13%  |
| Randolph Street (East of Royal College Street)   | Eastbound  | 93                  | 6   | 113                              | 7   | 20   | 1   | 22%   | 16%  |
| Royal College Street (south of Camden Rd)        | Northbound | 741                 | 60  | 751                              | 59  | 10   | 0   | 1%  | 0%   |
| A503 Camden Road (south of Royal College St)     | Northbound | 462                 | 26  | 428                              | 30  | -34  | 5   | -7%   | 17%  |
|  | Southbound | 886                 | 55  | 894                              | 60  | 8  | 5   | 1%  | 9%   |
| A400 Camden Street (south of Camden Gardens)     | Southbound | 953                 | 56  | 832                              | 47  | -120   | -8  | -13%  | -15% |
| A400 Kentish Town Road (south of Camden Gardens) | Northbound | 350                 | 21  | 355                              | 23  | 5  | 2   | 2%  | 11%  |
|  | Southbound | 447                 | 24  | 377                              | 21  | -69  | -3  | -16%  | -13% |
| Hawley Road                                      | Northbound | 789                 | 40  | 700                              | 30  | -89  | -10 | -11%  | -25% |
| A502 Chalk Farm Road (west of Hawley Street)     | Northbound | 413                 | 17  | 277                              | 10  | -136   | -7  | -33%  | -40% |
|  | Southbound | 598                 | 24  | 442                              | 15  | -156   | -9  | -26%  | -38% |
| Primrose Hill Road (south of Adelaide Road)      | Northbound | 305                 | 22  | 270                              | 20  | -36  | -1  | -12%  | -5%  |
|  | Southbound | 765                 | 46  | 798                              | 45  | 33   | -1  | 4%  | -2%  |

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| Location  | Direction  | 2021 baseline flows |     | 2023 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |      |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|------|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV  |
| Avenue Road (south of B509 Adelaide Road)         | Northbound | 192                 | 11  | 192                              | 10  | 0  | 0   | 0%  | -1%  |
|   | Southbound | 93                  | 1   | 123                              | 1   | 30   | 0   | 32%   | 1%   |
| A41 Finchley Road (south of B509 Adelaide Road)   | Northbound | 405                 | 46  | 409                              | 71  | 4  | 25  | 1%  | 54%  |
|   | Southbound | 582                 | 20  | 622                              | 38  | 40   | 19  | 7%  | 94%  |
| Loudoun Road (south of Alexandra Place)           | Northbound | 438                 | 3   | 484                              | 12  | 46   | 9   | 11%   | 325% |
|   | Southbound | 226                 | 19  | 222                              | 20  | -4   | 1   | -2%   | 6%   |
| A507 Abbey Road (south of B509 Belsize Road)      | Northbound | 230                 | 5   | 225                              | 5   | -4   | 0   | -2%   | 4%   |
|   | Southbound | 416                 | 12  | 398                              | 13  | -18  | 1   | -4%   | 9%   |
| A5 Kilburn High Road (south of B509 Belsize Road) | Northbound | 614                 | 27  | 619                              | 27  | 5  | 0   | 1%  | 1%   |
|   | Southbound | 920                 | 55  | 917                              | 55  | -3   | 0   | 0%  | 0%   |

Table 111: Baseline and with HS2 traffic flows Camden screenline 2023 PM peak hour (17:00 to 18:00)

| Location  | Direction  | 2021 baseline flows |     | 2023 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |     |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|-----|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV |
| A5203 Caledonian Road (south of Wheelwright Road) | Northbound | 554                 | 5   | 553                              | 5   | -1   | 0   | 0%  | 1%  |
|   | Southbound | 727                 | 3   | 728                              | 3   | 1  | 0   | 0%  | 11% |

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| Location   | Direction  | 2021 baseline flows |     | 2023 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |      |
|--|------------|---------------------|-----|----------------------------------|-----|--|-----|---|------|
|  |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV  |
| A5200 York Way (north of Vale Road)              | Northbound | 364                 | 20  | 395                              | 23  | 31   | 3   | 9%  | 15%  |
|  | Southbound | 335                 | 6   | 340                              | 9   | 6  | 2   | 2%  | 34%  |
| A5202 St Pancras Way (north of Baynes Street)    | Southbound | 589                 | 11  | 579                              | 12  | -11  | 2   | -2%   | 14%  |
| Randolph Street (East of Royal College Street)   | Eastbound  | 285                 | 3   | 275                              | 3   | -10  | 0   | -4%   | -3%  |
| Royal College Street (south of Camden Rd)        | Northbound | 642                 | 13  | 687                              | 14  | 45   | 1   | 7%  | 4%   |
| A503 Camden Road (south of Royal College St)     | Northbound | 705                 | 20  | 624                              | 23  | -81  | 4   | -11%  | 18%  |
|  | Southbound | 619                 | 21  | 629                              | 23  | 11   | 2   | 2%  | 10%  |
| A400 Camden Street (south of Camden Gardens)     | Southbound | 795                 | 17  | 662                              | 18  | -133   | 1   | -17%  | 5%   |
| A400 Kentish Town Road (south of Camden Gardens) | Northbound | 392                 | 15  | 411                              | 15  | 18   | 0   | 5%  | 1%   |
|  | Southbound | 303                 | 1   | 261                              | 1   | -42  | 0   | -14%  | -13% |
| Hawley Road                                      | Northbound | 540                 | 12  | 513                              | 12  | -27  | 0   | -5%   | 2%   |
| A502 Chalk Farm Road (west of Hawley Street)     | Northbound | 524                 | 9   | 272                              | 10  | -252   | 1   | -48%  | 10%  |
|  | Southbound | 274                 | 1   | 208                              | 2   | -66  | 2   | -24%  | 215% |

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| Location  | Direction  | 2021 baseline flows |     | 2023 with HS2 construction flows |     | With HS2 construction actual change from 2021 baseline |     | With HS2 construction % change from 2021 baseline |      |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|------|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV  |
| Primrose Hill Road (south of Adelaide Road)       | Northbound | 295                 | 18  | 378                              | 17  | 83   | 0   | 28%   | -2%  |
|   | Southbound | 667                 | 16  | 804                              | 15  | 137  | -1  | 21%   | -4%  |
| Avenue Road (south of B509 Adelaide Road)         | Northbound | 182                 | 1   | 186                              | 0   | 4  | -1  | 2%  | -73% |
|   | Southbound | 80                  | 9   | 69                               | 9   | -11  | 0   | -14%  | 0%   |
| A41 Finchley Road (south of B509 Adelaide Road)   | Northbound | 404                 | 35  | 407                              | 47  | 3  | 12  | 1%  | 35%  |
|   | Southbound | 541                 | 17  | 553                              | 23  | 11   | 6   | 2%  | 38%  |
| Loudoun Road (south of Alexandra Place)           | Northbound | 541                 | 2   | 561                              | 2   | 20   | 0   | 4%  | 1%   |
|   | Southbound | 91                  | 3   | 85                               | 3   | -7   | 0   | -7%   | -2%  |
| A507 Abbey Road (south of B509 Belsize Road)      | Northbound | 348                 | 3   | 357                              | 3   | 9  | 0   | 3%  | -1%  |
|   | Southbound | 284                 | 1   | 294                              | 1   | 9  | 0   | 3%  | -1%  |
| A5 Kilburn High Road (south of B509 Belsize Road) | Northbound | 593                 | 11  | 596                              | 12  | 4  | 0   | 1%  | 2%   |
|   | Southbound | 652                 | 6   | 660                              | 6   | 8  | 0   | 1%  | 0%   |

- 3.3.242 In addition to the screenline comparisons, roads that will experience a substantial increase in traffic flow have been identified. Table 112 and Table 113 outline those traffic flows for the 2023 construction scenario are reported in CFA1.
- 3.3.243 This indicates that those flows with the greatest increase in HGVs in both absolute and percentage terms are around Euston station used by construction traffic increases in HGVs, including A4201 Osnaburgh Street, Robert Street and Marchmont Street. For all vehicles, the increases are slightly higher than for the 2017 and 2018 scenarios with the largest increases on A4201 Osnaburgh Street, North Gower Street, Drummond Street, Bidborough Street and Polygon Road. Increases are generally lower in the PM peak than in the AM peak.
- 3.3.244 Roads identified as having a substantial increase in daily traffic flows (outside of CFA1) are reported in Table 114 and Table 115 for the AM and PM peak hours respectively.

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Table 112: Links with traffic increase, 2023 Construction AM Peak (08:00-09:00), CFA1

| Location  | Direction | CFA  | 2021 Baseline       |     | 2023 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|---|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|   |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
| A4200 Russell Square  | NB        | CFA1 | 32                  | 0   | 27                         | 0   | -5  | 0   | -15%                                 | -    |
| A4201 Osnaburgh Street                                      | SB        | CFA1 | 498                 | 47  | 699                        | 80  | 201                                       | 32  | 40%                                  | 69%  |
| A4201 Parkway   | EB        | CFA1 | 448                 | 55  | 451                        | 70  | 3   | 15  | 1%                                   | 27%  |
| A404 Harrow Rd (Edgware Rd i/c)                             | EB        | CFA1 | 545                 | 168 | 543                        | 166 | -2  | -2  | 0%                                   | -1%  |
| A5202 St Pancras Way  | SB        | CFA1 | 875                 | 107 | 822                        | 126 | -53                                       | 19  | -6%                                  | 18%  |
| A5204 Goodge St/ Mortimer St                                | WB        | CFA1 | 68                  | 32  | 75                         | 36  | 7   | 5   | 11%                                  | 15%  |
| Arlington Road  | NB        | CFA1 | 3                   | 1   | 0                          | 0   | -3  | -1  | -89%                                 | -65% |
| Augustus St   | SB        | CFA1 | 0                   | 0   | 0                          | 0   | 0   | 0   | -                                    | -    |
| B502 Brunswick Square/ Lansdowne Terrace/ B504 Grenville St | WB        | CFA1 | 85                  | 22  | 191                        | 10  | 106                                       | -12 | 124%                                 | -53% |
| Bidborough St   | WB        | CFA1 | 36                  | 17  | 152                        | 32  | 116                                       | 16  | 319%                                 | 95%  |
| Burton Place  | EB        | CFA1 | 0                   | 0   | 43                         | 2   | 43  | 2   | -                                    | -    |
| Cartwright Gardens  | SB        | CFA1 | 25                  | 18  | 53                         | 34  | 28  | 16  | 114%                                 | 91%  |
| Chalton St  | SB        | CFA1 | 10                  | 9   | 51                         | 0   | 40  | -9  | 397%                                 | -97% |



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| Location                             | Direction | CFA  | 2021 Baseline       |     | 2023 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|--------------------------------------|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|                                      |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
| Charlbert St                         | EB        | CFA1 | 51                  | 2   | 37                         | 8   | -14                                       | 6   | -28%                                 | 295% |
| Colonnade                            | WB        | CFA1 | 26                  | 2   | 40                         | 7   | 13  | 5   | 50%                                  | 210% |
| Coram St                             | WB        | CFA1 | 22                  | 19  | 62                         | 37  | 40  | 18  | 186%                                 | 91%  |
| Cromer St                            | EB        | CFA1 | 5                   | 2   | 6                          | 2   | 1   | 0   | 15%                                  | 6%   |
| Cumberland Market                    | SB        | CFA1 | 109                 | 1   | 140                        | 5   | 31  | 3   | 28%                                  | 278% |
| Drummond St (West of North Gower St) | EB        | CFA1 | 72                  | 7   | 173                        | 14  | 101                                       | 8   | 140%                                 | 113% |
| Duke's Rd                            | SB        | CFA1 | 11                  | 0   | 54                         | 2   | 43  | 2   | 406%                                 | 352% |
| Fitzroy St/ Charlotte St             | SB        | CFA1 | 7                   | 0   | 26                         | 3   | 20  | 3   | 305%                                 | -    |
| Grafton Way                          | WB        | CFA1 | 7                   | 0   | 26                         | 3   | 20  | 3   | 305%                                 | -    |
| Harrington Square                    | WB        | CFA1 | 60                  | 6   | 138                        | 15  | 78  | 9   | 130%                                 | 144% |
| Herbrand St                          | SB        | CFA1 | 28                  | 2   | 42                         | 7   | 13  | 5   | 46%                                  | 211% |
| Longford St                          | EB        | CFA1 | 94                  | 4   | 196                        | 5   | 102                                       | 1   | 108%                                 | 15%  |
| Mabledon Place                       | NB        | CFA1 | 5                   | 1   | 110                        | 1   | 105                                       | 0   | 2177%                                | -27% |
| Marchmont St                         | SB        | CFA1 | 47                  | 19  | 99                         | 37  | 52  | 18  | 112%                                 | 91%  |

SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

| Location                | Direction | CFA  | 2021 Baseline       |     | 2023 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|-------------------------|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|                         |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
| Mornington Crescent     | SB        | CFA1 | 18                  | 7   | 17                         | 5   | -2  | -2  | -10%                                 | -33% |
| Mornington Place        | EB        | CFA1 | 0                   | 0   | 5                          | 3   | 5   | 3   | -                                    | -    |
| Mornington St           | EB        | CFA1 | 71                  | 18  | 72                         | 17  | 1   | -2  | 1%                                   | -9%  |
| North Gower St          | SB        | CFA1 | 72                  | 8   | 178                        | 15  | 106                                       | 7   | 147%                                 | 82%  |
| Ossulston Street        | NB        | CFA1 | 2                   | 0   | 104                        | 0   | 102                                       | 0   | 4321%                                | 121% |
| Park Crescent Mews West | SB        | CFA1 | 0                   | 0   | 0                          | 0   | 0   | 0   | -83%                                 | -94% |
| Park Village East       | NB        | CFA1 | 57                  | 18  | 115                        | 25  | 58  | 7   | 102%                                 | 37%  |
| Phoenix Rd              | NB        | CFA1 | 4                   | 2   | 7                          | 4   | 3   | 2   | 66%                                  | 75%  |
| Polygon Rd              | WB        | CFA1 | 41                  | 19  | 180                        | 11  | 140                                       | -8  | 345%                                 | -41% |
| Robert Street           | WB        | CFA1 | 40                  | 7   | 53                         | 20  | 14  | 13  | 35%                                  | 198% |
| Russell Square          | NB        | CFA1 | 32                  | 0   | 27                         | 0   | -5  | 0   | -15%                                 | -    |
| Taviton St              | NB        | CFA1 | 1                   | 0   | 10                         | 3   | 9   | 2   | 902%                                 | 487% |
| Torrington Place        | EB        | CFA1 | 144                 | 15  | 225                        | 26  | 80  | 12  | 56%                                  | 81%  |

SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

Table 113: Links with traffic increase, 2023 Construction PM Peak (17:00-18:00), CFA1

| Location  | Direction | CFA  | 2021 Baseline       |     | 2023 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |       |
|---|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|-------|
|   |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV   |
| A4200 Russell Square  | NB        | CFA1 | 85                  | 0   | 190                        | 0   | 106                                       | 0   | 125%                                 | -     |
| A4201 Osnaburgh Street                                      | SB        | CFA1 | 431                 | 27  | 508                        | 43  | 77  | 16  | 18%                                  | 61%   |
| A4201 Parkway   | EB        | CFA1 | 611                 | 85  | 660                        | 84  | 49  | -1  | 8%                                   | -1%   |
| A404 Harrow Rd (Edgware Rd i/c)                             | EB        | CFA1 | 386                 | 66  | 386                        | 65  | 1   | 0   | 0%                                   | -1%   |
| A5202 St Pancras Way  | SB        | CFA1 | 408                 | 44  | 440                        | 48  | 32  | 4   | 8%                                   | 9%    |
| A5204 Goodge St/ Mortimer St                                | WB        | CFA1 | 61                  | 3   | 102                        | 5   | 40  | 2   | 66%                                  | 67%   |
| Arlington Road  | NB        | CFA1 | 21                  | 2   | 0                          | 0   | -21                                       | -2  | -100%                                | -100% |
| Augustus St   | SB        | CFA1 | 25                  | 0   | 41                         | 1   | 16  | 1   | 65%                                  | 246%  |
| B502 Brunswick Square/ Lansdowne Terrace/ B504 Grenville St | WB        | CFA1 | 56                  | 7   | 108                        | 7   | 52  | 0   | 93%                                  | -3%   |
| Bidborough St   | WB        | CFA1 | 41                  | 4   | 101                        | 5   | 61  | 1   | 149%                                 | 33%   |
| Burton Place  | EB        | CFA1 | 0                   | 0   | 16                         | 1   | 16  | 1   | -                                    | -     |
| Cartwright Gardens  | SB        | CFA1 | 51                  | 2   | 58                         | 3   | 7   | 1   | 13%                                  | 63%   |
| Chalton St  | SB        | CFA1 | 0                   | 0   | 51                         | 0   | 50  | 0   | -                                    | 100%  |

SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

| Location                             | Direction | CFA  | 2021 Baseline       |     | 2023 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|--------------------------------------|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|                                      |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
| Charlbert St                         | EB        | CFA1 | 12                  | 1   | 14                         | 0   | 2   | -1  | 19%                                  | -56% |
| Colonnade                            | WB        | CFA1 | 15                  | 1   | 31                         | 1   | 16  | 0   | 106%                                 | -33% |
| Coram St                             | WB        | CFA1 | 32                  | 1   | 28                         | 1   | -4  | 0   | -13%                                 | 17%  |
| Cromer St                            | EB        | CFA1 | 22                  | 0   | 32                         | 0   | 10  | 0   | 47%                                  | 0%   |
| Cumberland Market                    | SB        | CFA1 | 53                  | 1   | 78                         | 5   | 25  | 4   | 48%                                  | 406% |
| Drummond St (West of North Gower St) | EB        | CFA1 | 111                 | 12  | 99                         | 12  | -12                                       | 0   | -11%                                 | -3%  |
| Duke's Rd                            | SB        | CFA1 | 28                  | 0   | 44                         | 1   | 16  | 1   | 58%                                  | 592% |
| Fitzroy St/ Charlotte St             | SB        | CFA1 | 5                   | 0   | 12                         | 0   | 7   | 0   | 135%                                 | -    |
| Grafton Way                          | WB        | CFA1 | 5                   | 0   | 12                         | 0   | 7   | 0   | 135%                                 | -    |
| Harrington Square                    | WB        | CFA1 | 54                  | 0   | 70                         | 6   | 16  | 6   | 30%                                  | -    |
| Herbrand St                          | SB        | CFA1 | 17                  | 1   | 33                         | 1   | 16  | 0   | 94%                                  | -33% |
| Longford St                          | EB        | CFA1 | 64                  | 1   | 100                        | 1   | 37  | 0   | 58%                                  | -10% |
| Mabledon Place                       | NB        | CFA1 | 13                  | 3   | 61                         | 2   | 49  | 0   | 381%                                 | -2%  |
| Marchmont St                         | SB        | CFA1 | 271                 | 6   | 247                        | 9   | -24                                       | 3   | -9%                                  | 42%  |

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| Location                | Direction | CFA  | 2021 Baseline       |     | 2023 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|-------------------------|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|                         |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
| Mornington Crescent     | SB        | CFA1 | 4                   | 2   | 8                          | 0   | 4   | -2  | 116%                                 | -81% |
| Mornington Place        | EB        | CFA1 | 0                   | 0   | 0                          | 0   | 0   | 0   | -                                    | -    |
| Mornington St           | EB        | CFA1 | 111                 | 3   | 51                         | 3   | -60                                       | 0   | -54%                                 | 14%  |
| North Gower St          | SB        | CFA1 | 87                  | 8   | 108                        | 13  | 21  | 5   | 24%                                  | 62%  |
| Ossulston Street        | NB        | CFA1 | 7                   | 0   | 57                         | 0   | 50  | 0   | 693%                                 | 0%   |
| Park Crescent Mews West | SB        | CFA1 | 14                  | 0   | 22                         | 0   | 8   | 0   | 58%                                  | 41%  |
| Park Village East       | NB        | CFA1 | 20                  | 12  | 46                         | 15  | 26  | 3   | 127%                                 | 26%  |
| Phoenix Rd              | NB        | CFA1 | 0                   | 0   | 4                          | 0   | 4   | 0   | -                                    | -    |
| Polygon Rd              | WB        | CFA1 | 125                 | 11  | 186                        | 12  | 60  | 1   | 48%                                  | 7%   |
| Robert Street           | WB        | CFA1 | 161                 | 2   | 256                        | 6   | 95  | 4   | 59%                                  | 161% |
| Russell Square          | NB        | CFA1 | 85                  | 0   | 190                        | 0   | 106                                       | 0   | 125%                                 | -    |
| Taviton St              | NB        | CFA1 | 0                   | 0   | 0                          | 0   | 0   | 0   | -40%                                 | -40% |
| Torrington Place        | EB        | CFA1 | 335                 | 25  | 400                        | 30  | 64  | 5   | 19%                                  | 20%  |

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Table 114: Links with traffic increase, 2023 Construction AM Peak (08:00-09:00), CFA2, CFA3 and CFA4

| Location             | Direction | CFA  | 2021 Baseline       |     | 2023 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|----------------------|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|                      |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
| A503 Delancey Street | WB        | CFA2 | 488                 | 79  | 621                        | 99  | 133                                       | 20  | 27%                                  | 25%  |
| Great Percy Street   | EB        | CFA2 | 63                  | 14  | 63                         | 14  | 0   | 0   | 0%                                   | 0%   |
|                      | WB        |      | 16                  | 4   | 32                         | 4   | 16  | 0   | 100%                                 | -1%  |
| Jamestown Road       | EB        | CFA2 | 54                  | 7   | 130                        | 9   | 76  | 2   | 139%                                 | 35%  |
|                      | WB        |      | 165                 | 22  | 158                        | 35  | -7  | 13  | -4%                                  | 61%  |
| Oval Road            | NB        | CFA2 | 172                 | 14  | 247                        | 17  | 75  | 2   | 44%                                  | 17%  |
|                      | SB        |      | 191                 | 24  | 192                        | 40  | 1   | 16  | 0%                                   | 66%  |
| Pratt Street         | EB        | CFA2 | 38                  | 14  | 36                         | 11  | -2  | -3  | -6%                                  | -24% |
|                      | WB        |      | 76                  | 14  | 76                         | 14  | 0   | 0   | 0%                                   | 0%   |
| A502 Haverstock Hill | NB        | CFA3 | 229                 | 29  | 288                        | 48  | 59  | 19  | 26%                                  | 65%  |
|                      | SB        |      | 139                 | 12  | 194                        | 24  | 55  | 12  | 40%                                  | 97%  |
| Alexandra Road       | EB        | CFA3 | 0                   | 0   | 1                          | 0   | 0   | 0   | -                                    | -    |
|                      | WB        |      | 69                  | 17  | 73                         | 15  | 4   | -2  | 6%                                   | -10% |

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| Location                | Direction | CFA  | 2021 Baseline       |     | 2023 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|-------------------------|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|                         |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
| B510 Fortune Green Road | NB        | CFA3 | 18                  | 5   | 22                         | 7   | 4   | 2   | 24%                                  | 52%  |
|                         | SB        |      | 72                  | 10  | 93                         | 3   | 21  | -7  | 29%                                  | -67% |
| B517 Ferdinand Street   | NB        | CFA3 | 136                 | 7   | 25                         | 4   | -111                                      | -3  | -82%                                 | -45% |
|                         | SB        |      | 24                  | 6   | 61                         | 27  | 38  | 22  | 159%                                 | 390% |
| Carlton Hill            | EB        | CFA3 | 503                 | 30  | 513                        | 38  | 10  | 8   | 2%                                   | 26%  |
|                         | WB        |      | 377                 | 33  | 387                        | 35  | 11  | 2   | 3%                                   | 6%   |
| Crogsland Road          | SB        | CFA3 | 223                 | 15  | 301                        | 20  | 78  | 5   | 35%                                  | 35%  |
| Fairfax Road            | NB        | CFA3 | 710                 | 36  | 758                        | 47  | 48  | 11  | 7%                                   | 30%  |
|                         | SB        |      | 19                  | 0   | 18                         | 0   | -1  | 0   | -7%                                  | 14%  |
| Loudoun Road            | NB        | CFA3 | 408                 | 32  | 452                        | 43  | 43  | 11  | 11%                                  | 33%  |
|                         | SB        |      | 124                 | 36  | 119                        | 35  | -5  | -1  | -4%                                  | -2%  |
| Parkhill Road           | NB        | CFA3 | 4                   | 2   | 7                          | 4   | 3   | 2   | 66%                                  | 75%  |
|                         | SB        |      | 305                 | 40  | 224                        | 32  | -81                                       | -8  | -27%                                 | -19% |

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| Location             | Direction | CFA  | 2021 Baseline       |     | 2023 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|----------------------|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|                      |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
| Platt's Lane         | NB        | CFA3 | 116                 | 29  | 121                        | 29  | 5   | 0   | 4%                                   | 2%   |
|                      | SB        |      | 67                  | 1   | 98                         | 3   | 31  | 1   | 47%                                  | 127% |
| Primrose Hill Road   | NB        | CFA3 | 223                 | 32  | 253                        | 51  | 29  | 19  | 13%                                  | 61%  |
|                      | SB        |      | 377                 | 82  | 502                        | 99  | 125                                       | 18  | 33%                                  | 22%  |
| Prince of Wales Road | EB        | CFA3 | 56                  | 3   | 68                         | 5   | 12  | 2   | 21%                                  | 62%  |
|                      | WB        |      | 6                   | 1   | 10                         | 1   | 4   | 0   | 67%                                  | 36%  |
| Regent's Park Road   | NB        | CFA3 | 155                 | 21  | 184                        | 41  | 29  | 19  | 19%                                  | 90%  |
|                      | SB        |      | 315                 | 71  | 440                        | 89  | 125                                       | 18  | 40%                                  | 25%  |
| Lanark Road          | NB        | CFA4 | 10                  | 3   | 23                         | 3   | 14  | 0   | 144%                                 | -5%  |
|                      | SB        |      | 0                   | 0   | 0                          | 0   | 0   | 0   | 0%                                   | -    |



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Table 115: Links with traffic increase, 2023 Construction PM Peak (17:00-18:00), CFA2, CFA3 and CFA4

| Location             | Direction | CFA  | 2021 Baseline       |     | 2023 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|----------------------|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|                      |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
| A503 Delancey Street | WB        | CFA2 | 437                 | 40  | 604                        | 50  | 167                                       | 10  | 38%                                  | 24%  |
| Great Percy Street   | EB        | CFA2 | 94                  | 14  | 94                         | 14  | 0   | 0   | 0%                                   | 0%   |
|                      | WB        |      | 15                  | 5   | 16                         | 6   | 1   | 0   | 4%                                   | 7%   |
| Jamestown Road       | EB        | CFA2 | 40                  | 2   | 87                         | 5   | 47  | 3   | 119%                                 | 204% |
|                      | WB        |      | 112                 | 14  | 126                        | 20  | 14  | 6   | 12%                                  | 45%  |
| Oval Road            | NB        | CFA2 | 113                 | 5   | 160                        | 9   | 47  | 3   | 42%                                  | 64%  |
|                      | SB        |      | 213                 | 19  | 239                        | 30  | 25  | 11  | 12%                                  | 60%  |
| Pratt Street         | EB        | CFA2 | 10                  | 4   | 12                         | 2   | 2   | -2  | 19%                                  | -51% |
|                      | WB        |      | 31                  | 5   | 31                         | 5   | 0   | 0   | 1%                                   | 1%   |
| A502 Haverstock Hill | NB        | CFA3 | 277                 | 18  | 289                        | 35  | 12  | 17  | 4%                                   | 91%  |
|                      | SB        |      | 88                  | 13  | 168                        | 28  | 80  | 15  | 90%                                  | 112% |
| Alexandra Road       | EB        | CFA3 | 18                  | 2   | 26                         | 3   | 8   | 2   | 46%                                  | 97%  |
|                      | WB        |      | 47                  | 8   | 43                         | 7   | -5  | -1  | -10%                                 | -11% |

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| Location                | Direction | CFA  | 2021 Baseline       |     | 2023 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|-------------------------|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|                         |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
| B510 Fortune Green Road | NB        | CFA3 | 80                  | 68  | 83                         | 67  | 3   | -1  | 4%                                   | -1%  |
|                         | SB        |      | 18                  | 4   | 47                         | 1   | 30  | -3  | 168%                                 | -78% |
| B517 Ferdinand Street   | NB        | CFA3 | 122                 | 7   | 32                         | 3   | -91                                       | -4  | -74%                                 | -53% |
|                         | SB        |      | 10                  | 0   | 72                         | 3   | 62  | 3   | 617%                                 | -    |
| Carlton Hill            | EB        | CFA3 | 468                 | 19  | 461                        | 20  | -7  | 1   | -2%                                  | 6%   |
|                         | WB        |      | 186                 | 8   | 183                        | 8   | -2  | 0   | -1%                                  | -4%  |
| Crogsland Road          | SB        | CFA3 | 11                  | 0   | 71                         | 2   | 60  | 1   | 545%                                 | 263% |
| Fairfax Road            | NB        | CFA3 | 915.980             | 56  | 916                        | 56  | 0   | 0   | 0%                                   | 0%   |
|                         | SB        |      | 36                  | 0   | 32                         | 0   | -4  | 0   | -11%                                 | 333% |
| Loudoun Road            | NB        | CFA3 | 504                 | 19  | 514                        | 19  | 10  | 0   | 2%                                   | -1%  |
|                         | SB        |      | 36                  | 3   | 36                         | 2   | -1  | 0   | -2%                                  | -17% |
| Parkhill Road           | NB        | CFA3 | 0                   | 0   | 4                          | 0   | 4   | 0   | -                                    | -    |
|                         | SB        |      | 233                 | 14  | 233                        | 15  | 0   | 2   | 0%                                   | 11%  |

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| Location             | Direction | CFA  | 2021 Baseline       |     | 2023 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|----------------------|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|                      |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
| Platt's Lane         | NB        | CFA3 | 96                  | 8   | 97                         | 8   | 1   | 0   | 1%                                   | 0%   |
|                      | SB        |      | 25                  | 2   | 58                         | 3   | 34  | 1   | 136%                                 | 26%  |
| Primrose Hill Road   | NB        | CFA3 | 350                 | 40  | 431                        | 55  | 81  | 16  | 23%                                  | 39%  |
|                      | SB        |      | 384                 | 26  | 539                        | 38  | 155                                       | 12  | 40%                                  | 48%  |
| Prince of Wales Road | EB        | CFA3 | 38                  | 7   | 94                         | 10  | 56  | 3   | 145%                                 | 36%  |
|                      | WB        |      | 5                   | 0   | 5                          | 0   | 0   | 0   | 2%                                   | 250% |
| Regent's Park Road   | NB        | CFA3 | 322                 | 38  | 403                        | 53  | 81  | 15  | 25%                                  | 41%  |
|                      | SB        |      | 280                 | 23  | 435                        | 35  | 155                                       | 12  | 55%                                  | 54%  |
| Lanark Road          | NB        | CFA4 | 9                   | 1   | 10                         | 3   | 2   | 1   | 17%                                  | 127% |
|                      | SB        |      | 8                   | 0   | 8                          | 0   | 0   | 0   | -1%                                  | -3%  |

### **Highway impacts - Scenario 4, 2031 (HS2 Phase One operation and construction Stage B1)**

- 3.3.245 The traffic flow impacts of the revised scheme were assessed strategically through CLoHAM by comparing the change in traffic flow between the 2026 future baseline and the 2031 construction scenario (Scenario 4). The flow differences for the AM and PM peak hours are shown on Figure 104 and Figure 105 respectively. The width of the band indicates the proportional change in traffic with red representing an increase and green a decrease compared with the 2026 future baseline scenario.
- 3.3.246 The traffic flows for the screenlines immediately to the north and south of A501 Euston Road are shown in Table 116 and Table 117 for the AM and PM peak hours respectively. Table 118 and Table 119 show the traffic flows for the Camden screenline for the AM and PM peak hours.
- 3.3.247 All tables and plots in this section compare the Scenario 4 (2031) against the 2026 future baseline, rather than the 2021 baseline as assumed for the scenarios described in the previous sections. This scenario assumes the addition of construction traffic in 2031. The differences in flow, both in terms of distribution and level of change are virtually identical to those for the 2026 Hs2 Phase One operation scenario (without construction flows).

Figure 104: Traffic flow changes (PCU) 2026 future baseline vs Scenario 4 (2031) AM peak hour (08:00 to 09:00)

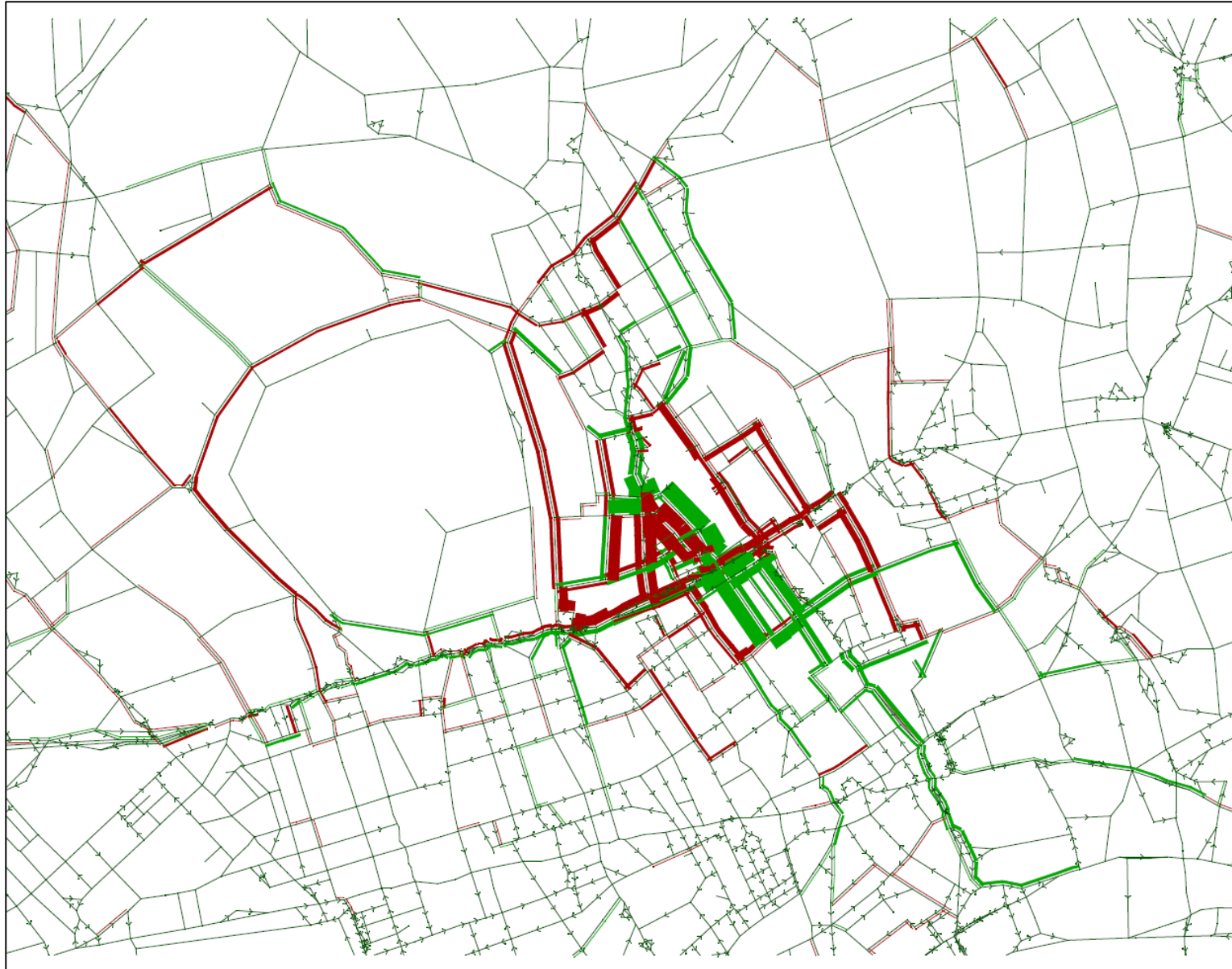
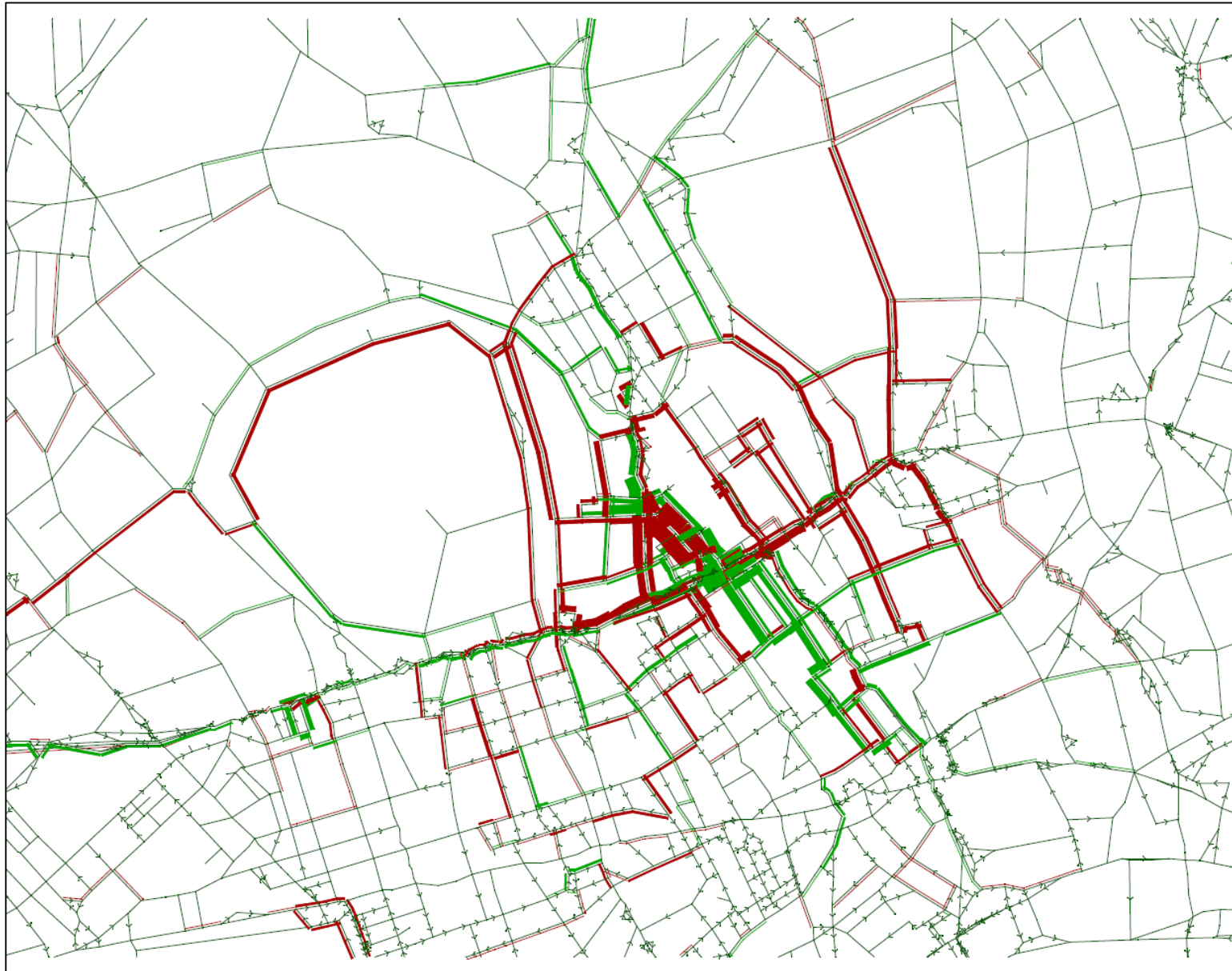


Figure 105: Traffic flow changes (PCU) 2026 future baseline vs Scenario 3 (2031) PM peak hour (17:00 to 18:00)



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Table 116: Baseline and with HS2 traffic flows Euston screenlines 2031 AM peak hour (08:00 to 09:00)

| Location  | Direction  | 2026 baseline flows |     | 2031 with HS2 construction flows |     | With HS2 construction actual change from 2026 baseline |     | With HS2 construction % change from 2026 baseline |       |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|-------|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV   |
| Outer Circle (between Park Square East and Chester Road)        | Northbound | 104                 | 0   | 99                               | 0   | -5   | 0   | -5%   | 0%    |
|   | Southbound | 198                 | 7   | 209                              | 7   | 11   | 0   | 6%  | 0%    |
| A4201 Albany Street (between Robert Street and Longford Street) | Northbound | 339                 | 9   | 383                              | 9   | 44   | -1  | 13%   | -6%   |
|   | Southbound | 366                 | 18  | 417                              | 28  | 51   | 10  | 14%   | 53%   |
| Stanhope Street (between Longford Street and Robert Street)     | Northbound | 109                 | 10  | 50                               | 14  | -59  | 4   | -55%  | 40%   |
|   | Southbound | 158                 | 3   | 370                              | 3   | 211  | 0   | 134%  | 19%   |
| A400 Hampstead Road (between Drummond Street and Robert Street) | Northbound | 255                 | 34  | 364                              | 46  | 108  | 12  | 42%   | 35%   |
|   | Southbound | 755                 | 3   | 942                              | 27  | 187  | 24  | 25%   | 888%  |
| Cardington Street (north of Drummond Street)                    | Northbound | 26                  | 0   | 0                                | 0   | -26  | 0   | -100%   | -100% |
|   | Southbound | 294                 | 3   | 0                                | 0   | -294   | -3  | -100%   | -100% |
| New Cobourg Street (north of Starcross Street)                  | Northbound | 0                   | 0   | 273                              | 1   | 273  | 1   | 0%  | 0%    |
|   | Southbound | 0                   | 0   | 255                              | 0   | 255  | 0   | 0%  | 0%    |
| A4200 Eversholt Street (between Phoenix Road and Polygon Road)  | Northbound | 199                 | 6   | 243                              | 12  | 44   | 6   | 22%   | 91%   |
|   | Southbound | 455                 | 21  | 475                              | 21  | 20   | 0   | 4%  | -1%   |

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| Location   | Direction  | 2026 baseline flows |     | 2031 with HS2 construction flows |     | With HS2 construction actual change from 2026 baseline |     | With HS2 construction % change from 2026 baseline |      |
|--|------------|---------------------|-----|----------------------------------|-----|--|-----|---|------|
|  |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV  |
| Chalton Street (between A501 Euston Road and Phoenix Road)                         | Northbound | 198                 | 55  | 209                              | 54  | 11   | -2  | 6%  | -3%  |
|  | Southbound | 205                 | 13  | 235                              | 11  | 30   | -2  | 15%   | -15% |
| Midland Road (between Brill Place and A501 Euston Road)                            | Southbound | 666                 | 26  | 655                              | 28  | -11  | 2   | -2%   | 7%   |
| A5202 Pancras Road (between A501 Euston Road and Goods Way)                        | Northbound | 219                 | 8   | 219                              | 8   | 0  | 0   | 0%  | 0%   |
|  | Southbound | 97                  | 6   | 95                               | 6   | -2   | 0   | -2%   | 1%   |
| A5203 York Way between A501 Euston Road and Caledonia Street                       | Northbound | 491                 | 58  | 510                              | 61  | 20   | 4   | 4%  | 6%   |
| A4201 Portland Place (between Devonshire Street and Park Crescent)                 | Northbound | 193                 | 38  | 203                              | 37  | 10   | 0   | 5%  | 0%   |
|  | Southbound | 325                 | 5   | 308                              | 6   | -17  | 1   | -5%   | 16%  |
| B506 Great Portland Street (between Park Crescent Mews East and Devonshire Street) | Southbound | 610                 | 24  | 580                              | 25  | -30  | 1   | -5%   | 4%   |
| Cleveland Street (between Greenwell Street and Clipstone Street)                   | Southbound | 196                 | 3   | 238                              | 3   | 42   | 0   | 22%   | 16%  |
| A400 Tottenham Court Road (between Grafton Way and Warren Street)                  | Northbound | 448                 | 53  | 471                              | 51  | 23   | -2  | 5%  | -4%  |
|  | Southbound | 71                  | 0   | 71                               | 0   | 0  | 0   | 0%  | 0%   |



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| Location  | Direction  | 2026 baseline flows |     | 2031 with HS2 construction flows |     | With HS2 construction actual change from 2026 baseline |     | With HS2 construction % change from 2026 baseline |       |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|-------|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV   |
| A400 Gower Street (between Grafton Way and Gower Place)                   | Northbound | 40                  | 2   | 64                               | 9   | 24   | 7   | 60%   | 382%  |
|   | Southbound | 707                 | 33  | 804                              | 37  | 96   | 4   | 14%   | 12%   |
| Gordon Street (between Endsleigh Gardens and A501 Euston Road)            | Northbound | 467                 | 7   | 0                                | 0   | -467   | -7  | -100%   | -100% |
|   | Southbound | 376                 | 5   | 0                                | 0   | -376   | -5  | -100%   | -100% |
| A4200 Upper Woburn Place (between Endsleigh Gardens and A501 Euston Road) | Northbound | 200                 | 9   | 354                              | 13  | 153  | 3   | 77%   | 36%   |
|   | Southbound | 533                 | 62  | 590                              | 60  | 57   | -2  | 11%   | -4%   |
| B504 Judd Street (between Bidborough Street and A501 Euston Road)         | Northbound | 86                  | 3   | 106                              | 1   | 20   | -2  | 23%   | -57%  |
|   | Southbound | 266                 | 20  | 340                              | 26  | 74   | 6   | 28%   | 33%   |
| A501 Gray's Inn Road (east of Birkenhead Street)                          | Northbound | 1,820               | 136 | 1,841                            | 140 | 21   | 4   | 1%  | 3%    |
| A501 Euston Road between Euston Circus and Melton Street                  | Eastbound  | 1,633               | 176 | 1,767                            | 188 | 134  | 12  | 8%  | 7%    |
|   | Westbound  | 1,920               | 99  | 1,832                            | 92  | -88  | -6  | -5%   | -7%   |
| A501 Euston Road between Melton Street and A4200 Upper Woburn Place       | Eastbound  | 1,707               | 178 | 1,833                            | 186 | 126  | 8   | 7%  | 4%    |
|   | Westbound  | 1,731               | 91  | 1,830                            | 90  | 100  | -1  | 6%  | -1%   |

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| Location  | Direction | 2026 baseline flows |     | 2031 with HS2 construction flows |     | With HS2 construction actual change from 2026 baseline |     | With HS2 construction % change from 2026 baseline |     |
|---|-----------|---------------------|-----|----------------------------------|-----|--|-----|---|-----|
|   |           | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV |
| A501 Euston Road between A4200 Upper Woburn Place and Churchway | Eastbound | 1,451               | 142 | 1,553                            | 150 | 102  | 8   | 7%  | 5%  |
|   | Westbound | 1,702               | 95  | 1,730                            | 90  | 29   | -4  | 2%  | -5% |

Table 117: Baseline and with HS2 traffic flows Euston screenlines 2031 PM peak hour (17:00 to 18:00)

| Location  | Direction  | 2026 baseline flows |     | 2031 with HS2 construction flows |     | With HS2 construction actual change from 2026 baseline |     | With HS2 construction % change from 2026 baseline |         |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|---------|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV     |
| Outer Circle (between Park Square East and Chester Road)        | Northbound | 304                 | 0   | 339                              | 0   | 34   | 0   | 11%   | #DIV/o! |
|   | Southbound | 206                 | 1   | 214                              | 1   | 8  | 0   | 4%  | 0%      |
| A4201 Albany Street (between Robert Street and Longford Street) | Northbound | 481                 | 11  | 477                              | 11  | -5   | 0   | -1%   | 0%      |
|   | Southbound | 258                 | 3   | 287                              | 7   | 28   | 3   | 11%   | 111%    |
| Stanhope Street (between Longford Street and Robert Street)     | Northbound | 102                 | 5   | 68                               | 7   | -34  | 2   | -33%  | 47%     |
|   | Southbound | 122                 | 2   | 122                              | 2   | 0  | 0   | 0%  | 5%      |
| A400 Hampstead Road (between Drummond Street and Robert Street) | Northbound | 353                 | 10  | 526                              | 19  | 173  | 9   | 49%   | 85%     |
|   | Southbound | 418                 | 9   | 508                              | 15  | 90   | 6   | 21%   | 63%     |
| Cardington Street (north of Drummond Street)                    | Northbound | 92                  | 7   | 0                                | 0   | -92  | -7  | -100%   | -100%   |
|   | Southbound | 72                  | 3   | 0                                | 0   | -72  | -3  | -100%   | -100%   |

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| Location   | Direction  | 2026 baseline flows |     | 2031 with HS2 construction flows |     | With HS2 construction actual change from 2026 baseline |     | With HS2 construction % change from 2026 baseline |      |
|--|------------|---------------------|-----|----------------------------------|-----|--|-----|---|------|
|  |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV  |
| New Cobourg Street (north of Starcross Street)                     | Northbound | 0                   | 0   | 297                              | 1   | 297  | 1   | 0%  | 0%   |
|  | Southbound | 0                   | 0   | 276                              | 0   | 276  | 0   | 0%  | 0%   |
| A4200 Eversholt Street (between Phoenix Road and Polygon Road)     | Northbound | 368                 | 11  | 410                              | 10  | 42   | -1  | 12%   | -9%  |
|  | Southbound | 280                 | 4   | 295                              | 3   | 15   | -1  | 5%  | -19% |
| Chalton Street (between A501 Euston Road and Phoenix Road)         | Northbound | 284                 | 7   | 293                              | 7   | 9  | 0   | 3%  | 1%   |
|  | Southbound | 182                 | 4   | 222                              | 4   | 40   | 0   | 22%   | -3%  |
| Midland Road (between Brill Place and A501 Euston Road)            | Southbound | 531                 | 14  | 604                              | 18  | 73   | 4   | 14%   | 27%  |
| A5202 Pancras Road (between A501 Euston Road and Goods Way)        | Northbound | 108                 | 6   | 128                              | 7   | 20   | 2   | 19%   | 27%  |
|  | Southbound | 287                 | 2   | 289                              | 2   | 2  | 0   | 1%  | 2%   |
| A5203 York Way between A501 Euston Road and Caledonia Street       | Northbound | 676                 | 37  | 740                              | 39  | 64   | 2   | 9%  | 6%   |
| A4201 Portland Place (between Devonshire Street and Park Crescent) | Northbound | 381                 | 2   | 402                              | 2   | 21   | 0   | 6%  | 13%  |
|  | Southbound | 260                 | 3   | 264                              | 4   | 4  | 1   | 1%  | 36%  |

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| Location   | Direction  | 2026 baseline flows |     | 2031 with HS2 construction flows |     | With HS2 construction actual change from 2026 baseline |     | With HS2 construction % change from 2026 baseline |       |
|--|------------|---------------------|-----|----------------------------------|-----|--|-----|---|-------|
|  |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV   |
| B506 Great Portland Street (between Park Crescent Mews East and Devonshire Street) | Southbound | 308                 | 7   | 281                              | 7   | -27  | 0   | -9%   | -2%   |
| Cleveland Street (between Greenwell Street and Clipstone Street)                   | Southbound | 157                 | 4   | 182                              | 5   | 24   | 1   | 15%   | 26%   |
| A400 Tottenham Court Road (between Grafton Way and Warren Street)                  | Northbound | 537                 | 13  | 555                              | 17  | 18   | 5   | 3%  | 35%   |
|  | Southbound | 67                  | 0   | 64                               | 0   | -3   | 0   | -4%   | 0%    |
| A400 Gower Street (between Grafton Way and Gower Place)                            | Northbound | 86                  | 10  | 128                              | 18  | 42   | 9   | 49%   | 94%   |
|  | Southbound | 738                 | 12  | 870                              | 21  | 132  | 9   | 18%   | 72%   |
| Gordon Street (between Endsleigh Gardens and A501 Euston Road)                     | Northbound | 445                 | 24  | 0                                | 0   | -445   | -24 | -100%   | -100% |
|  | Southbound | 280                 | 13  | 0                                | 0   | -280   | -13 | -100%   | -100% |
| A4200 Upper Woburn Place (between Endsleigh Gardens and A501 Euston Road)          | Northbound | 361                 | 9   | 448                              | 12  | 87   | 3   | 24%   | 36%   |
|  | Southbound | 644                 | 7   | 653                              | 15  | 9  | 8   | 1%  | 106%  |
| B504 Judd Street (between Bidborough Street and A501 Euston Road)                  | Northbound | 70                  | 4   | 100                              | 4   | 30   | 0   | 44%   | 5%    |
|  | Southbound | 265                 | 6   | 314                              | 5   | 49   | 0   | 18%   | -8%   |

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| Location  | Direction  | 2026 baseline flows |     | 2031 with HS2 construction flows |     | With HS2 construction actual change from 2026 baseline |     | With HS2 construction % change from 2026 baseline |      |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|------|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV  |
| A501 Gray's Inn Road (east of Birkenhead Street)                    | Northbound | 1,693               | 57  | 1,777                            | 61  | 83   | 4   | 5%  | 8%   |
| A501 Euston Road between Euston Circus and Melton Street            | Eastbound  | 1,769               | 28  | 1,797                            | 37  | 28   | 8   | 2%  | 29%  |
|   | Westbound  | 1,796               | 51  | 1,742                            | 43  | -54  | -8  | -3%   | -16% |
| A501 Euston Road between Melton Street and A4200 Upper Woburn Place | Eastbound  | 1,823               | 29  | 1,867                            | 36  | 44   | 8   | 2%  | 26%  |
|   | Westbound  | 1,556               | 35  | 1,742                            | 43  | 186  | 8   | 12%   | 24%  |
| A501 Euston Road between A4200 Upper Woburn Place and Churchway     | Eastbound  | 1,630               | 29  | 1,678                            | 30  | 48   | 1   | 3%  | 4%   |
|   | Westbound  | 1,535               | 33  | 1,690                            | 38  | 155  | 5   | 10%   | 15%  |

Table 118: Baseline and with HS2 traffic flows Camden screenline 2031 AM peak hour (08:00 to 09:00)

| Location  | Direction  | 2026 baseline flows |     | 2031 with HS2 construction flows |     | With HS2 construction actual change from 2026 baseline |     | With HS2 construction % change from 2026 baseline |     |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|-----|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV |
| A5203 Caledonian Road (south of Wheelwright Road) | Northbound | 651                 | 8   | 654                              | 8   | 3  | 0   | 1%  | -1% |
|   | Southbound | 815                 | 40  | 807                              | 40  | -8   | 0   | -1%   | 0%  |
| A5200 York Way (north of Vale Road)               | Northbound | 251                 | 22  | 252                              | 26  | 1  | 3   | 0%  | 15% |
|   | Southbound | 484                 | 13  | 490                              | 14  | 6  | 1   | 1%  | 10% |

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| Location   | Direction  | 2026 baseline flows |     | 2031 with HS2 construction flows |     | With HS2 construction actual change from 2026 baseline |     | With HS2 construction % change from 2026 baseline |     |
|--|------------|---------------------|-----|----------------------------------|-----|--|-----|---|-----|
|  |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV |
| A5202 St Pancras Way (north of Baynes Street)    | Southbound | 861                 | 50  | 834                              | 51  | -28  | 1   | -3%   | 3%  |
| Randolph Street (East of Royal College Street)   | Eastbound  | 99                  | 7   | 109                              | 7   | 10   | 1   | 10%   | 12% |
| Royal College Street (south of Camden Rd)        | Northbound | 742                 | 57  | 713                              | 57  | -28  | 0   | -4%   | 0%  |
| A503 Camden Road (south of Royal College St)     | Northbound | 457                 | 26  | 483                              | 30  | 26   | 4   | 6%  | 14% |
|  | Southbound | 879                 | 55  | 916                              | 58  | 37   | 3   | 4%  | 6%  |
| A400 Camden Street (south of Camden Gardens)     | Southbound | 947                 | 55  | 942                              | 55  | -5   | 0   | 0%  | 0%  |
| A400 Kentish Town Road (south of Camden Gardens) | Northbound | 324                 | 21  | 325                              | 19  | 1  | -2  | 0%  | -8% |
|  | Southbound | 442                 | 23  | 445                              | 23  | 3  | 0   | 1%  | 0%  |
| Hawley Road                                      | Northbound | 799                 | 39  | 797                              | 39  | -3   | 0   | 0%  | 0%  |
| A502 Chalk Farm Road (west of Hawley Street)     | Northbound | 402                 | 17  | 401                              | 17  | -1   | 0   | 0%  | -2% |
|  | Southbound | 596                 | 24  | 597                              | 24  | 1  | 0   | 0%  | 0%  |
| Primrose Hill Road (south of Adelaide Road)      | Northbound | 299                 | 19  | 291                              | 19  | -8   | 0   | -3%   | 0%  |
|  | Southbound | 767                 | 46  | 752                              | 45  | -14  | -1  | -2%   | -1% |

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| Location  | Direction  | 2026 baseline flows |     | 2031 with HS2 construction flows |     | With HS2 construction actual change from 2026 baseline |     | With HS2 construction % change from 2026 baseline |     |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|-----|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV |
| Avenue Road (south of B509 Adelaide Road)         | Northbound | 189                 | 10  | 189                              | 10  | 0  | 0   | 0%  | -2% |
|   | Southbound | 95                  | 1   | 96                               | 1   | 1  | 0   | 1%  | -1% |
| A41 Finchley Road (south of B509 Adelaide Road)   | Northbound | 394                 | 42  | 397                              | 50  | 3  | 8   | 1%  | 19% |
|   | Southbound | 588                 | 20  | 590                              | 25  | 2  | 5   | 0%  | 25% |
| Loudoun Road (south of Alexandra Place)           | Northbound | 420                 | 6   | 430                              | 12  | 9  | 6   | 2%  | 98% |
|   | Southbound | 236                 | 18  | 238                              | 18  | 2  | 0   | 1%  | 2%  |
| A507 Abbey Road (south of B509 Belsize Road)      | Northbound | 221                 | 5   | 221                              | 5   | 0  | 0   | 0%  | 0%  |
|   | Southbound | 407                 | 11  | 408                              | 12  | 1  | 1   | 0%  | 9%  |
| A5 Kilburn High Road (south of B509 Belsize Road) | Northbound | 594                 | 26  | 594                              | 26  | 1  | 0   | 0%  | 1%  |
|   | Southbound | 912                 | 53  | 914                              | 54  | 2  | 0   | 0%  | 1%  |

Table 119: Baseline and with HS2 traffic flows Camden screenline 2031 PM peak hour (17:00 to 18:00)

| Location  | Direction  | 2026 baseline flows |     | 2031 with HS2 construction flows |     | With HS2 construction actual change from 2026 baseline |     | With HS2 construction % change from 2026 baseline |     |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|-----|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV |
| A5203 Caledonian Road (south of Wheelwright Road) | Northbound | 548                 | 5   | 550                              | 5   | 3  | 0   | 1%  | 0%  |
|   | Southbound | 737                 | 3   | 737                              | 3   | 0  | 0   | 0%  | 9%  |

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| Location   | Direction  | 2026 baseline flows |     | 2031 with HS2 construction flows |     | With HS2 construction actual change from 2026 baseline |     | With HS2 construction % change from 2026 baseline |      |
|--|------------|---------------------|-----|----------------------------------|-----|--|-----|---|------|
|  |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV  |
| A5200 York Way (north of Vale Road)              | Northbound | 347                 | 19  | 373                              | 21  | 27   | 2   | 8%  | 11%  |
|  | Southbound | 310                 | 6   | 336                              | 7   | 26   | 1   | 8%  | 20%  |
| A5202 St Pancras Way (north of Baynes Street)    | Southbound | 592                 | 11  | 559                              | 12  | -33  | 1   | -6%   | 13%  |
| Randolph Street (East of Royal College Street)   | Eastbound  | 292                 | 3   | 278                              | 3   | -14  | 0   | -5%   | -10% |
| Royal College Street (south of Camden Rd)        | Northbound | 626                 | 14  | 607                              | 14  | -19  | 0   | -3%   | 2%   |
| A503 Camden Road (south of Royal College St)     | Northbound | 687                 | 20  | 677                              | 21  | -10  | 1   | -1%   | 5%   |
|  | Southbound | 616                 | 21  | 629                              | 21  | 13   | 1   | 2%  | 4%   |
| A400 Camden Street (south of Camden Gardens)     | Southbound | 774                 | 20  | 751                              | 16  | -22  | -5  | -3%   | -24% |
| A400 Kentish Town Road (south of Camden Gardens) | Northbound | 387                 | 14  | 380                              | 14  | -8   | 0   | -2%   | 1%   |
|  | Southbound | 298                 | 1   | 298                              | 1   | 0  | 0   | 0%  | 0%   |
| Hawley Road                                      | Northbound | 531                 | 15  | 532                              | 11  | 2  | -5  | 0%  | -30% |
| A502 Chalk Farm Road (west of Hawley Street)     | Northbound | 516                 | 8   | 510                              | 8   | -5   | 0   | -1%   | -1%  |
|  | Southbound | 269                 | 5   | 275                              | 1   | 6  | -4  | 2%  | -80% |



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| Location  | Direction  | 2026 baseline flows |     | 2031 with HS2 construction flows |     | With HS2 construction actual change from 2026 baseline |     | With HS2 construction % change from 2026 baseline |      |
|---|------------|---------------------|-----|----------------------------------|-----|--|-----|---|------|
|   |            | All vehicles        | HGV | All vehicles                     | HGV | All vehicles   | HGV | All vehicles                                      | HGV  |
| Primrose Hill Road (south of Adelaide Road)       | Northbound | 294                 | 18  | 284                              | 18  | -10  | 0   | -3%   | 1%   |
|   | Southbound | 656                 | 12  | 656                              | 15  | 1  | 3   | 0%  | 26%  |
| Avenue Road (south of B509 Adelaide Road)         | Northbound | 181                 | 1   | 181                              | 0   | 0  | 0   | 0%  | -58% |
|   | Southbound | 75                  | 9   | 74                               | 9   | -1   | 0   | -2%   | 1%   |
| A41 Finchley Road (south of B509 Adelaide Road)   | Northbound | 370                 | 34  | 368                              | 39  | -2   | 5   | 0%  | 13%  |
|   | Southbound | 511                 | 16  | 514                              | 19  | 3  | 2   | 1%  | 14%  |
| Loudoun Road (south of Alexandra Place)           | Northbound | 561                 | 2   | 565                              | 2   | 4  | 0   | 1%  | 0%   |
|   | Southbound | 91                  | 3   | 91                               | 3   | 0  | 0   | 0%  | 1%   |
| A507 Abbey Road (south of B509 Belsize Road)      | Northbound | 342                 | 3   | 353                              | 3   | 12   | 0   | 3%  | 3%   |
|   | Southbound | 276                 | 1   | 275                              | 1   | -1   | 0   | 0%  | 14%  |
| A5 Kilburn High Road (south of B509 Belsize Road) | Northbound | 586                 | 10  | 588                              | 11  | 1  | 0   | 0%  | 2%   |
|   | Southbound | 620                 | 5   | 625                              | 5   | 5  | 0   | 1%  | 1%   |

- 3.3.248 Traffic flow changes as a result of the revised scheme at Euston are relatively local in nature, being largely contained within an area bounded by A4201 Albany Street, A4201 Parkway and A5203 York Way to the north of A501 Euston Road, and, A400 Gower Street, Torrington Place and A5200 Gray's Inn Road to the south of A501 Euston Road. Much of the change to the south of A501 Euston Road are an impact of cars and taxis re-routeing as a result of the closure of Gordon Street, due to the provision of the new LU station entrance and the A501 Euston Road sub-surface crossing and the relocation of the station taxi facility to Cobourg Street.
- 3.3.249 The diversion impacts for Scenario 4 (2031) for the AM and PM peak hours are described as follows:
- the most noticeable impacts are due to the closure of the northern section of Gordon Street, between Endsleigh Gardens and A5200 Euston Road. The closure of Gordon Street also leads to flow reductions on Gordon Square, Endsleigh Gardens, Endsleigh Gardens and Tavistock Square.
  - there are corresponding increases on other north-south routes to the south of A501 Euston Road, in particular on A501 Gray's Inn Road (both directions and A400 Gower Street (predominantly southbound).
  - removal of traffic from Cardington Street due to its closure;
  - to the north of A501 Euston Road, there are two way flow increases predominantly on A400 Hampstead Road, but also on A4200 Eversholt Street, A4201 Albany Road and the Outer Circle.
  - A501 Euston Road shows a reduction in westbound traffic between Gordon Street and A400 Hampstead Road, due to the redistribution of traffic previously routeing on A501 Euston Road to access/exit from Gordon Street and Cobourg Street.
- 3.3.250 Taking the flows on the screenline to the north of A501 Euston Road, most roads, with the exception of A400 Hampstead Road, experience only a small change in flows. Total flow across the screenline increases by between approximately 520 vehicles during the PM peak hour in the northbound direction, with a future baseline total of approximately 2,865 vehicles per hour and 430 vehicles per hour during the AM peak hour in the northbound direction (with a future baseline total of approximately 1,950 vehicles per hour).
- 3.3.251 On the screenline to the south of A501 Euston Road, the closure of Gordon Street leads to a small net decrease in total across the screenline of between approximately 160 vehicles per hour in the northbound direction during the PM peak hour (with a future baseline total of approximately 3,640 vehicles per hour), and approximately 150 vehicles per hour in the southbound direction in the AM peak hour (with a future baseline total of 3,230 per hour). Those roads immediately adjacent to Gordon Street, (A400 Gower Street in the southbound direction and A4201 Upper Woburn Place in the northbound direction) experience the largest flow increases.
- 3.3.252 Analysis of the 2026 HS2 Phase One operation flows indicates that they are very similar to the 2031 Phase One operation and B1 construction with a total southbound

difference in the AM peak hour across the screenlines north and south of A501 Euston Road of 20 and five PCUs respectively.

- 3.3.253 There is a negligible change between the 2026 future baseline and the revised scheme across the Camden screenline with less than a 1% difference in all vehicles in both directions across the AM and PM peaks. On individual roads, all vehicles increase by a slightly higher percentage but do not exceed 10% on any road. The percentage increase in HGVs is greater but the absolute numbers are much lower than for all vehicles. The low level of flow changes reflects the fact that the impacts of the revised scheme at Euston station decrease rapidly with increasing distance from the local area.
- 3.3.254 In addition to the screenline comparisons, roads that will experience a substantial increase in traffic flow have been identified. Table 120 and Table 121 outline those traffic flows for the 2031 construction scenario are reported in CFA1.
- 3.3.255 This indicates that those flows with the greatest increase in HGVs in both absolute and percentage terms are around Euston station used by construction traffic increases in HGVs, including A4201 Osnaburgh Street and A4201 Parkway. For all vehicles, the increases are relatively low with the only increases in excess of 100 vehicles per hour on with the largest increases on A4201 Osnaburgh Street, and Torrington Place in the AM peak and Euston Street A4200 Russell Square and Robert Street in the PM peak.
- 3.3.256 Roads identified as having a substantial increase in daily traffic flow are reported in Table 122 and Table 123 for the AM and PM peak hours respectively.

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Table 120: Links with traffic increase, 2031 Construction AM Peak (08:00-09:00), CFA1

| Location  | Direction | CFA  | 2026 Baseline       |     | 2031 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|---|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|   |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
| University St   | EB        | CFA1 | 49                  | 8   | 52                         | 9   | 3   | 2   | 6%                                   | 21%  |
| A400 Harrington Square/ Lidlington Place                    | WB        | CFA1 | 682                 | 105 | 734                        | 79  | 52  | -26 | 8%                                   | -25% |
| A4200 Russell Square  | NB        | CFA1 | 34                  | 0   | 33                         | 0   | -1  | 0   | -3%                                  | -    |
| A4201 Osnaburgh Street                                      | SB        | CFA1 | 518                 | 52  | 668                        | 90  | 149                                       | 38  | 29%                                  | 74%  |
| A4201 Parkway   | WB        | CFA1 | 364                 | 45  | 399                        | 62  | 35  | 17  | 10%                                  | 38%  |
| A5200 Gray's Inn Rd   | NB        | CFA1 | 342                 | 42  | 363                        | 45  | 20  | 3   | 6%                                   | 8%   |
| A5205 St. John's Wood Rd                                    | WB        | CFA1 | 333                 | 68  | 337                        | 74  | 4   | 7   | 1%                                   | 10%  |
| Arlington Road  | SB        | CFA1 | 75                  | 18  | 128                        | 25  | 53  | 8   | 71%                                  | 42%  |
| B502 Brunswick Square/ Lansdowne Terrace/ B504 Grenville St | WB        | CFA1 | 114                 | 23  | 180                        | 11  | 66  | -12 | 58%                                  | -53% |
| Bayham Street   | SB        | CFA1 | 543                 | 55  | 538                        | 56  | -5  | 1   | -1%                                  | 2%   |
| Bedford Place   | NB        | CFA1 | 12                  | 0   | 12                         | 0   | 0   | 0   | 0%                                   | -    |
| Bidborough St   | WB        | CFA1 | 47                  | 18  | 131                        | 20  | 84  | 2   | 176%                                 | 11%  |
| Bolsover Street   | SB        | CFA1 | 135                 | 14  | 172                        | 20  | 37  | 6   | 27%                                  | 41%  |

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| Location                             | Direction | CFA  | 2026 Baseline       |     | 2031 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |       |
|--------------------------------------|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|-------|
|                                      |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV   |
| Byng Place                           | EB        | CFA1 | 364                 | 60  | 451                        | 55  | 87  | -5  | 24%                                  | -8%   |
| Cumberland Market                    | NB        | CFA1 | 40                  | 7   | 38                         | 4   | -2  | -2  | -5%                                  | -38%  |
| Drummond St (West of North Gower St) | WB        | CFA1 | 75                  | 6   | 142                        | 0   | 67  | -6  | 89%                                  | -100% |
| Euston St (East of Cobourg St)       | WB        | CFA1 | 194                 | 7   | 272                        | 2   | 78  | -4  | 40%                                  | -63%  |
| Grafton Way                          | WB        | CFA1 | 339                 | 93  | 387                        | 79  | 48  | -13 | 14%                                  | -14%  |
| Granby Terrace                       | EB        | CFA1 | 196                 | 27  | 137                        | 18  | -59                                       | -9  | -30%                                 | -33%  |
| Longford St                          | WB        | CFA1 | 81                  | 10  | 37                         | 12  | -44                                       | 2   | -54%                                 | 26%   |
| Mabledon Place                       | NB        | CFA1 | 21                  | 1   | 100                        | 1   | 78  | 0   | 365%                                 | -41%  |
| Mornington St                        | EB        | CFA1 | 86                  | 19  | 132                        | 25  | 46  | 7   | 53%                                  | 36%   |
| North Gower St                       | SB        | CFA1 | 46                  | 7   | 145                        | 0   | 100                                       | -7  | 219%                                 | -100% |
| Ossulston Street                     | NB        | CFA1 | 74                  | 18  | 162                        | 16  | 88  | -2  | 118%                                 | -11%  |
| Polygon Rd                           | WB        | CFA1 | 74                  | 18  | 162                        | 16  | 88  | -2  | 118%                                 | -11%  |
| Robert Street                        | WB        | CFA1 | 128                 | 13  | 150                        | 9   | 21  | -4  | 16%                                  | -30%  |
| Russell Square                       | EB        | CFA1 | 43                  | 7   | 48                         | 7   | 5   | 0   | 13%                                  | 1%    |

SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

| Location         | Direction | CFA  | 2026 Baseline       |     | 2031 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |     |
|------------------|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|-----|
|                  |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV |
| Tavistock Place  | EB        | CFA1 | 181                 | 37  | 169                        | 47  | -12                                       | 11  | -7%                                  | 30% |
| Torrington Place | EB        | CFA1 | 172                 | 24  | 306                        | 21  | 134                                       | -2  | 77%                                  | -9% |
| Upper Wimpole St | NB        | CFA1 | 67                  | 18  | 68                         | 18  | 1   | 0   | 1%                                   | 0%  |
| Wimpole St       | NB        | CFA1 | 183                 | 48  | 185                        | 49  | 2   | 1   | 1%                                   | 1%  |

Table 121: Links with traffic increase, 2031 Construction PM Peak (17:00-18:00), CFA1

| Location                                 | Direction | CFA  | 2026 Baseline       |     | 2031 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|--|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|  |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
| University St                            | EB        | CFA1 | 73                  | 14  | 70                         | 13  | -3  | 0   | -4%                                  | -3%  |
| A400 Harrington Square/ Lidlington Place | WB        | CFA1 | 687                 | 51  | 766                        | 45  | 79  | -6  | 11%                                  | -11% |
| A4200 Russell Square                     | NB        | CFA1 | 87                  | 0   | 196                        | 0   | 109                                       | 0   | 126%                                 | -    |
| A4201 Osnaburgh Street                   | SB        | CFA1 | 430                 | 28  | 501                        | 52  | 71  | 24  | 16%                                  | 86%  |
| A4201 Parkway                            | WB        | CFA1 | 261                 | 18  | 289                        | 28  | 28  | 9   | 11%                                  | 51%  |
| A5200 Gray's Inn Rd                      | NB        | CFA1 | 355                 | 41  | 436                        | 49  | 81  | 8   | 23%                                  | 20%  |
| A5205 St. John's Wood Rd                 | WB        | CFA1 | 311                 | 42  | 357                        | 41  | 46  | -1  | 15%                                  | -3%  |

SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

| Location  | Direction | CFA  | 2026 Baseline       |     | 2031 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |       |
|---|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|-------|
|   |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV   |
| Arlington Road  | SB        | CFA1 | 46                  | 3   | 44                         | 3   | -2  | 0   | -5%                                  | -7%   |
| B502 Brunswick Square/ Lansdowne Terrace/ B504 Grenville St | WB        | CFA1 | 60                  | 8   | 113                        | 6   | 53  | -2  | 87%                                  | -19%  |
| Bayham Street   | SB        | CFA1 | 500                 | 34  | 563                        | 35  | 63  | 1   | 13%                                  | 4%    |
| Bedford Place   | NB        | CFA1 | 348                 | 17  | 405                        | 15  | 57  | -3  | 17%                                  | -14%  |
| Bidborough St   | WB        | CFA1 | 39                  | 4   | 80                         | 4   | 41  | 0   | 105%                                 | -8%   |
| Bolsover Street   | SB        | CFA1 | 119                 | 9   | 130                        | 10  | 11  | 1   | 9%                                   | 12%   |
| Byng Place  | EB        | CFA1 | 759                 | 59  | 754                        | 43  | -5  | -16 | -1%                                  | -27%  |
| Cumberland Market   | NB        | CFA1 | 116                 | 2   | 163                        | 2   | 47  | 1   | 41%                                  | 45%   |
| Drummond St (West of North Gower St)                        | WB        | CFA1 | 107                 | 12  | 142                        | 0   | 35  | -12 | 32%                                  | -100% |
| Euston St (East of Cobourg St)                              | WB        | CFA1 | 64                  | 2   | 308                        | 3   | 244                                       | 1   | 380%                                 | 59%   |
| Grafton Way   | WB        | CFA1 | 441                 | 46  | 500                        | 39  | 59  | -7  | 13%                                  | -14%  |
| Granby Terrace  | EB        | CFA1 | 68                  | 12  | 138                        | 11  | 70  | -1  | 103%                                 | -12%  |
| Longford St   | WB        | CFA1 | 4                   | 4   | 62                         | 7   | 57  | 2   | 1348%                                | 55%   |

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| Location         | Direction | CFA  | 2026 Baseline       |     | 2031 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |       |
|------------------|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|-------|
|                  |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV   |
| Mabledon Place   | NB        | CFA1 | 12                  | 3   | 51                         | 3   | 39  | 0   | 319%                                 | 0%    |
| Mornington St    | EB        | CFA1 | 47                  | 3   | 41                         | 3   | -6  | 0   | -12%                                 | -8%   |
| North Gower St   | SB        | CFA1 | 76                  | 7   | 94                         | 0   | 19  | -7  | 25%                                  | -100% |
| Ossulston Street | NB        | CFA1 | 117                 | 12  | 153                        | 15  | 35  | 2   | 30%                                  | 18%   |
| Polygon Rd       | WB        | CFA1 | 117                 | 12  | 153                        | 15  | 35  | 2   | 30%                                  | 18%   |
| Robert Street    | WB        | CFA1 | 173                 | 10  | 273                        | 10  | 100                                       | 0   | 58%                                  | -1%   |
| Russell Square   | EB        | CFA1 | 277                 | 37  | 340                        | 30  | 63  | -7  | 23%                                  | -19%  |
| Tavistock Place  | EB        | CFA1 | 187                 | 29  | 228                        | 33  | 41  | 4   | 22%                                  | 13%   |
| Torrington Place | EB        | CFA1 | 347                 | 26  | 431                        | 21  | 84  | -5  | 24%                                  | -19%  |
| Upper Wimpole St | NB        | CFA1 | 184                 | 14  | 240                        | 15  | 56  | 1   | 30%                                  | 5%    |
| Wimpole St       | NB        | CFA1 | 343                 | 28  | 395                        | 28  | 52  | 1   | 15%                                  | 2%    |



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Table 122: Links with traffic increase, 2031 Construction AM Peak (08:00-09:00), CFA2, CFA3 and CFA4

| Location   | Direction | CFA  | 2026 Baseline       |     | 2031 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |     |
|--|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|-----|
|  |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV |
| A503 Bayham Street   | SB        | CFA2 | 456                 | 89  | 522                        | 98  | 66  | 9   | 15%                                  | 10% |
| A503 Camden Road   | EB        | CFA2 | 237                 | 38  | 270                        | 42  | 33  | 4   | 14%                                  | 9%  |
|  | WB        |      | 456                 | 89  | 522                        | 98  | 66  | 9   | 15%                                  | 10% |
| A503 Delancey Street   | WB        | CFA2 | 509                 | 101 | 581                        | 111 | 72  | 10  | 14%                                  | 10% |
| A503 Pratt Street  | WB        | CFA2 | 375                 | 89  | 441                        | 98  | 66  | 9   | 17%                                  | 10% |
| A5200 York Way   | NB        | CFA2 | 238                 | 67  | 257                        | 71  | 19  | 4   | 8%                                   | 6%  |
|  | SB        |      | 231                 | 39  | 241                        | 44  | 9   | 4   | 4%                                   | 11% |
| B413 Clifton Gardens/ Formosa Street/ Shirland Road/ Warwick Ave | EB        | CFA4 | 133                 | 26  | 141                        | 25  | 8   | -1  | 6%                                   | -2% |
|  | WB        |      | 232                 | 36  | 236                        | 35  | 4   | 0   | 2%                                   | -1% |
| Sutherland Avenue  | EB        | CFA4 | 167                 | 30  | 168                        | 30  | 1   | 0   | 0%                                   | 0%  |
|  | WB        |      | 280                 | 35  | 282                        | 35  | 2   | 0   | 1%                                   | -1% |

SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

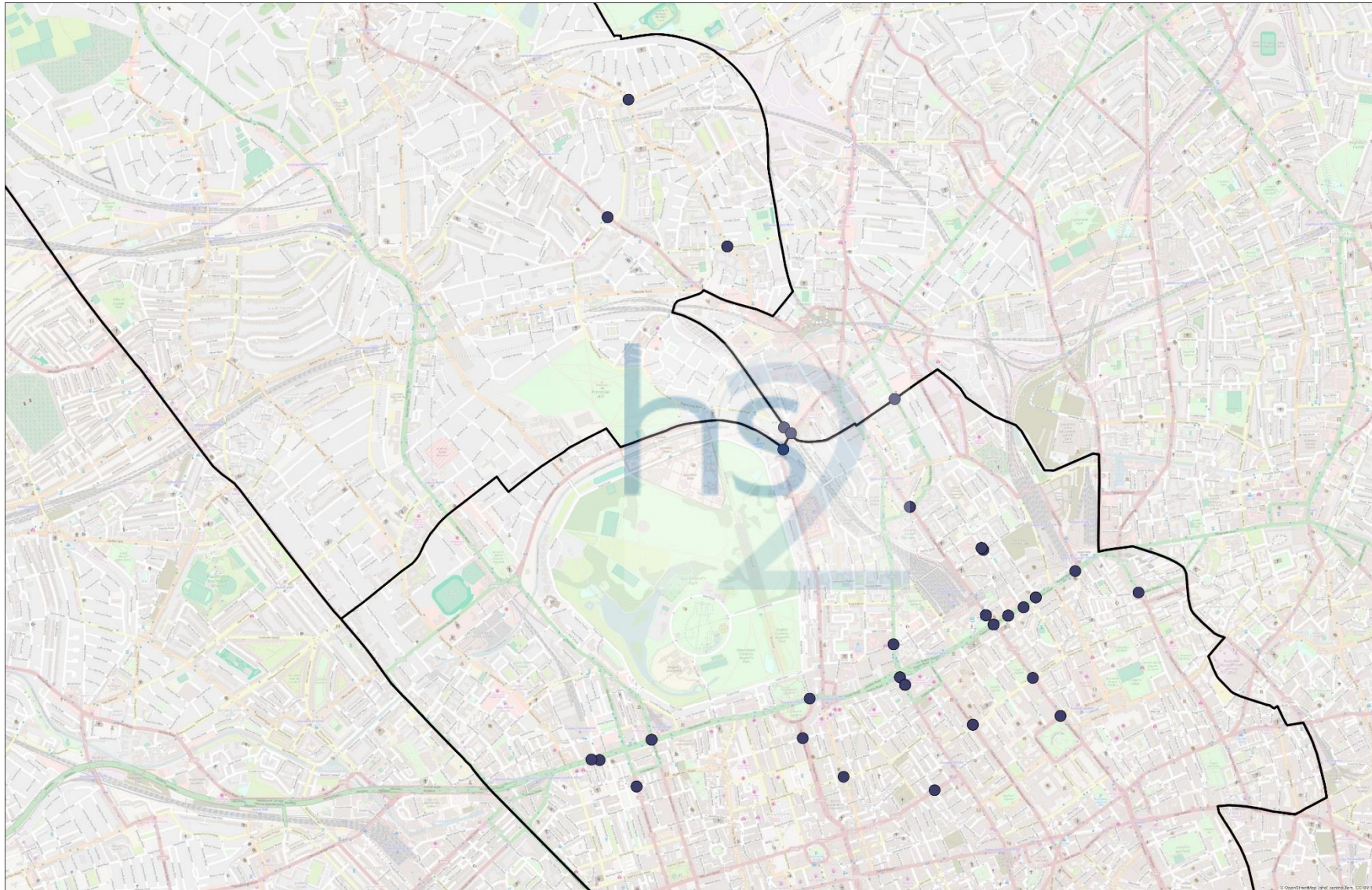
Table 123: Links with traffic increase, 2031 Construction PM Peak (17:00-18:00), CFA2, CFA3 and CFA4

| Location   | Direction | CFA  | 2026 Baseline       |     | 2031 construction Scenario |     | With HS2 actual change from 2021 baseline |     | With HS2 % change from 2021 baseline |      |
|--|-----------|------|---------------------|-----|----------------------------|-----|---|-----|--------------------------------------|------|
|  |           |      | All veh incl. Buses | HGV | All veh incl. Buses        | HGV | All veh                                   | HGV | All veh                              | HGV  |
| A503 Bayham Street   | SB        | CFA2 | 403                 | 46  | 401                        | 43  | -1  | -2  | 0%                                   | -5%  |
| A503 Camden Road   | EB        | CFA2 | 381                 | 59  | 375                        | 63  | -6  | 4   | -2%                                  | 6%   |
|  | WB        |      | 403                 | 46  | 401                        | 43  | -1  | -2  | 0%                                   | -5%  |
| A503 Delancey Street   | WB        | CFA2 | 389                 | 42  | 387                        | 39  | -2  | -3  | 0%                                   | -6%  |
| A503 Pratt Street  | WB        | CFA2 | 320                 | 46  | 318                        | 43  | -1  | -2  | 0%                                   | -5%  |
| A5200 York Way   | NB        | CFA2 | 409                 | 68  | 464                        | 73  | 56  | 5   | 14%                                  | 7%   |
|  | SB        |      | 127                 | 13  | 152                        | 15  | 25  | 2   | 20%                                  | 14%  |
| B413 Clifton Gardens/ Formosa Street/ Shirland Road/ Warwick Ave | EB        | CFA4 | 102                 | 14  | 102                        | 14  | 1   | 0   | 0%                                   | 1%   |
|  | WB        |      | 221                 | 28  | 271                        | 25  | 50  | -3  | 23%                                  | -11% |
| Sutherland Avenue  | EB        | CFA4 | 145                 | 20  | 145                        | 20  | 0   | -1  | 0%                                   | -3%  |
|  | WB        |      | 216                 | 28  | 263                        | 27  | 47  | -1  | 22%                                  | -5%  |

*Triggered junctions (all construction scenarios)*

- 3.3.257 The changes in traffic flows will also lead to increases in delays at the junctions set out in Table 124 for Scenarios 1, 2, 3A and 3 (compared to the 2021 baseline) and Table 125 for Scenario 4 (compared with the 2026 baseline) and shown on Figure 106 (for all scenarios). The impact is measured as an increase in the ratio of volume to capacity where:
- the VoC for an approach arm increases to over 87% during the construction of the revised scheme and the increase is 2% or more; or
  - the VoC for an approach arm is over 87% in the baseline and during the construction of the revised scheme increases by 2% or more.
- 3.3.258 For all of the junctions in Table 124 and Table 125, the VoC is presented for all scenarios for both the AM and PM peak hours. However, the junction may have only been triggered for one or more scenario(s) that meet the above criteria and the junctions are not necessarily triggered in all scenarios. Only the results for the scenarios in which the junctions are triggered are shown in Table 124 and Table 125.
- 3.3.259 Those junctions triggered show a very close correlation with the roads that experience an increase in vehicle flow, either as a result of construction traffic or highway interventions with the majority close to Euston station. Scenario 3, with the highest level of construction traffic and a large number of highway interventions, has the greatest impact on congestion.

Figure 106: Triggered junctions, AM (07:00-08:00) and PM (17:00-18:00) peak hours - Scenarios 1, 2 3A, 3 and 4 combined



SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

Table 124: Scenario 1, 2, 3A and 3 - triggered junctions (VoC)

| CFA  | Location   | AM peak hour (08:00 to 09:00) |                    |                    |                        |                    | PM peak hour (17:00 to 18:00) |                    |                    |                        |                    |
|------|--|-------------------------------|--------------------|--------------------|------------------------|--------------------|-------------------------------|--------------------|--------------------|------------------------|--------------------|
|      |  | 2021<br>baseline              | 2017<br>Scenario 1 | 2018<br>Scenario 2 | 2020<br>Scenario<br>3A | 2023<br>Scenario 3 | 2021<br>baseline              | 2017<br>Scenario 1 | 2018<br>Scenario 2 | 2020<br>Scenario<br>3A | 2023<br>Scenario 3 |
| CFA1 | A4 Gloucester Place / Crawford Street                      | -                             | -                  | -                  | -                      | -                  | 83.62                         | 87.82              | 90.81              | -                      | -                  |
| CFA1 | A400 Camden Street / Pratt Street                          | 82.88                         | -                  | -                  | 88.66                  | -                  | 83.91                         | 87.84              | -                  | 88.95                  | -                  |
| CFA1 | A400 Gower Street / Torrington Place (Westbound approach)  | 95.59                         | -                  | 97.8               | 97.71                  | -                  | 97.42                         | -                  | 100.74             | 100.52                 | 99.6               |
| CFA1 | A400 Gower Street / Torrington Place (Southbound approach) | -                             | -                  | -                  | -                      | -                  | 75.6                          | 97.05              | 100.11             | 100.67                 | 98.23              |
| CFA1 | A400 Hampstead Road / Drummond Street                      | 45.28                         | -                  | -                  | 87.72                  | 89.18              | -                             | -                  | -                  | -                      | -                  |
| CFA1 | A400 Tottenham Court Road / Warren Street                  | 78.34                         | -                  | 90.03              | 89.89                  | 89.94              | 82.57                         | 91.54              | 100.29             | 100.25                 | 101.85             |
| CFA1 | A4200 Eversholt Street / A400 Oakley Square                | -                             | -                  | -                  | -                      | -                  | 84.15                         | -                  | 91.26              | 91.06                  | 93.71              |
| CFA1 | A4200 Eversholt Street / A4200 Grafton Place               | 75.32                         | -                  | 89.35              | 89.93                  | 94                 | 78.19                         | 87.3               | 87.37              | 88.23                  | 89.4               |
| CFA1 | A4200 Russell Square / Bernard Street                      | -                             | -                  | -                  | -                      | -                  | 83.8                          | -                  | 89.87              | 89.96                  | -                  |
| CFA1 | A4200 Woburn Place / Tavistock Square                      | 76.35                         | -                  | 91.39              | 89.18                  | 98.38              | -                             | -                  | -                  | -                      | -                  |

SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

| CFA  | Location  | AM peak hour (08:00 to 09:00) |                    |                    |                        |                    | PM peak hour (17:00 to 18:00) |                    |                    |                        |                    |
|------|---|-------------------------------|--------------------|--------------------|------------------------|--------------------|-------------------------------|--------------------|--------------------|------------------------|--------------------|
|      |   | 2021<br>baseline              | 2017<br>Scenario 1 | 2018<br>Scenario 2 | 2020<br>Scenario<br>3A | 2023<br>Scenario 3 | 2021<br>baseline              | 2017<br>Scenario 1 | 2018<br>Scenario 2 | 2020<br>Scenario<br>3A | 2023<br>Scenario 3 |
| CFA1 | A4201 Parkway / A503 Delancey Street                            | 75.03                         | 88.5               | 88.61              | 90.48                  | -                  | 74.61                         | 92.73              | 92.27              | 92.37                  | -                  |
| CFA1 | A501 Euston Road (westbound) / A400 Hampstead Road              | 71.47                         | -                  | -                  | 86.16                  | 86.02              | 81.85                         | -                  | 97.81              | 99.52                  | 101.05             |
| CFA1 | A501 Euston Road / A4200 Eversholt Street (eastbound approach)  | 85.47                         | -                  | 94.46              | 94.3                   | 89.4               | 92.94                         | 96.44              | 96.32              | 97.13                  | 95.32              |
| CFA1 | A501 Euston Road / A4200 Eversholt Street (southbound approach) | 71.93                         | -                  | -                  | -                      | 95.68              | 84.35                         | -                  | 89.36              | 90.61                  | 100.63             |
| CFA1 | A501 Euston Road / A4200 Eversholt Street (northbound approach) | 47.04                         | -                  | -                  | -                      | 87.53              | 77.6                          | -                  | 90.55              | 90.86                  | 93.18              |
| CFA1 | A501 Euston Road / Argyle Street                                | 85.84                         | -                  | -                  | -                      | 88.46              | -                             | -                  | -                  | -                      | -                  |
| CFA1 | A501 Euston Road / Chalton Street                               | -                             | -                  | -                  | -                      | -                  | 72.92                         | -                  | -                  | -                      | 95.66              |
| CFA1 | A501 Euston Road / Duke's Road (eastbound approach)             | -                             | -                  | -                  | -                      | -                  | 95.49                         | -                  | 99.02              | 99.86                  | 97.94              |
| CFA1 | A501 Euston Road / Duke's Road (westbound approach)             | 70.8                          | -                  | -                  | -                      | 87.31              | -                             | -                  | -                  | -                      | -                  |
| CFA1 | A501 Euston Road / Duke's Road (southbound approach)            | 99.26                         | 101.26             | 100.62             | 99.69                  | 99.14              | -                             | -                  | -                  | -                      | -                  |
| CFA1 | A501 Euston Road / Ossulston Street                             | 84.48                         | -                  | 90.24              | 90.61                  | 88.52              | -                             | -                  | -                  | -                      | -                  |

SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

| CFA  | Location   | AM peak hour (08:00 to 09:00) |                    |                    |                        |                    | PM peak hour (17:00 to 18:00) |                    |                    |                        |                    |
|------|--|-------------------------------|--------------------|--------------------|------------------------|--------------------|-------------------------------|--------------------|--------------------|------------------------|--------------------|
|      |  | 2021<br>baseline              | 2017<br>Scenario 1 | 2018<br>Scenario 2 | 2020<br>Scenario<br>3A | 2023<br>Scenario 3 | 2021<br>baseline              | 2017<br>Scenario 1 | 2018<br>Scenario 2 | 2020<br>Scenario<br>3A | 2023<br>Scenario 3 |
| CFA1 | A501 Marylebone Road (eastbound) / Upper Montagu Street (eastbound approach) | -                             | -                  | -                  | -                      | -                  | 51.32                         | 100.39             | 99.32              | 100.11                 | -                  |
| CFA1 | A501 Marylebone Road (eastbound) / Upper Montagu Street (westbound approach) | -                             | -                  | -                  | -                      | -                  | 55.37                         | 100.09             | -                  | -                      | 100.41             |
| CFA1 | A501 Marylebone Road / A4201 Park Crescent                                   | 87.6                          | 90.36              | 90.34              | -                      | -                  | 75.22                         | 87.06              | -                  | -                      | -                  |
| CFA1 | A501 Marylebone Road / Baker Street  | 87.3                          | 89.41              | 89.59              | -                      | 89.65              | -                             | -                  | -                  | -                      | -                  |
| CFA1 | A501 Marylebone Road / Knox Street   | -                             | -                  | -                  | -                      | -                  | 51.5                          | -                  | -                  | -                      | 100.37             |
| CFA1 | A5200 Gray's Inn Road / A201 Swinton Street                                  | 85.43                         | -                  | -                  | -                      | 88.59              | -                             | -                  | -                  | -                      | -                  |
| CFA1 | A5204 Goodge Street / Charlotte Street                                       | -                             | -                  | -                  | -                      | -                  | 84.58                         | -                  | -                  | -                      | 88.6               |
| CFA1 | A5205 Prince Albert Road / A4201 Parkway                                     | -                             | -                  | -                  | -                      | -                  | 88.21                         | -                  | -                  | -                      | 91.47              |
| CFA1 | B506 Great Portland Street / New Cavendish Street                            | 85.48                         | -                  | 87.96              | -                      | -                  | -                             | -                  | -                  | -                      | -                  |
| CFA1 | Phoenix Road / Chalton Street  | 89.7                          | -                  | -                  | -                      | 93.99              | 83.7                          | 90.14              | 91.06              | 91.28                  | 92.56              |

SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA1)

| CFA  | Location   | AM peak hour (08:00 to 09:00) |                    |                    |                        |                    | PM peak hour (17:00 to 18:00) |                    |                    |                        |                    |
|------|--|-------------------------------|--------------------|--------------------|------------------------|--------------------|-------------------------------|--------------------|--------------------|------------------------|--------------------|
|      |  | 2021<br>baseline              | 2017<br>Scenario 1 | 2018<br>Scenario 2 | 2020<br>Scenario<br>3A | 2023<br>Scenario 3 | 2021<br>baseline              | 2017<br>Scenario 1 | 2018<br>Scenario 2 | 2020<br>Scenario<br>3A | 2023<br>Scenario 3 |
| CFA3 | A502 Haverstock Hill / England's Lane<br>(eastbound approach)  | 99.37                         | -                  | -                  | 103.45                 | 103.39             | 76.79                         | -                  | -                  | 100.5                  | 99.79              |
| CFA3 | A502 Haverstock Hill / England's Lane<br>(Southbound approach) | 102.14                        | -                  | -                  | 104.34                 | 104.47             | -                             | -                  | -                  | -                      | -                  |
| CFA3 | B517 Malden Road / Prince of Wales<br>Road                     | 88.77                         | 90.3               | -                  | 96.15                  | 95.59              | -                             | -                  | -                  | -                      | -                  |
| CFA3 | Gloucester Avenue / Oval Road<br>(westbound approach)          | 88.56                         | -                  | -                  | 95.08                  | 95.35              | 81.79                         | -                  | -                  | 95.31                  | 94.65              |
| CFA3 | Gloucester Avenue / Oval Road<br>(southbound approach)         | 66.78                         | -                  | -                  | 88.12                  | -                  | -                             | -                  | -                  | -                      | -                  |



Table 125: Scenario 4 - triggered junctions (VoC)

| CFA  | Location   | AM peak hour<br>(08:00 to 09:00) |                    | PM peak<br>(17:00 to 18:00) |                    |
|------|--|----------------------------------|--------------------|-----------------------------|--------------------|
|      |  | 2026<br>baseline                 | 2031<br>Scenario 4 | 2026<br>baseline            | 2031<br>Scenario 4 |
| CFA1 | A4200 Eversholt Street / Grafton Place             | 75.22                            | 88.21              | -                           | -                  |
| CFA1 | A501 Euston Road / Chalton Street                  | -                                | -                  | 74.35                       | 90.24              |
| CFA1 | A501 Euston Road / Duke's Road                     | -                                | -                  | 95.03                       | 97.7               |
| CFA1 | A501 Euston Road / Ossulston Street                | 84.63                            | 88.5               | -                           | -                  |
| CFA1 | A501 Marylebone Road / Baker Street                | 87.35                            | 89.79              | -                           | -                  |
| CFA1 | Phoenix Road / Chalton Street                      | -                                | -                  | 83.8                        | 89.87              |
| CFA1 | A4200 Eversholt Street / A400 Oakley Square        | 63.88                            | 87.9               | 85.02                       | 93.64              |
| CFA1 | A4201 Portland Place / Devonshire Street           | -                                | -                  | 95.34                       | 98.22              |
| CFA1 | A400 Gower Street / Torrington Place               | 94.77                            | 98.83              | 79.7                        | 99.5               |
| CFA1 | A400 Tottenham Court Road / Warren Street          | 77.55                            | 92.4               | 88.81                       | 102.44             |
| CFA1 | A501 Euston Road (westbound) / A400 Hampstead Road | 72.37                            | 85.3               | 81.81                       | 100.4              |
| CFA1 | A501 Euston Road / A4200 Eversholt Street          | 84.91                            | 91.04              | 75.98                       | 92.9               |
| CFA1 | A4200 Eversholt Street / A4200 Grafton Place       | 75.22                            | 88.21              | -                           | -                  |

### *Servicing*

#### **Euston station servicing**

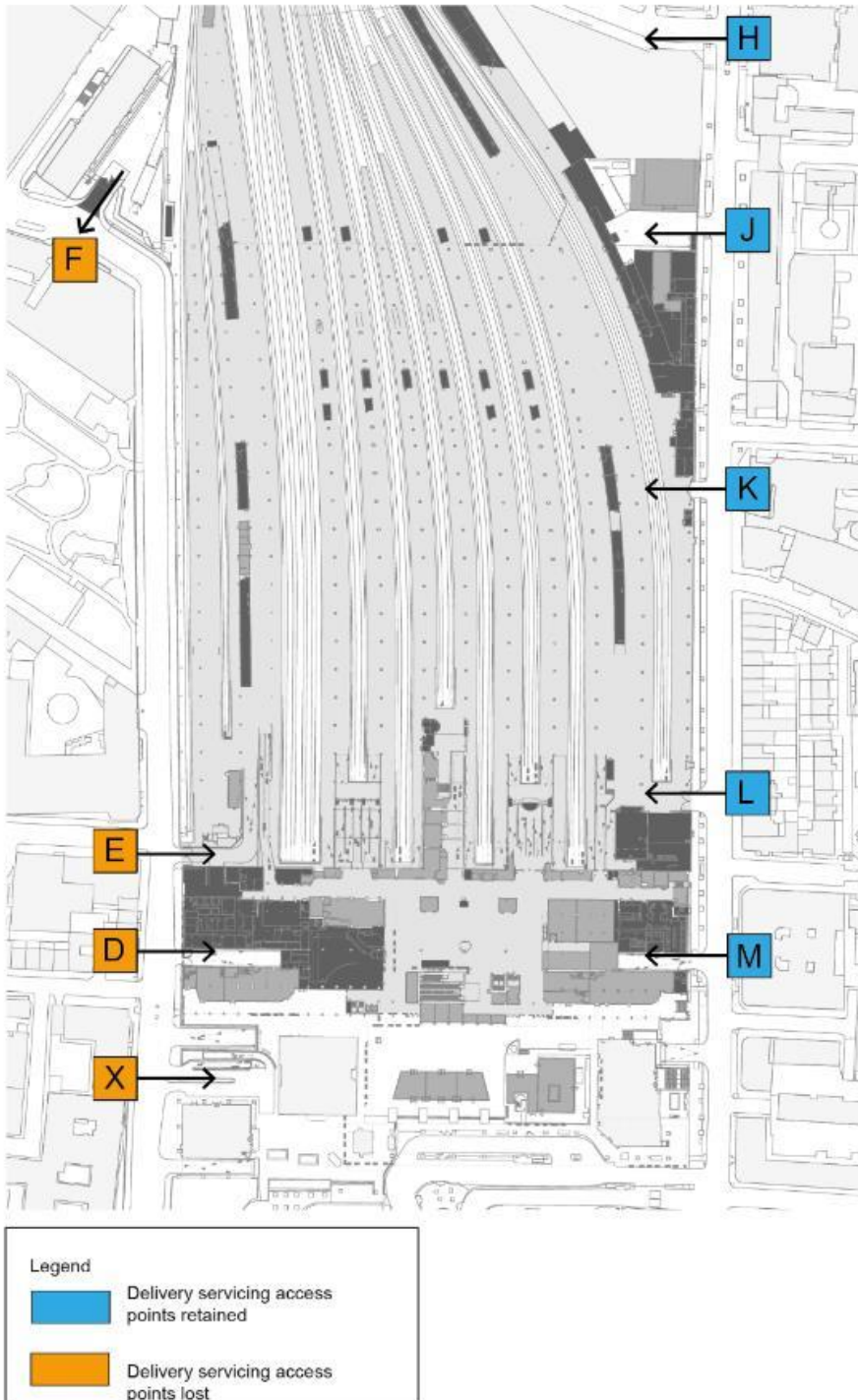
- 3.3.260 During construction, Euston station will continue to operate and will continue to generate freight and service vehicle movements that will need to be accommodated. However, as the construction progresses, the locations at which servicing will take place will change.
- 3.3.261 Between 2017 and 2026, construction Stage A works will affect the west side of the station. The servicing gates to be retained or lost as part of construction Stage A are shown on Figure 107. Construction Stage A works will result in the following operational facility closures as a result of the closure of Melton Street:
- exit ramp from the Parcels Deck to Cardington Street (Gate F);
  - access and exit ramps between the car park and taxi ramp on Melton Street;
  - exit ramp from the basement servicing area to Melton Street;

- access and exit ramp between platforms 16 to 18 and Melton Street (Gate E); and
- the small loading bay between 40 Melton Street and Grant Thornton House (Gate X).

3.3.262 The operational impacts of the construction Stage A works are as follows:

- deliveries currently using access Gates E and X will be redirected to either Gate M or to the Parcels Deck via a revised two-way access arrangement at Gate H;
- the closure of Gate D (which is currently exit only) will be mitigated by making Gate M a two-way access route using traffic control measures;
- the closure of Gate F (which is currently exit only) will be mitigated through the provision of the revised two-way access arrangement at Gate H; and
- the loading bay accessed through Gate M and the basement servicing area will not be impacted at this point in time. However, both access and egress would be via Gate M on A4200 Eversholt Street. The use of traffic management measures would be required to facilitate this, a procedure which has already been employed occasionally by NR and is therefore considered to be viable operationally.

Figure 107: Delivery servicing points



3.3.263 In addition, work on Platforms 8 to 11 will take place for a relatively short period of time, impacting some accommodation.

3.3.264 The closure of the loading bay between 40 Melton Street and Grant Thornton House will have a small impact on the servicing of some retail units on the piazza. Deliveries currently using this loading bay will be re-directed to Gate M with servicing taking place from the service basement.

3.3.265 Train servicing and other train operations will not be affected during this stage.

3.3.266 The closure of Melton Street will remove the collection point for LU waste. It is proposed that this is relocated to Gate L, accessed from A4200 Eversholt Street. The

waste management for the remainder of the conventional station will not be affected during this stage.

- 3.3.267 Between 2027 and 2033, the HS2 construction Stage B1 works move eastwards from the construction Stage A site, developing additional HS2 platforms and other facilities. This will result in the closure of platforms 14 to 18 including the internal ramp linking platforms 16 to 18 to the Parcels Deck. The HS2 Phase One operation facilities and accommodation will be available and operational.
- 3.3.268 The majority of deliveries to the HS2 station will access an at-grade logistics centre, north of the HS2 concourse area. Delivered items will be unloaded at loading bays within the logistics centre and taken by goods lift to the HS2 service basement below the HS2 platforms. From there service corridors will give access to train catering facilities and storage areas at basement level and to retail units and additional storage areas at concourse and upper levels utilising goods lifts.
- 3.3.269 Deliveries to the southern HS2 station accommodation and retail units will be made at-grade via a lay-by on Cobourg Street. Goods will be handled from the loading bay across Cobourg Street into a back of house area where it will be received by the tenants.
- 3.3.270 No additional access points within the remaining conventional station will be impacted during this stage.
- 3.3.271 The HS2 construction Stage A works will remove the existing ramped service vehicle exit from the basement to Melton Street. As a result, a large area of service vehicle circulation space will be lost in the basement. However, the basement can operate without the exit to Melton Street, with vehicles turning round within the basement then exiting via the entrance ramp to Eversholt Street using a two-way traffic control system. Therefore, the space lost does not need to be re-provided.
- 3.3.272 Vehicle circulation and loading bay space is also impacted on the Parcels Deck. It is proposed that the Parcels Deck will be re-configured to accommodate additional delivery and service vehicle parking and associated circulation space, to service the various activities which will be located there, including those which are proposed to be relocated as a result of construction impacts.
- 3.3.273 New HS2 train catering facilities will be located within the HS2 basement. Train catering carts for the HS2 trains will be moved to platform level using the platform goods lifts where they will be loaded on to the train. Empty carts will be removed using the reverse of this process. Train servicing for the conventional station will not be affected during this stage.
- 3.3.274 New HS2 retail and catering facilities will be located within the HS2 concourse and upper levels of the spine building and southern station accommodation block. Substantial retail areas, including retail units, storage and support space, will be lost in the conventional station during this stage. It is assumed that all of the impacted retail space will be re-provided. However, this will only happen as space becomes available, particularly as a result of construction compounds being dismantled.
- 3.3.275 A central waste area comprising compactors and waste bin storage will be located within the HS2 logistics centre. The conventional station waste management process will be unaffected during this stage.

## Local servicing

- 3.3.276 During the construction period, hoardings will be required around the perimeter of the worksites. Where these hoardings cut across existing roads, refuse vehicles will be required to either reverse along the road to continue their collection route or turn around using a multi-point manoeuvre. These multi-point manoeuvres will need to be discussed and agreed with LBC during subsequent design stages. Should LBC require alternative refuse collection provision to be made, these will be discussed with LBC. The refuse swept paths are shown in Figure 108.

Figure 108: Refuse collection vehicle access on Starcross Street, Drummond Street and Euston Street



## Accidents and safety

- 3.3.277 The construction of the revised scheme would result in an increase in the flow of traffic through certain junctions and on certain links, as outlined in the Highway Impacts section. The following links are expected to be subject to an increase in the potential risk of accidents:
- A501 Euston Road (between Churchway and Dukes Road);
  - A501 Euston Road/A400 Tottenham Court Road;
  - A501 Euston Road/A4200 Eversholt Street/A4200 Upper Woburn Place;
  - A4200 Eversholt Street/Lidlington Place;
  - A501 Euston Road/Pancras Road; and
  - A400 Hampstead Road/Drummond Street.
- 3.3.278 The increase in risk is associated with the expected changes in daily traffic flows compared to the future baseline flows, due to changes on the highway network, or

travel demands, as a result of construction traffic. It is generally accepted that, with increased traffic flows alongside an increase in pedestrian and cyclist activity on street, the risk of accidents is always present. Therefore, accident risk reviews are an ongoing remit to reduce accidents and risk.

- 3.3.279 Any worksites that are in the immediate vicinity of the above listed junctions will have the appropriate on street and road signs to alert drivers, pedestrians and cyclists to help reduce the risk of accidents at junctions near to construction worksites.

#### *Waterways and canals*

- 3.3.280 There are no canals or waterways within the study area for this CFA. Therefore there will be no operational impact on waterways and canals.

#### *Other mitigation measures*

- 3.3.281 Rail bus replacement services would be provided, as necessary, when rail possessions are in place.
- 3.3.282 While changes in traffic flows will lead to a substantial increase in delays to traffic, most signal junctions in central London are under adaptive control, such as SCOOT, which will optimise the signal stages in real time. Therefore, many of those junctions with an identified minor impact will be mitigated through adaptive control, although this is less effective where there is a substantial overall net increase in traffic through the junction.
- 3.3.283 Investigation will continue to establish whether movement of some excavated material by rail is feasible.

### 3.4 Camden Town (CFA2) and Primrose Hill to Kilburn (Camden) (CFA3) construction impact assessment

3.4.1 This section sets out the changes to the main TA relating to construction in CFA2 and CFA3. Sections of the main TA that remain unchanged are not repeated here.

3.4.2 An additional description of the design changes is presented below. This summarises the remaining and removed works within CFA2 and CFA3 including the impact of the Secretary of State's decision not to pursue the HS1-HS2 link. It also provides an overview of the revised Euston Station changes, in particular the phasing of works.

#### **Camden Town (CFA2) and Primrose Hill to Kilburn (CFA3) revised scheme description.**

3.4.3 The Bill provides for a link between HS1 and HS2. This includes a single-bore tunnel linking Old Oak Common station to the HS1- HS2 link portal located north-west of Primrose Hill (in CFA2). The HS1-HS2 link is entirely in tunnel within CFA3. The HS1-HS2 link was approximately 2.3km in length in CFA2 and located mainly on a viaduct. Since the submission of the Bill, the Secretary of State has decided not to pursue the HS1-HS2 link, and has given this commitment to Parliament.

3.4.4 As a result there will be no construction works in CFA2 apart from the railway reconfiguration related to the redevelopment of Euston Station in CFA1 from Parkway to Regent's Park Road Bridge and the use of the Juniper Crescent satellite compound to support these works. The proposed construction works facilitating the HS1-HS2 link will no longer be required. As a result within CFA2 only the Juniper Crescent worksite will be required under the revised scheme with the Camden Carriage Shed sidings worksite, and Adelaide Road and Alexandra Road vent shaft worksites in CFA3 unchanged.

3.4.5 It should be noted that the revised scheme for Euston Station will be constructed in two stages, the first to allow operation of HS2 Phase One services to commence in 2026 (following the completion of construction Stage A 2017 - 2026) and the second to provide additional platforms to allow for growth in services and to allow HS2 Phase Two services to commence in 2033 (following the completion of construction Stage B1 2026 - 2033). Six high speed platforms will be provided by 2026 and 11 by 2033.

#### **Camden Town (CFA2) and Primrose Hill to Kilburn (CFA3) Proposed Scheme construction description**

##### *Construction activities*

3.4.6 Paragraphs 6.5.2 to 6.5.10 and Figures 6-85 and 6-86 are deleted and replaced by:

“With the design change for Euston Station (CFA1) and removal of the HS1-HS2 link, the main impacts within CFA2 and CFA3 are those arising from construction traffic activity from CFA1 with limited impacts from the worksites within CFA2 and CFA3.

The revised construction phasing scenarios for CFA1 cover four distinct construction phases between 2017 and 2033 have been adopted for the purpose of the assessment of construction impacts in CFA2 and CFA3. These scenarios include:

### Stage A

- Scenario 1, 2017. This corresponds with advance works and utilities on the highway network together with around 24% of the peak construction traffic;
- Scenario 2, 2018. This also corresponds with advance works and utilities on the highway network together with around 49% of the peak construction traffic;
- Scenario 3A, 2020. This corresponds with the main station works together with around 27% of the peak construction traffic. It also includes the short-term highway works at Adelaide Road (CFA3).
- Scenario 3, 2023: this corresponds with the main station works together with one of the busiest construction traffic periods. It also includes the short-term highway works at Adelaide Road (CFA3); and

### Stage B1 (Construction and Operations 2026-2033)

- Scenario 4, 2031: this corresponds with the peak construction traffic associated with the construction of Stage B1 post opening of Stage A in 2026.”

### *Compounds and construction sites*

3.4.7 Paragraph 6.5.11 is replaced by:

“Within these CFAs construction activities will be undertaken at the Camden Carriage Shed sidings worksite, the Adelaide Road and Alexandra Road vent shaft worksites, and at the Juniper Crescent satellite worksite which will support the works related to the redevelopment of Euston Station in CFA1 from Parkway to Regent's Park Road Bridge. It is expected that construction activities at the Adelaide Road shaft site will result in temporary full road closures which will have a direct impact on traffic movements in the area. No other compounds or worksites are required in CFA2 and CFA3.”

3.4.8 Table 6-78 is revised to remove all compounds except Camden Carriage Shed, Adelaide Road and Alexandra Place. The HS1-HS2 link portal worksite is renamed as the Juniper Crescent Compound and the indicative start date, estimated duration of use and construction traffic estimates shown in Table 126 replace the corresponding information in Table 6-78.



Table 126 Camden and Primrose Hill to Kilburn typical vehicle trip generation for construction compounds

| Compound type                | Location                  | Access to/from compound | Indicative start / setup date | Estimated duration of use | Estimated duration with busy vehicle movements     | Average daily combined two-way vehicle trips during busy period and within peak month of activity |     |
|------------------------------|---------------------------|-------------------------|-------------------------------|---------------------------|--|---|-----|
|                              |                           |                         |                               |                           |  | Cars / LGV  | HGV |
| Main compound and facilities | Juniper Crescent Compound | Chalk Farm Road         | August 2016                   | 52 months                 | 15 months (2017-2018)<br><br>18 months (2032-2033) | 23.4  | 10  |

*Construction lorry routes*

3.4.9 Paragraphs 6.5.15-6.5.47 and figures 6-87 to 6-98 are deleted as a result of the removal of the HS1 – HS2 link and the following compounds:

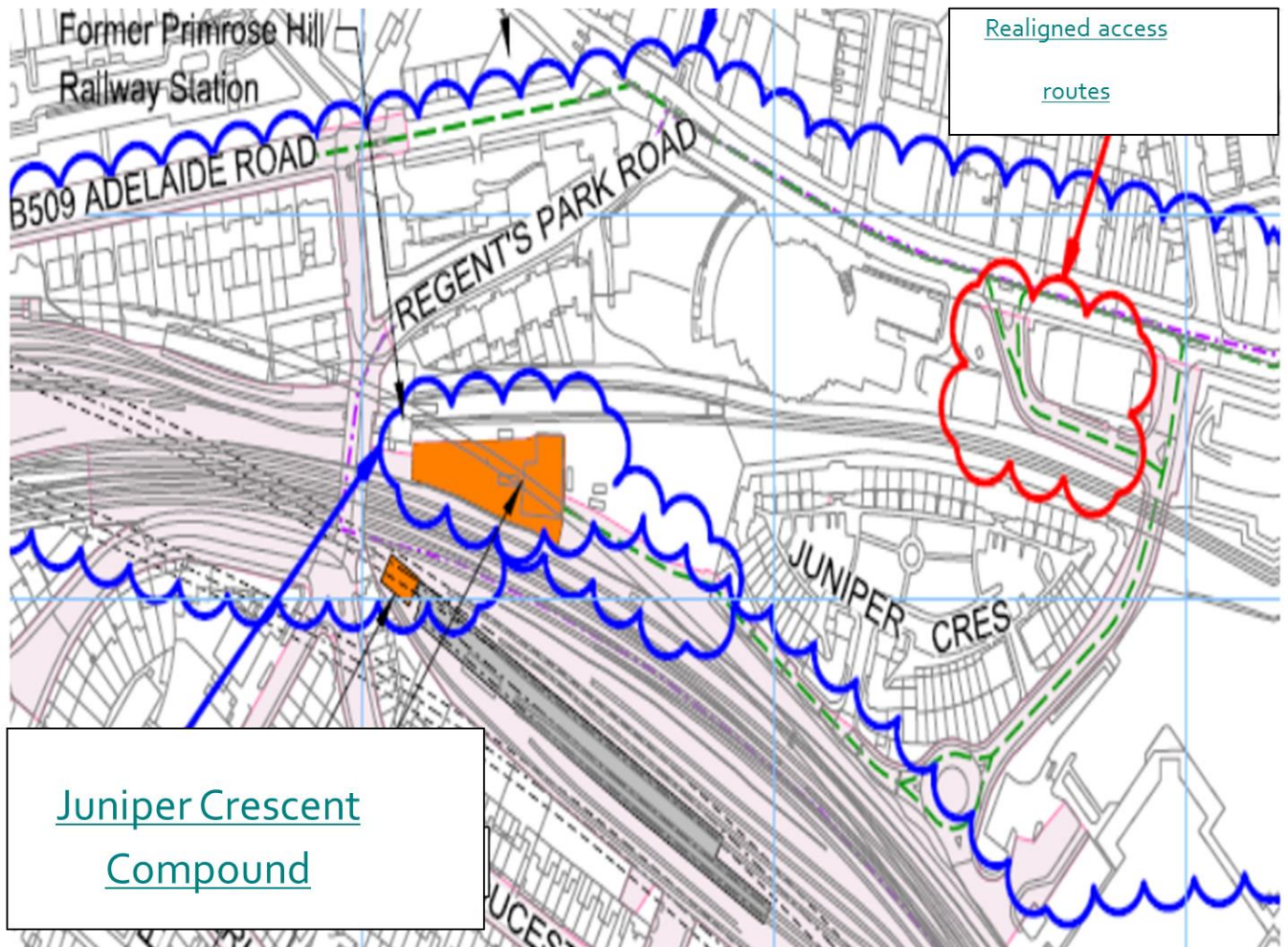
- Camley Street satellite compound
- St Pancras Way / Baynes Street satellite compound
- Randolph Street satellite compound
- Camden Road satellite compound
- Camden Road satellite compound
- Camden Road station viaduct satellite compound
- Camden Street bridge satellite compound
- North London Line viaduct compound
- Chalk Farm viaduct compound
- Chalk Farm Road satellite compound

3.4.10 The heading before paragraph 6.5.48 is renamed and paragraph 6.5.48 and Figure 6-99 are replaced by:

**“Juniper Crescent Compound**

3.4.11 HGV access to and egress from the Juniper Crescent worksite will be via Chalk Farm Road and Morrison’s access road as shown in Figure 109.”

Figure 109: Juniper Crescent compound



### Adelaide Road vent shaft satellite compound

- 3.4.12 The reference to the HS1-HS2 Link tunnel is deleted from paragraph 6.5.49 following the removal of the HS1-HS2 link.

### *Traffic Management, Road Closures and Diversions*

- 3.4.13 Paragraphs 6.5.59 to 6.5.66, Tables 6-79 to 6-83 and Figures 6-103 to 6-107 in the main TA described the road closures and diversions that would be required around five worksites (St Pancras Way and Baynes Street (north and south), Randolph Street (north), Camden Road (north), Camden Road (south) and Chalk Farm Road Bridge to facilitate bridge replacement works for the HS1-HS2 Link. This section including the above paragraphs, tables and figures is deleted due to the removal of the HS1-HS2 link.

### Alexandra Place worksite (CFA3)

- 3.4.14 An additional sentence is added at the end of paragraph 6.5.71 to clarify the proposal in the main TA:
- “During construction of the Alexandra Place worksite a temporary ramp would be constructed to provide replacement wheelchair access from Loudoun Road to Rowley Way.”

## **Camden Town (CFA2) and Primrose Hill to Kilburn (CFA3) construction impacts**

### *Key construction transport issues*

3.4.15 Paragraph 6.5.79 is replaced by:

“The construction period for the whole route is programmed for 2017 to 2026 for Stage A and 2026-2031 for Stage B1. The base years for the assessment of impacts in the two construction stages are 2021 and 2026, respectively. The forecast peak construction activities have then been overlaid on the 2021 and 2026 baselines with, as relevant, overlapping activities considered in combination.”

3.4.16 Paragraph 6.5.80 is replaced by:

“The main impacts during the construction phases relate to changes to the highway network due to partial or full road closures and other restrictions which will affect highway vehicles, buses, taxis, cyclists and pedestrians arising due to design change within CFA1 and construction activity within CFA2-3.”

3.4.17 The last sentence of paragraph 6.5.81 which referred to HGV movements from the main construction compounds forming a relatively small proportion of overall traffic flows is deleted following the removal of the HS1-HS2 Link.

3.4.18 The second sentence of paragraph 6.5.82 which referred to the movement of excavated material via the HS1-HS2 link portal main compound is deleted due to the removal of the HS1-HS2 link.

### *Strategic and local road network traffic flows*

3.4.19 Paragraph 6.5.85 is replaced by:

“In order to assess the different combinations of enabling works, utility diversions and construction lorry movements through the construction programme, the impacts have been considered for the four distinct temporal phases adopted for CFA1.”

3.4.20 Paragraph 6.5.87 should be deleted. The flows on key roads in CFA2 and CFA3, comparing 2021 baseline flows with 2021 construction case flows for the three Stage A test scenarios and 2026 baseline flows with 2031 construction case flows for the Stage B1 test scenario are included in the summary tables for CFA1 construction (section 3.3).

3.4.21 Paragraph 6.5.88 is replaced by:

“Construction of the revised scheme will result in changes in traffic flows and delays to vehicle users in the area due to increased traffic flows from construction activity in the neighbouring CFA1 in addition to diversionary impacts of the closure of Adelaide Road.”

3.4.22 Paragraph 6.5.91 is deleted. Within CFA2 and CFA3, the Camden screenlines are particularly relevant. The 2012, 2021 and 2026 baseline flows for the Camden screenline are reported in Table 40 and Table 41 in section 3.2 of this report. The 2021 and 2026 baseline flows are also included in the construction scenario tabulations in the next section.

*Camden town (CFA2) and Primrose Hill to Kilburn (Camden) (CFA3) highway impacts*

- 3.4.23 Information regarding changes to the highway impacts reported in the hybrid Bill for construction Scenarios 1, 2 and 3 (paragraphs 6.5.93 and 6.5.104 of the main TA), is included earlier in this report in section 3.3 as follows:
- AM and PM peak baseline vs construction Scenarios 1, 2, 3A, 3 and 4 flow plots are presented in Figure 96 to Figure 105.
  - AM and PM baseline vs construction scenario link flow comparisons across the Camden screenline in CFA2 are presented in:
    - Scenario 1            Table 90 and Table 91
    - Scenario 2            Table 98 and Table 99
    - Scenario 3A           Table 106 and Table 107
    - Scenario 3            Table 110 and Table 111
    - Scenario 4            Table 118 and Table 119
- 3.4.24 Figures 6-109 to 6-114 are replaced by Figure 96 to Figure 105, Tables 6-85 to 6-94 are replaced by the Table 127 and Table 128, and paragraphs 6.5.93-6.5.104 are deleted.
- 3.4.25 In addition to the screenline comparisons presented in the main TA, further information on links that will experience substantial increases in traffic flows are outlined for: Scenario 1 (Table 94 and Table 95), Scenario 2 (Table 102 and Table 103), Scenario 3 (Table 114 and Table 115) and Scenario 4 (Table 122 and Table 123).
- 3.4.26 For ease of reference, additional summary tables are set out below providing a combined comparison of AM and PM peak hour baseline and the five construction scenario flows on the Camden screenline. Two new tables, Table 127 and Table 128, provide AM and PM 2021 and 2026 baseline flows and flows for the five construction scenarios on roads crossing the Camden screenline are included in this section.

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Table 127: Camden screenline future baseline and construction scenario traffic flows AM peak hour (08:00 to 09:00)

| Location  | Direction  | 2021 baseline | Scenario 1 2017 | Scenario 2 2018 | Scenario 3A 2020 | Scenario 3 2023 | 2026 baseline | Scenario 4 2032 |
|---|------------|---------------|-----------------|-----------------|------------------|-----------------|---------------|-----------------|
| A5203 Caledonian Road (south of Wheelwright Road) | Northbound | 657           | 658             | 660             | 660              | 663             | 651           | 654             |
|   | Southbound | 99            | 818             | 820             | 793              | 811             | 815           | 807             |
| A5200 York Way (north of Vale Road)               | Northbound | 257           | 261             | 258             | 260              | 266             | 251           | 252             |
|   | Southbound | 499           | 506             | 506             | 496              | 503             | 484           | 490             |
| A5202 St Pancras Way (north of Baynes Street)     | Southbound | 845           | 856             | 874             | 880              | 844             | 861           | 834             |
| Randolph Street (East of Royal College Street)    | Eastbound  | 93            | 92              | 93              | 103              | 113             | 99            | 109             |
| Royal College Street (south of Camden Rd)         | Northbound | 741           | 713             | 768             | 768              | 751             | 742           | 713             |
| A503 Camden Road (south of Royal College St)      | Northbound | 462           | 485             | 435             | 412              | 428             | 457           | 483             |
|   | Southbound | 886           | 855             | 847             | 845              | 894             | 879           | 916             |
| A400 Camden Street (south of Camden Gardens)      | Southbound | 953           | 1001            | 984             | 868              | 832             | 947           | 942             |
| A400 Kentish Town Road (south of Camden Gardens)  | Northbound | 350           | 302             | 298             | 334              | 355             | 324           | 325             |
|   | Southbound | 447           | 454             | 449             | 377              | 377             | 442           | 445             |

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| Location   | Direction  | 2021 baseline | Scenario 1 2017 | Scenario 2 2018 | Scenario 3A 2020 | Scenario 3 2023 | 2026 baseline | Scenario 4 2032 |
|--|------------|---------------|-----------------|-----------------|------------------|-----------------|---------------|-----------------|
| Hawley Road  | Northbound | 789           | 842             | 836             | 742              | 700             | 799           | 797             |
| A502 Chalk Farm Road<br>(west of Hawley Street)      | Northbound | 413           | 436             | 422             | 273              | 277             | 402           | 401             |
|  | Southbound | 598           | 608             | 610             | 455              | 442             | 596           | 597             |
| Primrose Hill Road<br>(south of Adelaide Road)       | Northbound | 305           | 330             | 290             | 265              | 270             | 299           | 291             |
|  | Southbound | 765           | 602             | 599             | 840              | 798             | 767           | 752             |
| Avenue Road (south of<br>B509 Adelaide Road)         | Northbound | 192           | 201             | 193             | 192              | 192             | 189           | 189             |
|  | Southbound | 93            | 123             | 163             | 101              | 123             | 95            | 96              |
| A41 Finchley Road<br>(south of B503 Adelaide Road)   | Northbound | 405           | 412             | 413             | 399              | 409             | 394           | 397             |
|  | Southbound | 582           | 686             | 640             | 618              | 622             | 588           | 590             |
| Loudoun Road (south of<br>Alexandra Place)           | Northbound | 438           | 444             | 447             | 480              | 484             | 420           | 430             |
|  | Southbound | 226           | 213             | 226             | 207              | 222             | 236           | 238             |
| A507 Abbey Road<br>(south of B509 Belsize Road)      | Northbound | 230           | 219             | 215             | 238              | 225             | 221           | 221             |
|  | Southbound | 416           | 429             | 432             | 390              | 398             | 407           | 408             |
| A5 Kilburn High Road<br>(south of B509 Belsize Road) | Northbound | 614           | 640             | 637             | 615              | 619             | 594           | 594             |
|  | Southbound | 920           | 919             | 913             | 912              | 917             | 912           | 914             |

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Table 128: Camden screenline future baseline and construction scenario traffic flows PM peak hour (17:00 to 18:00)

| Location  | Direction  | 2021 baseline | Scenario 1 2017 | Scenario 2 2018 | Scenario 3A 2020 | Scenario 3 2023 | 2026 baseline | Scenario 4 2032 |
|---|------------|---------------|-----------------|-----------------|------------------|-----------------|---------------|-----------------|
| A5203 Caledonian Road (south of Wheelwright Road) | Northbound | 554           | 553             | 554             | 555              | 553             | 548           | 550             |
|   | Southbound | 727           | 724             | 727             | 719              | 728             | 737           | 737             |
| A5200 York Way (north of Vale Road)               | Northbound | 364           | 365             | 366             | 375              | 395             | 347           | 373             |
|   | Southbound | 335           | 338             | 339             | 339              | 340             | 310           | 336             |
| A5202 St Pancras Way (north of Baynes Street)     | Southbound | 589           | 587             | 599             | 605              | 579             | 592           | 559             |
| Randolph Street (East of Royal College Street)    | Eastbound  | 285           | 264             | 264             | 257              | 275             | 292           | 278             |
| Royal College Street (south of Camden Rd)         | Northbound | 642           | 662             | 694             | 713              | 687             | 626           | 607             |
| A503 Camden Road (south of Royal College St)      | Northbound | 705           | 670             | 637             | 605              | 624             | 687           | 677             |
|   | Southbound | 619           | 609             | 611             | 607              | 629             | 616           | 629             |
| A400 Camden Street (south of Camden Gardens)      | Southbound | 795           | 822             | 797             | 698              | 662             | 774           | 751             |
| A400 Kentish Town Road (south of Camden Gardens)  | Northbound | 392           | 365             | 351             | 393              | 411             | 387           | 380             |
|   | Southbound | 303           | 296             | 299             | 256              | 261             | 298           | 298             |

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| Location   | Direction  | 2021 baseline | Scenario 1 2017 | Scenario 2 2018 | Scenario 3A 2020 | Scenario 3 2023 | 2026 baseline | Scenario 4 2032 |
|--|------------|---------------|-----------------|-----------------|------------------|-----------------|---------------|-----------------|
| Hawley Road  | Northbound | 540           | 579             | 576             | 563              | 513             | 531           | 532             |
| A502 Chalk Farm Road<br>(west of Hawley Street)      | Northbound | 524           | 575             | 537             | 278              | 272             | 516           | 510             |
|  | Southbound | 274           | 270             | 271             | 220              | 208             | 269           | 275             |
| Primrose Hill Road<br>(south of Adelaide Road)       | Northbound | 295           | 246             | 282             | 381              | 378             | 294           | 284             |
|  | Southbound | 667           | 558             | 567             | 790              | 804             | 656           | 656             |
| Avenue Road (south of<br>B509 Adelaide Road)         | Northbound | 182           | 169             | 179             | 195              | 186             | 181           | 181             |
|  | Southbound | 80            | 109             | 146             | 75               | 69              | 75            | 74              |
| A41 Finchley Road<br>(south of B503 Adelaide Road)   | Northbound | 404           | 401             | 409             | 408              | 407             | 370           | 368             |
|  | Southbound | 541           | 584             | 550             | 551              | 553             | 511           | 514             |
| Loudoun Road (south<br>of Alexandra Place)           | Northbound | 541           | 555             | 551             | 561              | 561             | 561           | 565             |
|  | Southbound | 91            | 96              | 95              | 83               | 85              | 91            | 91              |
| A507 Abbey Road<br>(south of B509 Belsize Road)      | Northbound | 348           | 350             | 351             | 355              | 357             | 342           | 353             |
|  | Southbound | 284           | 290             | 285             | 293              | 294             | 276           | 275             |
| A5 Kilburn High Road<br>(south of B509 Belsize Road) | Northbound | 593           | 604             | 604             | 604              | 596             | 586           | 588             |
|  | Southbound | 652           | 663             | 663             | 649              | 660             | 620           | 625             |



3.4.27 Changes in flows in CFA2 and CFA3 between the future baseline and each construction scenario are small with total screenline flows changing by around 1% for Scenarios 1 and 2 in 2017 and 2018, respectively, less than 5% for Scenarios 3A and 3 in 2020 and 2023, respectively, and less than 1% for Scenario 4 in 2031 for both the AM and PM peak hours. The only roads with a larger change are:

- Scenario 1 2017 – flows on Primrose Hill Road decrease by around 160 and 100 vehicles per hour (vph) westbound in the AM and PM peak, respectively, due to the closure of Prince Albert Road;
- Scenario 2 2018 – flows on Primrose Hill Road decrease by around 160 and 100 vph westbound in the AM and PM peak, respectively, due to the closure of Parkway;
- Scenario 3A 2020 – flows on Chalk Farm Road decrease by around 140 vph in both directions in the AM and by around 250 vph southbound in the PM peak due to the Adelaide Road closure; and
- Scenario 3 2023 – flows on Chalk Farm Road decrease by around 140 vph in both directions in the AM and by around 250 vph southbound in the PM peak due to the Adelaide Road closure.

3.4.28 There are no notable changes on any road across the Camden screenline in the 2031 scenario.

*Camden town (CFA2) and Primrose Hill to Kilburn (Camden) (CFA3) junction performance*

3.4.29 The following sections and tables set out the impact of the five construction scenarios at individual junctions and replace paragraphs 6.5.106-6.5.120 and Tables 6.97 to 6.111 in the main TA. It can be seen from these tables that construction traffic has little impact on these junctions following the removal of the HS1-HS2 link.

**York Way / Market Road**

3.4.30 Table 129 and Table 130 show the performance of the junction under five construction scenarios alongside the 2021 and 2026 Baseline. For all scenarios, 2017, 2018, 2020, 2023 should be compared against the 2021 baseline and 2031 compared against the 2026 baseline. It can be seen that the impacts on this junction are relatively small and that the junction operates within capacity in all scenarios.

Table 129: Construction impact at York Way / Market Road junction (roundabout) – AM Peak

|               | Baseline (2021) |         |                 | Scenario 1 (2017) |         |                 | Scenario 2 (2018) |         |                 | Scenario 3A (2020) |         |                 |
|---------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|--------------------|---------|-----------------|
|               | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| 08:00 - 09:00 |                 |         |                 |                   |         |                 |                   |         |                 |                    |         |                 |
| York Way (SB) | 830             | 84      | 0               | 840               | 85      | 0               | 840               | 85      | 0               | 837                | 85      | 0               |
| Market Road   | 261             | 38      | 0               | 264               | 38      | 0               | 262               | 38      | 0               | 255                | 37      | 0               |
| York Way (NB) | 201             | 22      | 0               | 202               | 22      | 0               | 200               | 22      | 0               | 208                | 23      | 0               |

|               | Baseline (2021) |         |                 | Scenario 3 (2023) |         |                 | Baseline (2026) |         |                 | Scenario 4 (2031) |         |                 |
|---------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-----------------|---------|-----------------|-------------------|---------|-----------------|
| 08:00 – 09:00 | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) |
| York Way (SB) | 830             | 84      | 0               | 836               | 85      | 0               | 822             | 82      | 0               | 824               | 83      | 0               |
| Market Road   | 261             | 38      | 0               | 253               | 37      | 0               | 266             | 38      | 0               | 264               | 38      | 0               |
| York Way (NB) | 201             | 22      | 0               | 223               | 24      | 0               | 192             | 21      | 0               | 202               | 22      | 0               |

Table 130: Construction impact at York Way / Market Road junction (roundabout) – PM Peak

|               | Baseline (2021) |         |                 | Scenario 1 (2017) |         |                 | Scenario 2 (2018) |         |                 | Scenario 3A (2020) |         |                 |
|---------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|--------------------|---------|-----------------|
| 17:00 – 18:00 | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| York Way (SB) | 558             | 49      | 0               | 559               | 48      | 0               | 567               | 49      | 0               | 565                | 49      | 0               |
| Market Road   | 239             | 29      | 0               | 237               | 28      | 0               | 236               | 28      | 0               | 232                | 28      | 0               |
| York Way (NB) | 464             | 45      | 0               | 451               | 45      | 0               | 449               | 44      | 0               | 462                | 46      | 0               |

|               | Baseline (2021) |         |                 | Scenario 3 (2023) |         |                 | Baseline (2026) |         |                 | Scenario 4 (2031) |         |                 |
|---------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-----------------|---------|-----------------|-------------------|---------|-----------------|
| 17:00 – 18:00 | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) |
| York Way (SB) | 558             | 49      | 0               | 561               | 50      | 0               | 552             | 48      | 0               | 570               | 51      | 0               |
| Market Road   | 239             | 29      | 0               | 230               | 28      | 0               | 238             | 28      | 0               | 235               | 28      | 0               |
| York Way (NB) | 464             | 45      | 0               | 494               | 49      | 0               | 443             | 43      | 0               | 463               | 45      | 0               |

### Pentonville Road / Penton Street / Claremont Square

3.4.31 Table 131 and Table 132 show the performance of the junction under the five construction scenarios alongside the 2021 and 2026 Baseline. Whilst this junction operates close to capacity, with Pentonville Road (WB) over capacity for all scenarios in the AM peak, construction traffic has no material impact on the operation of this junction over and above baseline conditions. Other arms of the junction operate well below capacity, and there is scope for some re-balancing of signal timings, carried out automatically by SCOOT.

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Table 131: Construction impact at Pentonville Road / Penton Street / Claremont Square junction (signals) – AM Peak

|                       | Baseline (2021) |         |                 | Scenario 1 (2017) |         |                 | Scenario 2 (2018) |         |                 | Scenario 3A (2020) |         |                 |
|-----------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|--------------------|---------|-----------------|
| 08:00 - 09:00         | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Penton Street         | 288             | 80      | 3               | 288               | 81      | 3               | 290               | 81      | 3               | 289                | 81      | 3               |
| Pentonville Road (WB) | 986             | 101     | 13              | 986               | 101     | 13              | 986               | 101     | 14              | 986                | 101     | 13              |
| Claremont Square      | 83              | 27      | 1               | 83                | 28      | 1               | 83                | 28      | 1               | 83                 | 28      | 1               |
| Pentonville Road (EB) | 1387            | 84      | 8               | 1381              | 84      | 8               | 1387              | 84      | 8               | 1384               | 84      | 8               |
|                       | Baseline (2021) |         |                 | Scenario 3 (2023) |         |                 | Baseline (2026)   |         |                 | Scenario 4 (2031)  |         |                 |
| 08:00 – 09:00         | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Penton Street         | 288             | 80      | 3               | 288               | 81      | 3               | 280               | 78      | 3               | 282                | 79      | 3               |
| Pentonville Road (WB) | 986             | 101     | 13              | 986               | 101     | 13              | 986               | 101     | 14              | 986                | 101     | 12              |
| Claremont Square      | 83              | 27      | 1               | 83                | 27      | 1               | 83                | 28      | 1               | 82                 | 28      | 1               |
| Pentonville Road (EB) | 1387            | 84      | 8               | 1382              | 84      | 8               | 1390              | 84      | 8               | 1391               | 85      | 8               |

Table 132: Construction impact at Pentonville Road / Penton Street / Claremont Square junction (signals) – PM Peak

|                       | Baseline (2021) |         |                 | Scenario 1 (2017) |         |                 | Scenario 2 (2018) |         |                 | Scenario 3A (2020) |         |                 |
|-----------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|--------------------|---------|-----------------|
| 17:00 - 18:00         | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Penton Street         | 191             | 64      | 2               | 191               | 64      | 2               | 191               | 64      | 1               | 191                | 64      | 2               |
| Pentonville Road (WB) | 932             | 86      | 5               | 930               | 86      | 5               | 936               | 86      | 5               | 932                | 86      | 5               |
| Claremont Square      | 209             | 91      | 1               | 209               | 91      | 1               | 211               | 91      | 1               | 211                | 91      | 1               |
| Pentonville Road (EB) | 1287            | 71      | 6               | 1267              | 70      | 6               | 1268              | 70      | 6               | 1270               | 70      | 6               |

|                       | Baseline (2021) |         |                 | Scenario 3 (2023) |         |                 | Baseline (2026) |         |                 | Scenario 4 (2031) |         |                 |
|-----------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-----------------|---------|-----------------|-------------------|---------|-----------------|
|                       | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) |
| 17:00 – 18:00         |                 |         |                 |                   |         |                 |                 |         |                 |                   |         |                 |
| Penton Street         | 191             | 64      | 2               | 191               | 64      | 1               | 189             | 63      | 2               | 189               | 63      | 1               |
| Pentonville Road (WB) | 932             | 86      | 5               | 935               | 86      | 5               | 942             | 87      | 6               | 948               | 87      | 6               |
| Claremont Square      | 209             | 91      | 1               | 210               | 91      | 1               | 210             | 91      | 1               | 210               | 91      | 1               |
| Pentonville Road (EB) | 1287            | 71      | 6               | 1292              | 71      | 6               | 1294            | 71      | 6               | 1292              | 71      | 6               |

### Royal College Street / Camden Road

3.4.32 Table 133 and Table 134 show the performance of the junction under five construction scenarios alongside the 2021 and 2026 Baseline. It can be seen that in all construction scenarios there is a change in flows on all arms for both the AM and PM peak hours, but the impacts on junction operation are relatively small and the junction operates within capacity in all scenarios for both the AM and PM peak hours.

Table 133: Construction impact at Royal College Street / Camden Road (signals) – AM Peak

|                      | Baseline (2021) |         |                 | Scenario 1 (2017) |         |                 | Scenario 2 (2018) |         |                 | Scenario 3A (2020) |         |                 |
|----------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|--------------------|---------|-----------------|
|                      | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| 08:00 - 09:00        |                 |         |                 |                   |         |                 |                   |         |                 |                    |         |                 |
| Camden Road (SB)     | 842             | 67      | 4               | 810               | 65      | 4               | 800               | 64      | 4               | 794                | 64      | 3               |
| Royal College Street | 814             | 64      | 1               | 790               | 61      | 1               | 849               | 64      | 1               | 854                | 67      | 1               |
| Camden Road (NB)     | 522             | 36      | 2               | 543               | 38      | 2               | 489               | 33      | 1               | 467                | 33      | 2               |
|                      | Baseline (2021) |         |                 | Scenario 3 (2023) |         |                 | Baseline (2026)   |         |                 | Scenario 4 (2031)  |         |                 |
|                      | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| 08:00 – 09:00        |                 |         |                 |                   |         |                 |                   |         |                 |                    |         |                 |
| Camden Road (SB)     | 842             | 67      | 4               | 853               | 68      | 4               | 835               | 67      | 4               | 876                | 70      | 4               |
| Royal College Street | 814             | 64      | 1               | 824               | 64      | 1               | 813               | 64      | 1               | 785                | 63      | 1               |
| Camden Road (NB)     | 522             | 36      | 2               | 493               | 35      | 2               | 518               | 36      | 1               | 548                | 38      | 2               |

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Table 134: Construction impact at Royal College Street / Camden Road (signals) – PM Peak

|                      | Baseline (2021) |         |                 | Scenario 1 (2017) |         |                 | Scenario 2 (2018) |         |                 | Scenario 3A (2020) |         |                 |
|----------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|--------------------|---------|-----------------|
| 17:00 - 18:00        | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Camden Road (SB)     | 562             | 45      | 3               | 555               | 44      | 3               | 556               | 44      | 3               | 554                | 44      | 3               |
| Royal College Street | 669             | 53      | 1               | 691               | 52      | 1               | 730               | 52      | 1               | 749                | 52      | 1               |
| Camden Road (NB)     | 760             | 56      | 4               | 723               | 53      | 3               | 688               | 51      | 3               | 657                | 48      | 4               |
|                      | Baseline (2021) |         |                 | Scenario 3 (2023) |         |                 | Baseline (2026)   |         |                 | Scenario 4 (2031)  |         |                 |
| 17:00 - 18:00        | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Camden Road (SB)     | 562             | 45      | 3               | 580               | 46      | 3               | 560               | 45      | 3               | 577                | 46      | 3               |
| Royal College Street | 669             | 53      | 1               | 715               | 51      | 1               | 653               | 53      | 1               | 635                | 52      | 1               |
| Camden Road (NB)     | 760             | 56      | 4               | 683               | 50      | 4               | 742               | 55      | 4               | 733                | 54      | 4               |

**Chalk Farm Road / Castlehaven Road**

3.4.33 Table 135 and Table 136 show the performance of the junction under five construction scenarios alongside the 2021 and 2026 Baseline. In all scenarios this junction is operating within capacity.

Table 135: Construction impact at Chalk Farm Road / Castlehaven Road (signals) – AM Peak

|                              | Baseline (2021) |         |                 | Scenario 1 (2017) |         |                 | Scenario 2 (2018) |         |                 | Scenario 3A (2020) |         |                 |
|------------------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|--------------------|---------|-----------------|
| 08:00 - 09:00                | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| A502 Camden High Street (NB) | 657             | 31      | 0               | 725               | 36      | 0               | 701               | 34      | 0               | 612                | 44      | 1               |
| A502 Chalk Farm Road (SB)    | 718             | 96      | 2               | 731               | 97      | 2               | 730               | 97      | 2               | 576                | 77      | 1               |

|                              | Baseline (2021) |         |                 | Scenario 3 (2023) |         |                 | Baseline (2026) |         |                 | Scenario 4 (2031) |         |                 |
|------------------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-----------------|---------|-----------------|-------------------|---------|-----------------|
|                              | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) |
| 08:00 - 09:00                |                 |         |                 |                   |         |                 |                 |         |                 |                   |         |                 |
| A502 Camden High Street (NB) | 657             | 31      | 0               | 585               | 38      | 1               | 657             | 30      | 0               | 652               | 30      | 0               |
| A502 Chalk Farm Road (SB)    | 718             | 96      | 2               | 563               | 75      | 1               | 714             | 95      | 2               | 715               | 95      | 2               |

Table 136: Construction impact at Chalk Farm Road / Castlehaven Road (signals) – PM Peak

|                              | Baseline (2021) |         |                 | Scenario 1 (2017) |         |                 | Scenario 2 (2018) |         |                 | Scenario 3A (2020) |         |                 |
|------------------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|--------------------|---------|-----------------|
|                              | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| 17:00 - 18:00                |                 |         |                 |                   |         |                 |                   |         |                 |                    |         |                 |
| A502 Camden High Street (NB) | 844             | 47      | 4               | 939               | 51      | 1               | 896               | 38      | 1               | 690                | 42      | 1               |
| A502 Chalk Farm Road (SB)    | 375             | 101     | 0               | 375               | 102     | 7               | 375               | 102     | 6               | 333                | 89      | 1               |

|                              | Baseline (2021) |         |                 | Scenario 3 (2023) |         |                 | Baseline (2026) |         |                 | Scenario 4 (2031) |         |                 |
|------------------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-----------------|---------|-----------------|-------------------|---------|-----------------|
|                              | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) |
| 17:00 - 18:00                |                 |         |                 |                   |         |                 |                 |         |                 |                   |         |                 |
| A502 Camden High Street (NB) | 844             | 47      | 4               | 644               | 36      | 0               | 829             | 47      | 0               | 819               | 46      | 0               |
| A502 Chalk Farm Road (SB)    | 375             | 101     | 0               | 322               | 86      | 1               | 375             | 100     | 2               | 375               | 101     | 3               |

### Kentish Town Road / Hawley Crescent

3.4.34 Table 137 and Table 138 show the performance of the junction under five construction scenarios alongside the 2021 and 2026 Baseline. Flows and degrees of saturation both increase and decrease in the morning and evening peak periods on all arms depending on the scenario, but the junction operates within capacity for the morning and evening peaks for all scenarios.

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Table 137: Construction impact at Kentish Town Road / Hawley Crescent (signals) – AM Peak

|                        | Baseline (2021) |         |                 | Scenario 1 (2017) |         |                 | Scenario 2 (2018) |         |                 | Scenario 3A (2020) |         |                 |
|------------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|--------------------|---------|-----------------|
| 08:00 – 09:00          | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Kentish Town Road (SB) | 652             | 46      | 1               | 651               | 48      | 1               | 640               | 46      | 1               | 627                | 49      | 1               |
| Kentish Town Road (NB) | 390             | 56      | 1               | 342               | 49      | 0               | 338               | 48      | 0               | 372                | 53      | 0               |
| A502 Hawley Road       | 888             | 46      | 3               | 946               | 50      | 3               | 930               | 49      | 3               | 749                | 39      | 3               |
|                        | Baseline (2021) |         |                 | Scenario 3 (2023) |         |                 | Baseline (2026)   |         |                 | Scenario 4 (2031)  |         |                 |
| 08:00 – 09:00          | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Kentish Town Road (SB) | 652             | 46      | 1               | 616               | 47      | 2               | 640               | 46      | 1               | 634                | 46      | 1               |
| Kentish Town Road (NB) | 390             | 56      | 1               | 398               | 57      | 1               | 364               | 52      | 0               | 363                | 52      | 6               |
| A502 Hawley Road       | 888             | 46      | 3               | 724               | 37      | 2               | 890               | 47      | 3               | 893                | 47      | 5               |

Table 138: Construction impact at Kentish Town Road / Hawley Crescent (signals) – PM Peak

|                        | Baseline (2021) |         |                 | Scenario 1 (2017) |         |                 | Scenario 2 (2018) |         |                 | Scenario 3A (2020) |         |                 |
|------------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|--------------------|---------|-----------------|
| 17:00 - 18:00          | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Kentish Town Road (SB) | 471             | 28      | 1               | 473               | 29      | 1               | 460               | 27      | 1               | 427                | 28      | 1               |
| Kentish Town Road (NB) | 426             | 49      | 0               | 398               | 46      | 0               | 382               | 44      | 0               | 424                | 49      | 0               |
| A502 Hawley Road       | 707             | 49      | 3               | 730               | 52      | 3               | 732               | 51      | 3               | 609                | 42      | 3               |
|                        | Baseline (2021) |         |                 | Scenario 3 (2023) |         |                 | Baseline (2026)   |         |                 | Scenario 4 (2031)  |         |                 |
| 17:00 - 18:00          | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Kentish Town Road (SB) | 471             | 28      | 1               | 416               | 26      | 1               | 449               | 26      | 1               | 431                | 24      | 1               |
| Kentish Town Road (NB) | 426             | 49      | 0               | 445               | 51      | 0               | 421               | 48      | 0               | 413                | 48      | 0               |

|                  |     |    |   |     |    |   |     |    |   |     |    |   |
|------------------|-----|----|---|-----|----|---|-----|----|---|-----|----|---|
| A502 Hawley Road | 707 | 49 | 3 | 587 | 41 | 3 | 706 | 50 | 3 | 697 | 49 | 3 |
|------------------|-----|----|---|-----|----|---|-----|----|---|-----|----|---|

### Parkway / Arlington Road

3.4.35 Table 139 and Table 140 show the performance of the junction under five construction scenarios alongside the 2021 and 2026 Baseline. Whilst flows and degrees of saturation generally increase on the Parkway northbound arm in all scenarios, the junction operates within capacity in the morning and evening peak for all the scenarios.

Table 139: Construction impact at Parkway / Arlington Road (signals) – AM Peak

|                     | Baseline (2021) |         |                 | Scenario 1 (2017) |         |                 | Scenario 2 (2018) |         |                 | Scenario 3A (2020) |         |                 |
|---------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|--------------------|---------|-----------------|
| 08:00 – 09:00       | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Arlington Road (SB) | 83              | 11      | 0               | 83                | 11      | 0               | 83                | 10      | 0               | 73                 | 8       | 0               |
| Arlington Road (NB) | 3               | 1       | 0               | 4                 | 1       | 0               | 13                | 3       | 0               | 16                 | 4       | 0               |
| Parkway (NB)        | 847             | 47      | 3               | 889               | 50      | 3               | 784               | 44      | 3               | 936                | 53      | 3               |
|                     | Baseline (2021) |         |                 | Scenario 3 (2023) |         |                 | Baseline (2026)   |         |                 | Scenario 4 (2031)  |         |                 |
| 08:00 – 09:00       | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Arlington Road (SB) | 83              | 11      | 0               | 84                | 11      | 0               | 82                | 10      | 0               | 82                 | 10      | 0               |
| Arlington Road (NB) | 3               | 1       | 0               | 1                 | 0       | 0               | 4                 | 1       | 0               | 3                  | 1       | 0               |
| Parkway (NB)        | 847             | 47      | 3               | 970               | 54      | 3               | 816               | 45      | 3               | 851                | 47      | 3               |

Table 140: Construction impact at Parkway / Arlington Road (signals) – PM Peak

|                     | Baseline (2021) |         |                 | Scenario 1 (2017) |         |                 | Scenario 2 (2018) |         |                 | Scenario 3A (2020) |         |                 |
|---------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|--------------------|---------|-----------------|
| 17:00 – 18:00       | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Arlington Road (SB) | 105             | 32      | 1               | 117               | 36      | 1               | 109               | 32      | 1               | 107                | 35      | 1               |
| Arlington Road (NB) | 1               | 1       | 0               | 1                 | 1       | 0               | 3                 | 1       | 0               | 4                  | 2       | 0               |
| Parkway (NB)        | 947             | 55      | 3               | 973               | 57      | 3               | 911               | 53      | 3               | 1021               | 60      | 4               |



|                     | Baseline (2021) |         |                 | Scenario 3 (2023) |         |                 | Baseline (2026) |         |                 | Scenario 4 (2031) |         |                 |
|---------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-----------------|---------|-----------------|-------------------|---------|-----------------|
| 17:00 – 18:00       | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) |
| Arlington Road (SB) | 105             | 32      | 1               | 111               | 36      | 1               | 104             | 32      | 1               | 103               | 31      | 1               |
| Arlington Road (NB) | 1               | 1       | 0               | 0                 | 0       | 0               | 1               | 1       | 0               | 1                 | 0       | 0               |
| Parkway (NB)        | 947             | 55      | 3               | 1023              | 60      | 3               | 914             | 53      | 3               | 949               | 55      | 3               |

### Haverstock Hill / England's Lane

3.4.36 Table 141 and Table 142 show the performance of the junction under five construction scenarios alongside the 2021 and 2026 Baseline. Both northbound and southbound Haverstock Hill arms are over capacity in the 2021 and 2026 baselines and all construction scenarios for the morning peak, with the southbound arm over capacity in the evening peak. The degree of saturation on England’s Lane, which experiences flow increases with the Adelaide Road closure in the 2020 and 2023 scenarios increases from just under capacity (99%) to over capacity (103%) in the morning peak in 2020 and 2023 and from 65% to 100% Dos in the evening peak.

Table 141: Construction impact at Haverstock Hill / England's Lane (signals) – AM Peak

|                      | Baseline (2021) |         |                 | Scenario 1 (2017) |         |                 | Scenario 2 (2018) |         |                 | Scenario 3A (2020) |         |                 |
|----------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|--------------------|---------|-----------------|
| 08:00 – 09:00        | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Haverstock Hill (SB) | 132             | 102     | 5               | 140               | 101     | 5               | 139               | 102     | 5               | 140                | 104     | 6               |
| Haverstock Hill (NB) | 580             | 101     | 5               | 580               | 101     | 4               | 580               | 101     | 4               | 581                | 101     | 5               |
| England's Lane       | 291             | 99      | 2               | 292               | 99      | 1               | 291               | 99      | 1               | 291                | 103     | 7               |

|                      | Baseline (2021) |         |                 | Scenario 3 (2023) |         |                 | Baseline (2026) |         |                 | Scenario 4 (2031) |         |                 |
|----------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-----------------|---------|-----------------|-------------------|---------|-----------------|
| 08:00 – 09:00        | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) |
| Haverstock Hill (SB) | 132             | 102     | 5               | 139               | 104     | 6               | 137             | 101     | 5               | 138               | 101     | 5               |
| Haverstock Hill (NB) | 580             | 101     | 5               | 581               | 101     | 5               | 579             | 100     | 4               | 579               | 100     | 4               |
| England's Lane       | 291             | 99      | 2               | 291               | 103     | 7               | 291             | 98      | 1               | 291               | 99      | 2               |

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Table 142: Construction impact at Haverstock Hill / England's Lane (signals) – PM Peak

|                      | Baseline (2021) |         |                 | Scenario 1 (2017) |         |                 | Scenario 2 (2018) |         |                 | Scenario 3A (2020) |         |                 |
|----------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|--------------------|---------|-----------------|
| 17:00 – 18:00        | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Haverstock Hill (SB) | 155             | 103     | 7               | 155               | 103     | 7               | 156               | 103     | 7               | 132                | 104     | 7               |
| Haverstock Hill (NB) | 551             | 93      | 2               | 552               | 93      | 2               | 550               | 93      | 2               | 576                | 100     | 3               |
| England's Lane       | 214             | 65      | 1               | 216               | 66      | 1               | 215               | 65      | 1               | 276                | 100     | 2               |
|                      | Baseline (2021) |         |                 | Scenario 3 (2023) |         |                 | Baseline (2026)   |         |                 | Scenario 4 (2031)  |         |                 |
| 17:00 – 18:00        | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Haverstock Hill (SB) | 155             | 103     | 7               | 132               | 104     | 7               | 163               | 103     | 7               | 164                | 102     | 1               |
| Haverstock Hill (NB) | 551             | 93      | 2               | 576               | 100     | 3               | 544               | 91      | 2               | 542                | 91      | 2               |
| England's Lane       | 214             | 65      | 1               | 276               | 100     | 1               | 207               | 61      | 1               | 206                | 61      | 1               |

### Gloucester Avenue / Oval Road

3.4.37 Table 143 and Table 144 show the performance of the junction under five construction scenarios alongside the 2021 and 2026 Baseline. In all scenarios the Oval Road arm operates close to capacity but with increases in degree of saturation from 89% (2021 baseline) to 95% in the 2020 and 2023 construction scenarios. The southbound Gloucester Avenue arm sees substantial changes in flow and degree of saturation during the construction scenarios, particularly in the 2020 and 2023 scenarios where the closure of Adelaide Road leads to increases in traffic along the Primrose Hill Road, Regents Park Road-Gloucester Avenue route. Other arms operate well below capacity, and so some re-balancing of signal timings, carried out automatically by SCOOT, is likely to be sufficient to mitigate the impacts.

SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA2 and CFA3)

Table 143: Construction impact at Gloucester Avenue / Oval Road (signals) – AM Peak

|                        | Baseline (2021) |         |                 | Scenario 1 (2017) |         |                 | Scenario 2 (2018) |         |                 | Scenario 3A (2020) |         |                 |
|------------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|--------------------|---------|-----------------|
| 08:00 – 09:00          | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Oval Road              | 217             | 89      | 2               | 220               | 90      | 2               | 216               | 89      | 2               | 231                | 95      | 2               |
| Gloucester Avenue (NB) | 387             | 29      | 0               | 274               | 45      | 1               | 423               | 32      | 1               | 460                | 35      | 1               |
| Gloucester Avenue (SB) | 646             | 60      | 2               | 766               | 75      | 2               | 763               | 74      | 2               | 838                | 83      | 3               |
|                        | Baseline (2021) |         |                 | Scenario 3 (2023) |         |                 | Baseline (2026)   |         |                 | Scenario 4 (2031)  |         |                 |
| 08:00 – 09:00          | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Oval Road              | 217             | 89      | 2               | 232               | 95      | 2               | 213               | 87      | 2               | 213                | 88      | 2               |
| Gloucester Avenue (NB) | 387             | 29      | 0               | 461               | 36      | 1               | 381               | 29      | 0               | 403                | 31      | 1               |
| Gloucester Avenue (SB) | 646             | 60      | 2               | 781               | 76      | 2               | 631               | 58      | 2               | 622                | 57      | 2               |

Table 144: Construction impact at Gloucester Avenue / Oval Road (signals) – PM Peak

|                        | Baseline (2021) |         |                 | Scenario 1 (2017) |         |                 | Scenario 2 (2018) |         |                 | Scenario 3A (2020) |         |                 |
|------------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|--------------------|---------|-----------------|
| 17:00 – 18:00          | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Oval Road              | 232             | 82      | 2               | 230               | 81      | 2               | 231               | 81      | 2               | 271                | 95      | 3               |
| Gloucester Avenue (NB) | 409             | 33      | 1               | 523               | 42      | 1               | 446               | 36      | 1               | 452                | 36      | 1               |
| Gloucester Avenue (SB) | 472             | 48      | 2               | 615               | 64      | 2               | 611               | 64      | 2               | 652                | 68      | 2               |
|                        | Baseline (2021) |         |                 | Scenario 3 (2023) |         |                 | Baseline (2026)   |         |                 | Scenario 4 (2031)  |         |                 |
| 17:00 – 18:00          | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Oval Road              | 232             | 82      | 2               | 269               | 95      | 3               | 236               | 83      | 2               | 235                | 83      | 2               |
| Gloucester Avenue (NB) | 409             | 33      | 1               | 450               | 36      | 1               | 418               | 34      | 1               | 412                | 33      | 1               |
| Gloucester Avenue (SB) | 472             | 48      | 2               | 576               | 59      | 2               | 442               | 45      | 1               | 451                | 46      | 1               |

### Adelaide Road / Primrose Hill Road

3.4.38 Table 145 and Table 146 show the performance of the junction under five construction scenarios alongside the 2021 and 2026 Baseline. It can be seen that there is a reduction in flow on Adelaide Road WB in Scenario 3A and Scenario 3, reflecting the temporary closure to all vehicles. Otherwise the impacts on this junction are relatively small, and it operates within capacity in every test and time period.

Table 145: Construction impact at Adelaide Road / Primrose Hill Road junction (signals) – AM Peak

| 08:00 – 09:00           | Baseline (2021) |         |                 | Scenario 1 (2017) |         |                 | Scenario 2 (2018) |         |                 | Scenario 3A (2020) |         |                 |
|-------------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|--------------------|---------|-----------------|
|                         | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Primrose Hill Road (SB) | 645             | 84      | 3               | 632               | 84      | 3               | 638               | 83      | 3               | 617                | 73      | 3               |
| Adelaide Road (WB)      | 313             | 25      | 1               | 329               | 26      | 1               | 315               | 25      | 1               | 60                 | 3       | 0               |
| Primrose Hill Road (NB) | 345             | 52      | 1               | 379               | 56      | 1               | 329               | 50      | 1               | 298                | 46      | 1               |
| Adelaide Road (EB)      | 889             | 52      | 1               | 740               | 57      | 2               | 750               | 56      | 2               | 744                | 50      | 1               |
| 08:00 – 09:00           | Baseline (2021) |         |                 | Scenario 3 (2023) |         |                 | Baseline (2026)   |         |                 | Scenario 4 (2031)  |         |                 |
|                         | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Primrose Hill Road (SB) | 645             | 84      | 3               | 620               | 73      | 3               | 630               | 84      | 3               | 635                | 85      | 3               |
| Adelaide Road (WB)      | 313             | 25      | 1               | 60                | 3       | 0               | 300               | 25      | 1               | 304                | 25      | 1               |
| Primrose Hill Road (NB) | 345             | 52      | 1               | 303               | 48      | 1               | 335               | 50      | 1               | 326                | 49      | 1               |
| Adelaide Road (EB)      | 889             | 52      | 1               | 714               | 45      | 1               | 878               | 50      | 1               | 865                | 50      | 1               |

Table 14.6: Construction impact at Adelaide Road / Primrose Hill Road junction (signals) – PM Peak

|                         | Baseline (2021) |         |                 | Scenario 1 (2017) |         |                 | Scenario 2 (2018) |         |                 | Scenario 3A (2020) |         |                 |
|-------------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|--------------------|---------|-----------------|
| 17:00 – 18:00           | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Primrose Hill Road (SB) | 561             | 67      | 2               | 553               | 65      | 2               | 555               | 65      | 2               | 567                | 63      | 2               |
| Adelaide Road (WB)      | 325             | 32      | 1               | 368               | 37      | 1               | 333               | 33      | 1               | 29                 | 2       | 0               |
| Primrose Hill Road (NB) | 320             | 32      | 1               | 270               | 27      | 1               | 305               | 30      | 1               | 404                | 58      | 2               |
| Adelaide Road (EB)      | 733             | 46      | 1               | 649               | 48      | 1               | 654               | 48      | 1               | 661                | 46      | 1               |
|                         | Baseline (2021) |         |                 | Scenario 3 (2023) |         |                 | Baseline (2026)   |         |                 | Scenario 4 (2031)  |         |                 |
| 17:00 – 18:00           | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Primrose Hill Road (SB) | 561             | 67      | 2               | 567               | 63      | 2               | 559               | 66      | 2               | 566                | 67      | 2               |
| Adelaide Road (WB)      | 325             | 32      | 1               | 29                | 2       | 0               | 320               | 33      | 1               | 320                | 32      | 1               |
| Primrose Hill Road (NB) | 320             | 32      | 1               | 401               | 58      | 2               | 319               | 32      | 1               | 309                | 30      | 1               |
| Adelaide Road (EB)      | 733             | 46      | 1               | 676               | 48      | 2               | 732               | 47      | 1               | 722                | 46      | 1               |

### Adelaide Road / Haverstock Hill

3.4.39 Table 14.7 and Table 14.8 show the performance of the junction under five construction scenarios alongside the 2021 and 2026 Baseline. It can be seen that there is a reduction in flow on Adelaide Road in Scenario 3A and Scenario 3, reflecting the temporary closure to all vehicles. Otherwise the impacts on this junction are relatively small, and it operates within capacity in every test and time period.

SES2 and AP3 ES Appendix TR-001-000 | London assessment (CFA2 and CFA3)

Table 147: Construction impact at Adelaide Road / Haverstock Hill junction (signals) – AM Peak

|                      | Baseline (2021) |         |                 | Scenario 1 (2017) |         |                 | Scenario 2 (2018) |         |                 | Scenario 3A (2020) |         |                 |
|----------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|--------------------|---------|-----------------|
| 08:00 – 09:00        | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Haverstock Hill Road | 31              | 2       | 0               | 34                | 2       | 0               | 34                | 2       | 0               | 62                 | 4       | 0               |
| Chalk Farm Road      | 457             | 37      | 2               | 481               | 40      | 2               | 465               | 38      | 2               | 292                | 35      | 1               |
| Adelaide Road        | 480             | 34      | 2               | 523               | 37      | 2               | 515               | 36      | 2               | 17                 | 1       | 0               |
|                      | Baseline (2021) |         |                 | Scenario 3 (2023) |         |                 | Baseline (2026)   |         |                 | Scenario 4 (2031)  |         |                 |
| 08:00 – 09:00        | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Haverstock Hill Road | 31              | 2       | 0               | 57                | 4       | 0               | 34                | 2       | 0               | 34                 | 2       | 0               |
| Chalk Farm Road      | 457             | 37      | 2               | 296               | 36      | 1               | 448               | 36      | 2               | 448                | 36      | 2               |
| Adelaide Road        | 480             | 34      | 2               | 17                | 1       | 0               | 458               | 32      | 2               | 464                | 33      | 2               |

Table 148: Construction impact at Adelaide Road / Haverstock Hill junction (signals) – PM Peak

|                      | Baseline (2021) |         |                 | Scenario 1 (2017) |         |                 | Scenario 2 (2018) |         |                 | Scenario 3A (2020) |         |                 |
|----------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|--------------------|---------|-----------------|
| 17:00 – 18:00        | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Haverstock Hill Road | 28              | 2       | 0               | 28                | 2       | 0               | 28                | 2       | 0               | 70                 | 5       | 0               |
| Chalk Farm Road      | 551             | 42      | 2               | 600               | 47      | 2               | 563               | 43      | 2               | 288                | 36      | 1               |
| Adelaide Road        | 406             | 27      | 1               | 428               | 28      | 2               | 427               | 28      | 2               | 38                 | 2       | 0               |
|                      | Baseline (2021) |         |                 | Scenario 3 (2023) |         |                 | Baseline (2026)   |         |                 | Scenario 4 (2031)  |         |                 |
| 17:00 – 18:00        | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Haverstock Hill Road | 28              | 2       | 0               | 71                | 5       | 0               | 28                | 2       | 0               | 28                 | 2       | 0               |
| Chalk Farm Road      | 551             | 42      | 2               | 284               | 36      | 1               | 547               | 41      | 2               | 541                | 41      | 2               |
| Adelaide Road        | 406             | 27      | 1               | 38                | 2       | 0               | 414               | 27      | 1               | 406                | 27      | 1               |

### Adelaide Road / Avenue Road

3.4.40 Table 149 and Table 150 show the performance of the junction under five construction scenarios alongside the 2021 and 2026 baseline. It can be seen that Adelaide Road (WB) and Avenue Road (NB) operate over capacity in all scenarios but with no material change between the baseline and construction scenario. The remaining arms of the junction operate within capacity.

Table 149: Construction impact at Adelaide Road / Avenue Road junction (signals) – AM Peak

| 08:00 – 09:00      | Baseline (2021) |         |                 | Scenario 1 (2017) |         |                 | Scenario 2 (2018) |         |                 | Scenario 3A (2020) |         |                 |
|--------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|--------------------|---------|-----------------|
|                    | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Avenue Road (SB)   | 16              | 4       | 0               | 16                | 4       | 0               | 16                | 4       | 0               | 16                 | 4       | 0               |
| Adelaide Road (WB) | 618             | 101     | 13              | 618               | 101     | 14              | 618               | 101     | 13              | 598                | 101     | 12              |
| Avenue Road (NB)   | 202             | 96      | 2               | 202               | 95      | 2               | 203               | 96      | 2               | 202                | 96      | 2               |
| St Johns Wood Park | 118             | 18      | 0               | 103               | 16      | 0               | 133               | 21      | 0               | 111                | 17      | 0               |
| Adelaide Road (EB) | 832             | 46      | 5               | 709               | 40      | 4               | 759               | 53      | 4               | 787                | 43      | 4               |
| 08:00 – 09:00      | Baseline (2021) |         |                 | Scenario 3 (2023) |         |                 | Baseline (2026)   |         |                 | Scenario 4 (2031)  |         |                 |
|                    | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Avenue Road (SB)   | 16              | 4       | 0               | 16                | 4       | 0               | 16                | 4       | 0               | 16                 | 4       | 0               |
| Adelaide Road (WB) | 618             | 101     | 13              | 598               | 101     | 13              | 618               | 101     | 11              | 618                | 101     | 12              |
| Avenue Road (NB)   | 202             | 96      | 2               | 202               | 96      | 2               | 199               | 94      | 2               | 199                | 94      | 2               |
| St Johns Wood Park | 118             | 18      | 0               | 126               | 19      | 0               | 99                | 15      | 0               | 98                 | 15      | 0               |
| Adelaide Road (EB) | 832             | 46      | 5               | 767               | 40      | 4               | 825               | 46      | 4               | 818                | 45      | 4               |

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Table 150: Construction impact at Adelaide Road / Avenue Road junction (signals) – PM Peak

|                    | Baseline (2021) |         |                 | Scenario 1 (2017) |         |                 | Scenario 2 (2018) |         |                 | Scenario 3A (2020) |         |                 |
|--------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|--------------------|---------|-----------------|
| 17:00 – 18:00      | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Avenue Road (SB)   | 16              | 4       | 0               | 16                | 4       | 0               | 16                | 4       | 0               | 16                 | 4       | 0               |
| Adelaide Road (WB) | 618             | 100     | 3               | 618               | 100     | 4               | 616               | 100     | 4               | 564                | 94      | 3               |
| Avenue Road (NB)   | 183             | 87      | 2               | 169               | 80      | 1               | 181               | 85      | 2               | 195                | 92      | 2               |
| St Johns Wood Park | 38              | 5       | 0               | 38                | 5       | 0               | 38                | 5       | 0               | 43                 | 6       | 0               |
| Adelaide Road (EB) | 757             | 42      | 2               | 706               | 39      | 2               | 741               | 51      | 2               | 688                | 38      | 2               |
|                    | Baseline (2021) |         |                 | Scenario 3 (2023) |         |                 | Baseline (2026)   |         |                 | Scenario 4 (2031)  |         |                 |
| 17:00 – 18:00      | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Avenue Road (SB)   | 16              | 4       | 0               | 16                | 4       | 0               | 16                | 4       | 0               | 16                 | 4       | 0               |
| Adelaide Road (WB) | 618             | 100     | 3               | 566               | 95      | 3               | 615               | 99      | 4               | 610                | 99      | 3               |
| Avenue Road (NB)   | 183             | 87      | 2               | 186               | 88      | 2               | 182               | 86      | 2               | 181                | 85      | 2               |
| St Johns Wood Park | 38              | 5       | 0               | 41                | 6       | 0               | 37                | 5       | 0               | 37                 | 5       | 0               |
| Adelaide Road (EB) | 757             | 42      | 2               | 697               | 39      | 2               | 740               | 41      | 2               | 735                | 41      | 2               |

**Finchley Road / Avenue Road**

3.4.41 Table 151 and Table 152 show the performance of the junction under five construction scenarios alongside the 2021 and 2026 baseline. It can be seen that whilst this junction operates over capacity for both the morning and evening peaks there is no material difference between the baseline and construction scenarios.



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Table 151: Construction impact at Finchley Road / Avenue Road junction (signals) – AM Peak

|                    | Baseline (2021) |         |                 | Scenario 1 (2017) |         |                 | Scenario 2 (2018) |         |                 | Scenario 3A (2020) |         |                 |
|--------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|--------------------|---------|-----------------|
| 08:00 – 09:00      | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Finchley Road (SB) | 796             | 95      | 8               | 786               | 94      | 7               | 786               | 94      | 0               | 783                | 93      | 7               |
| College Crescent   | 275             | 105     | 19              | 276               | 105     | 18              | 275               | 105     | 18              | 274                | 106     | 21              |
| Finchley Road (NB) | 693             | 101     | 4               | 702               | 101     | 4               | 711               | 101     | 4               | 695                | 101     | 5               |
|                    | Baseline (2021) |         |                 | Scenario 3 (2023) |         |                 | Baseline (2026)   |         |                 | Scenario 4 (2031)  |         |                 |
| 08:00 – 09:00      | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Finchley Road (SB) | 796             | 95      | 8               | 778               | 93      | 7               | 789               | 94      | 7               | 784                | 93      | 7               |
| College Crescent   | 275             | 105     | 19              | 275               | 105     | 20              | 275               | 105     | 17              | 274                | 105     | 17              |
| Finchley Road (NB) | 693             | 101     | 4               | 731               | 101     | 5               | 656               | 100     | 2               | 671                | 100     | 2               |

Table 152: Construction impact at Finchley Road / Avenue Road junction (signals) – PM Peak

|                    | Baseline (2021) |         |                 | Scenario 1 (2017) |         |                 | Scenario 2 (2018) |         |                 | Scenario 3A (2020) |         |                 |
|--------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|--------------------|---------|-----------------|
| 17:00 – 18:00      | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Finchley Road (SB) | 699             | 83      | 6               | 674               | 80      | 6               | 679               | 81      | 6               | 654                | 78      | 6               |
| College Crescent   | 283             | 106     | 22              | 283               | 106     | 22              | 284               | 106     | 22              | 281                | 107     | 25              |
| Finchley Road (NB) | 692             | 79      | 2               | 683               | 78      | 2               | 688               | 80      | 2               | 700                | 86      | 2               |

|                    | Baseline (2021) |         |                 | Scenario 3 (2023) |         |                 | Baseline (2026) |         |                 | Scenario 4 (2031) |         |                 |
|--------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-----------------|---------|-----------------|-------------------|---------|-----------------|
| 17:00 – 18:00      | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) |
| Finchley Road (SB) | 699             | 83      | 6               | 670               | 80      | 6               | 656             | 78      | 6               | 651               | 77      | 6               |
| College Crescent   | 283             | 106     | 22              | 281               | 107     | 25              | 283             | 105     | 19              | 284               | 105     | 29              |
| Finchley Road (NB) | 692             | 79      | 2               | 710               | 98      | 2               | 643             | 77      | 2               | 645               | 78      | 2               |

### Boundary Road / Finchley Road

3.4.42 Table 153 and Table 154 below show the performance of the junction under five construction scenarios alongside the 2021 and 2026 baseline. It can be seen that the impacts on this junction are relatively small and that it operates well within capacity in every test and time period.

Table 153: Construction impact at Boundary Road / Finchley Road junction (signals) – AM Peak

|                    | Baseline (2021) |         |                 | Scenario 1 (2017) |         |                 | Scenario 2 (2018) |         |                 | Scenario 3A (2020) |         |                 |
|--------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|--------------------|---------|-----------------|
| 08:00 – 09:00      | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Finchley Road (SB) | 652             | 29      | 0               | 783               | 35      | 0               | 736               | 33      | 0               | 691                | 30      | 0               |
| Finchley Road (NB) | 747             | 37      | 1               | 758               | 36      | 1               | 759               | 36      | 1               | 813                | 40      | 1               |
| Boundary Road (EB) | 136             | 30      | 1               | 130               | 28      | 1               | 129               | 28      | 1               | 104                | 23      | 1               |
|                    | Baseline (2021) |         |                 | Scenario 3 (2023) |         |                 | Baseline (2026)   |         |                 | Scenario 4 (2031)  |         |                 |
| 08:00 – 09:00      | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Finchley Road (SB) | 652             | 29      | 0               | 710               | 31      | 0               | 657               | 29      | 0               | 664                | 29      | 10              |
| Finchley Road (NB) | 747             | 37      | 1               | 823               | 39      | 1               | 713               | 35      | 1               | 732                | 36      | 4               |
| Boundary Road (EB) | 136             | 30      | 1               | 104               | 23      | 1               | 137               | 30      | 1               | 131                | 28      | 1               |

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Table 154: Construction impact at Boundary Road / Finchley Road junction (signals) – PM Peak

|                    | Baseline (2021) |         |                 | Scenario 1 (2017) |         |                 | Scenario 2 (2018) |         |                 | Scenario 3A (2020) |         |                 |
|--------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|--------------------|---------|-----------------|
| 17:00 – 18:00      | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Finchley Road (SB) | 608             | 28      | 1               | 667               | 30      | 1               | 620               | 28      | 1               | 619                | 28      | 0               |
| Finchley Road (NB) | 825             | 42      | 1               | 818               | 42      | 1               | 827               | 42      | 1               | 845                | 43      | 1               |
| Boundary Road (EB) | 95              | 21      | 1               | 102               | 22      | 1               | 103               | 22      | 1               | 91                 | 20      | 1               |
|                    | Baseline (2021) |         |                 | Scenario 3 (2023) |         |                 | Baseline (2026)   |         |                 | Scenario 4 (2031)  |         |                 |
| 17:00 – 18:00      | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Finchley Road (SB) | 608             | 28      | 1               | 626               | 29      | 1               | 557               | 26      | 1               | 582                | 27      | 1               |
| Finchley Road (NB) | 825             | 42      | 1               | 863               | 43      | 1               | 810               | 44      | 1               | 822                | 44      | 1               |
| Boundary Road (EB) | 95              | 21      | 1               | 86                | 19      | 1               | 95                | 21      | 1               | 91                 | 20      | 1               |

**Boundary Road / Loudoun Road**

3.4.43 Table 155 and Table 156 below show the performance of the junction under five construction scenarios alongside the 2021 and 2026 baseline. It can be seen that the impacts on this junction are relatively small and that it operates well within capacity in every test and time period.

Table 155: Construction impact at Boundary Road / Loudoun Road junction (signals) – AM Peak

|                    | Baseline (2021) |         |                 | Scenario 1 (2017) |         |                 | Scenario 2 (2018) |         |                 | Scenario 3A (2020) |         |                 |
|--------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|--------------------|---------|-----------------|
| 08:00 – 09:00      | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Loudoun Road (SB)  | 245             | 21      | 0               | 233               | 20      | 0               | 244               | 21      | 0               | 226                | 20      | 0               |
| Boundary Road (WB) | 378             | 24      | 0               | 368               | 24      | 0               | 365               | 24      | 0               | 409                | 27      | 0               |
| Loudoun Road (NB)  | 123             | 10      | 0               | 125               | 10      | 0               | 129               | 11      | 0               | 107                | 10      | 0               |
| Boundary Road (EB) | 245             | 8       | 0               | 241               | 7       | 0               | 248               | 8       | 0               | 228                | 8       | 0               |

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|                    | Baseline (2021) |         |                 | Scenario 3 (2023) |         |                 | Baseline (2026) |         |                 | Scenario 4 (2031) |         |                 |
|--------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-----------------|---------|-----------------|-------------------|---------|-----------------|
| 08:00 – 09:00      | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) |
| Loudoun Road (SB)  | 245             | 21      | 0               | 242               | 21      | 0               | 253             | 21      | 0               | 257               | 22      | 0               |
| Boundary Road (WB) | 378             | 24      | 0               | 391               | 26      | 0               | 361             | 23      | 0               | 361               | 23      | 0               |
| Loudoun Road (NB)  | 123             | 10      | 0               | 127               | 12      | 0               | 124             | 10      | 0               | 137               | 12      | 0               |
| Boundary Road (EB) | 245             | 8       | 0               | 234               | 8       | 0               | 236             | 7       | 0               | 234               | 7       | 0               |

Table 156: Construction impact at Boundary Road / Loudoun Road junction (signals) – PM Peak

|                    | Baseline (2021) |         |                 | Scenario 1 (2017) |         |                 | Scenario 2 (2018) |         |                 | Scenario 3A (2020) |         |                 |
|--------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|--------------------|---------|-----------------|
| 17:00 – 18:00      | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Loudoun Road (SB)  | 94              | 8       | 0               | 97                | 8       | 0               | 98                | 8       | 0               | 85                 | 7       | 0               |
| Boundary Road (WB) | 428             | 34      | 0               | 413               | 34      | 0               | 430               | 34      | 0               | 437                | 35      | 0               |
| Loudoun Road (NB)  | 98              | 9       | 0               | 105               | 10      | 0               | 101               | 9       | 0               | 103                | 10      | 0               |
| Boundary Road (EB) | 184             | 6       | 0               | 194               | 5       | 0               | 195               | 6       | 0               | 190                | 7       | 0               |
|                    | Baseline (2021) |         |                 | Scenario 3 (2023) |         |                 | Baseline (2026)   |         |                 | Scenario 4 (2031)  |         |                 |
| 17:00 – 18:00      | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Loudoun Road (SB)  | 94              | 8       | 0               | 88                | 7       | 0               | 93                | 8       | 0               | 95                 | 8       | 0               |
| Boundary Road (WB) | 428             | 34      | 0               | 441               | 35      | 0               | 446               | 36      | 0               | 451                | 36      | 0               |
| Loudoun Road (NB)  | 98              | 9       | 0               | 99                | 10      | 0               | 99                | 10      | 0               | 96                 | 9       | 0               |
| Boundary Road (EB) | 184             | 6       | 0               | 183               | 4       | 0               | 183               | 6       | 0               | 182                | 5       | 0               |

### Malden Road / Prince of Wales Road

3.4.44 Table 157 and Table 158 show the performance of the junction under five construction scenarios alongside the 2021 and 2026 baseline. Whilst the Malden Road arm operates over capacity in the morning peak for all scenarios and traffic increases from around 700 pcu to around 800 pcu in the peak hour in scenarios 3A and 3, there is scope to adjust signal timings such that there is no material difference in the degree of saturation on this arm from the 2021 baseline, with all other arms operating within capacity.

Table 157: Construction impact at Malden Road / Prince of Wales Road junction (signals) – AM Peak

|                           | Baseline (2021) |         |                 | Scenario 1 (2017) |         |                 | Scenario 2 (2018) |         |                 | Scenario 3A (2020) |         |                 |
|---------------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|--------------------|---------|-----------------|
| 08:00 – 09:00             | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Malden Road               | 696             | 96      | 4               | 702               | 97      | 4               | 699               | 97      | 4               | 803                | 94      | 3               |
| Prince of Wales Road (WB) | 259             | 30      | 1               | 257               | 30      | 1               | 256               | 30      | 1               | 256                | 30      | 1               |
| Malden Crescent           | 195             | 35      | 0               | 214               | 44      | 1               | 209               | 43      | 1               | 85                 | 13      | 0               |
| Prince of Wales Road (EB) | 164             | 19      | 1               | 170               | 19      | 1               | 168               | 18      | 1               | 170                | 19      | 1               |
|                           | Baseline (2021) |         |                 | Scenario 3 (2023) |         |                 | Baseline (2026)   |         |                 | Scenario 4 (2031)  |         |                 |
| 08:00 – 09:00             | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Malden Road               | 696             | 96      | 4               | 798               | 94      | 3               | 706               | 96      | 4               | 706                | 96      | 4               |
| Prince of Wales Road (WB) | 259             | 30      | 1               | 261               | 31      | 1               | 261               | 31      | 1               | 262                | 31      | 1               |
| Malden Crescent           | 195             | 35      | 0               | 84                | 13      | 0               | 177               | 32      | 0               | 181                | 32      | 0               |
| Prince of Wales Road (EB) | 164             | 19      | 1               | 175               | 20      | 1               | 158               | 18      | 1               | 158                | 18      | 1               |

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Table 158: Construction impact at Malden Road / Prince of Wales Road junction (signals) – PM Peak

|                           | Baseline (2021) |         |                 | Scenario 1 (2017) |         |                 | Scenario 2 (2018) |         |                 | Scenario 3A (2020) |         |                 |
|---------------------------|-----------------|---------|-----------------|-------------------|---------|-----------------|-------------------|---------|-----------------|--------------------|---------|-----------------|
| 17:00 – 18:00             | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Malden Road               | 445             | 81      | 3               | 452               | 83      | 3               | 449               | 82      | 3               | 547                | 83      | 2               |
| Prince of Wales Road (WB) | 178             | 19      | 1               | 177               | 19      | 1               | 173               | 19      | 1               | 184                | 22      | 1               |
| Malden Crescent           | 181             | 59      | 1               | 192               | 61      | 1               | 192               | 61      | 1               | 94                 | 16      | 0               |
| Prince of Wales Road (EB) | 117             | 11      | 0               | 127               | 11      | 0               | 126               | 11      | 0               | 165                | 15      | 1               |
|                           | Baseline (2021) |         |                 | Scenario 3 (2023) |         |                 | Baseline (2026)   |         |                 | Scenario 4 (2031)  |         |                 |
| 17:00 – 18:00             | Flow (PCU)      | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)        | DoS (%) | Max queue (PCU) | Flow (PCU)         | DoS (%) | Max queue (PCU) |
| Malden Road               | 445             | 81      | 3               | 524               | 82      | 2               | 443               | 81      | 3               | 435                | 80      | 2               |
| Prince of Wales Road (WB) | 178             | 19      | 1               | 193               | 23      | 1               | 172               | 19      | 1               | 174                | 19      | 1               |
| Malden Crescent           | 181             | 59      | 1               | 91                | 15      | 0               | 178               | 59      | 1               | 178                | 57      | 1               |
| Prince of Wales Road (EB) | 117             | 11      | 0               | 162               | 15      | 1               | 124               | 11      | 0               | 113                | 10      | 0               |

3.4.45 Paragraph 6.5.121 in the main TA is replaced by:

“The changes in traffic flows will also lead to increases in delays at the junctions set out in Table 143 and on Figure 106 in section 3.3 in the CFA1 assessment. The impact is measured as an increase in the ratio of volume to capacity (VoC) where:

- the VoC for an approach arm increases to over 0.87 during the construction of the Proposed Scheme and the increase is 2% or more; or
- the VoC for an approach arm is over 0.87 in the baseline and during the construction of the revised scheme increases by 2% or more.”

3.4.46 Paragraph 6.5.122 is replaced by:

“The overall junction VoC ratio for junctions which meet the above criteria (triggered junctions) are shown in Table 141. This table shows that one junction is triggered in scenario 1, five in scenario 3A and four in scenario 3 with the remainder being

triggered in more than one scenario. Two junctions have a VoC over 100%, namely A502 Haverstock Hill / England's Lane (eastbound approach) and A502 Haverstock Hill / England's Lane (Southbound approach) and these are triggered generally in one time period only."

3.4.47 The last sentence of paragraph 6.5.123 is replaced by:

"Scenario 3A has the greatest impact on congestion."

3.4.48 Table 6-112 is replaced by Table 159 below.

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Table 159: Scenario 1, 2, 3A and 3 - triggered junctions within CFA2 and 3

| CFA  | Location  | AM peak hour (08:00 to 09:00) |                 |                 |                  |                 | PM peak hour (17:00 to 18:00) |                 |                 |                  |                 |
|------|---|-------------------------------|-----------------|-----------------|------------------|-----------------|-------------------------------|-----------------|-----------------|------------------|-----------------|
|      |   | 2021 baseline                 | 2017 Scenario 1 | 2018 Scenario 2 | 2020 Scenario 3A | 2023 Scenario 3 | 2021 baseline                 | 2017 Scenario 1 | 2018 Scenario 2 | 2020 Scenario 3A | 2023 Scenario 3 |
| CFA3 | A502 Haverstock Hill / England's Lane(eastbound approach)   | 99.37                         |                 |                 | 103.45           | 103.39          | 76.79                         |                 |                 | 100.5            | 99.79           |
| CFA3 | A502 Haverstock Hill / England's Lane (Southbound approach) | 102.14                        |                 |                 | 104.34           | 104.47          |                               |                 |                 |                  |                 |
| CFA3 | B517 Malden Road / Prince of Wales Road                     | 88.77                         | 90.3            |                 | 96.15            | 95.59           |                               |                 |                 |                  |                 |
| CFA3 | Gloucester Avenue / Oval Road (westbound approach)          | 88.56                         |                 |                 | 95.08            | 95.35           | 81.79                         |                 |                 | 95.31            | 94.65           |
| CFA3 | Gloucester Avenue / Oval Road(southbound approach)          | 66.78                         |                 |                 | 88.12            |                 |                               |                 |                 |                  |                 |



### *Accidents and safety*

- 3.4.49 Paragraph 6.5.125 is deleted as the traffic diversions leading to increased traffic flows on Royal College Street and Chalk Farm Road are no longer required.

### *Rail*

- 3.4.50 Paragraph 6.5.128 is deleted as the diversion of the NLL tracks is no longer required.

### *Local bus and coach*

- 3.4.51 Paragraphs 6.5.129 and 6.5.130 are replaced by:

"It is expected that the construction of the revised scheme will require bus route diversions. Bus route 31 operating at 12 buses per hour in each direction, will be diverted by up to 500m or four months as a result of the Adelaide Road closure. This could result in delays to services of up to 3 minutes (assuming a constant 20 mph speed). Further night bus routes N28 and N31 operating at much lower frequencies, will be similarly affected at night."

- 3.4.52 No other bus route diversions reported in CFA2 and CFA3 in the main TA are required with the revised scheme.

- 3.4.53 Paragraph 6.5.132 is deleted as the relocation of the bus stops on Chalk Farm Road is no longer required.

### *Public transport interchanges*

- 3.4.54 Paragraph 6.5.133 is deleted as the bus route diversions and changes to pedestrian linkages at Camden Road Overground Station are no longer required.

### *Pedestrians, cyclists and equestrians*

- 3.4.55 Paragraphs 6.5.135 to 6.5.138 which refer to pedestrian and cyclist diversions in the vicinity of St Pancras Way/Baynes Street (north and south), Camden Road (north and south), Randolph Road (north and south), and Chalk Farm Road worksites are deleted following the removal of the HS1-HS2 link.

### *Parking and loading*

- 3.4.56 Paragraph 6.5.144 is replaced by:

"Parking suspensions include:

- during partial closure of the B509 Adelaide Road for the construction of the Adelaide Road vent shaft some parking bays on the south side will be suspended to accommodate a relocated bus stop;
- during full closure of the B509 Adelaide Road, suspension of parking bays for 30 cars on the south side of England's Lane and a motorcycle bay for 11 motorcycles will be required to minimise traffic congestion from diverted traffic, for period of four months; and
- at the Alexandra Place site, 17 car parking spaces will be lost for up to 2.5 years. "

- 3.4.57 Paragraph 6.5.145 is deleted as the loss of parking at Rousden Street will no longer be required.
- 3.4.58 No other changes to public parking are required with the revised scheme.







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