



Transport for London

Euston Circus- Camden Cycling Campaign Designs

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TRANSYT Modelling Technical Note and Design Assessment  
DRAFT



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## Transport for London

### Euston Circus- Camden Cycling Campaign Designs

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#### TRANSYT Modelling Technical Note and Design Assessment DRAFT

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# 1 Introduction

## 1.1 Background

Hyder Consulting was appointed in February 2012 by Transport for London (TfL) to assess the impact of designs produced for Euston Circus by Camden Cycling Campaign (CCC) on the local network.

As part of a previous appointment Hyder is undertaking preliminary design, detailed design and implementation for urban realm improvements at the intersection of Euston Road / Tottenham Court Road and Hampstead Road known as the Euston Circus junction.

Camden Cycling Campaign considers that the current proposals for Euston Circus could be improved upon to produce further enhancements for cyclists. CCC has produced a document '*Cycling Issues at Euston Circus*', which identifies cycling issues at the junction along with CCC's initial ideas on a solution.

The design and signal arrangement provided within '*Cycling Issues at Euston Circus*' has been used as a concept to produce *Sketch 1* based on the proposed junction footprint, contained in Appendix A and described in Section 2.2. CCC then produced the document '*Euston Circus by Camden Cyclists-Contra-flow bus and cycle lane*' which has been used as a concept to produce Sketch 2 with the contra-flow bus lane on the north side of the Euston Road slip., contained in Appendix A and describe in Section 2.3. A further option was developed, as suggested by CCC introducing a contra-flow bus lane on the south side of the existing Euston Road slip towards Gower Street carriageway. This option is shown as Sketch 3 in Appendix A and described in Section 2.4

## 1.2 Contents of Report

Section 2 of this report provides details of the scheme proposals.

Section 3 describes the TRANSYT model area.

Section 4 details the TRANSYT model used as a base for this study.

Section 5 details the CCC Proposed Options TRANSYT models.

Section 6 contains an advantages and disadvantages summary for each design.

Section 7 details the Conclusion

## 2 Scheme Proposals

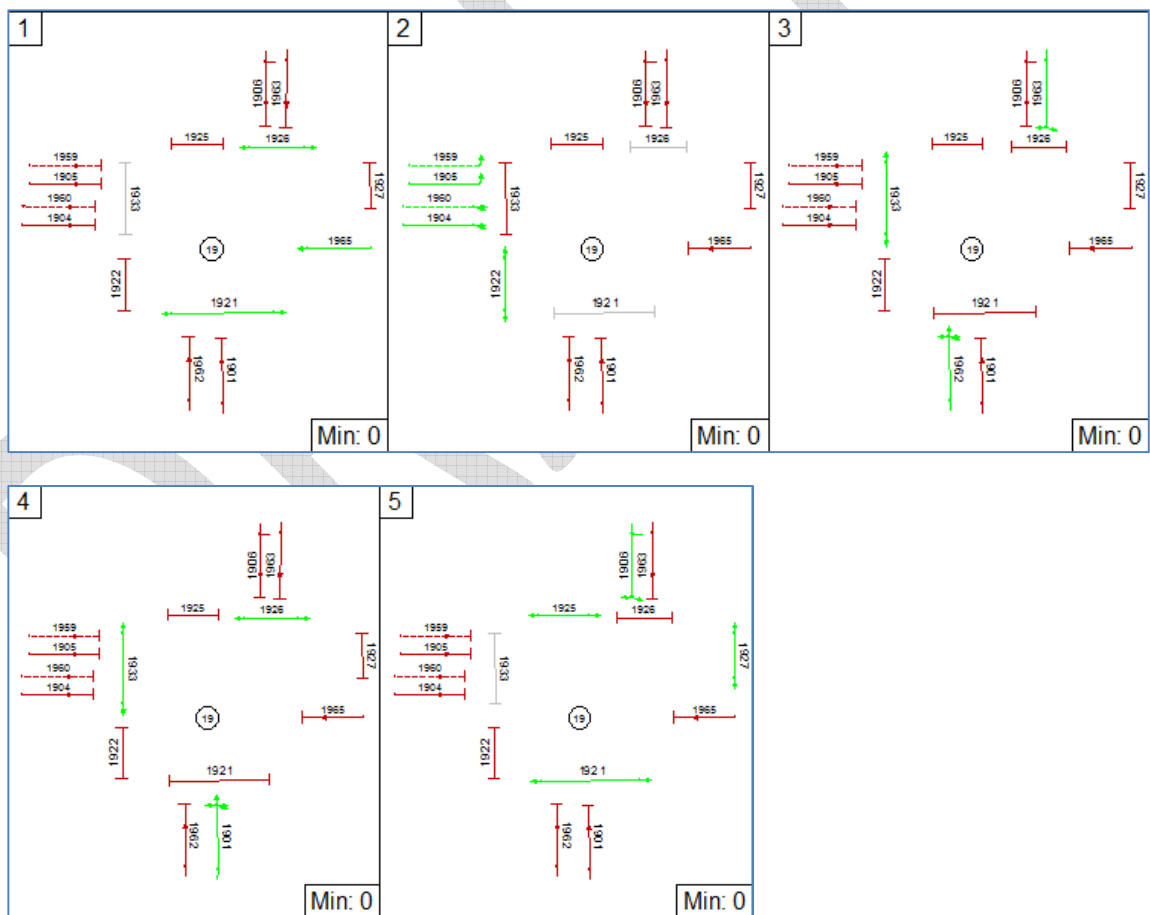
### 2.1 Option 1 – Euston Road Slip Cycle Lane

It is proposed to provide a 4 metre wide, bus and cycle lane on both the Hampstead Road and Tottenham Court Road approaches to the Euston Circus junction. These bus and cycle lanes are proposed to receive green time together in a separate stage from general traffic (stage 3). In order to accommodate these lanes both approaches are realigned with sections of footway becoming carriageway.

A cycle path from the Gower Street/Euston Road junction direct to Euston Circus is also proposed on the northern footpath of the Euston Road slip. The proposed cycle path is to be signalised at the approach to Euston Circus, receiving green time within a new stage (stage 1).

The revised signal staging for the Euston Circus junction is shown in Figure 2.1 below.

**Figure 2.1: Option 1 revised staging for Euston Circus Junction**



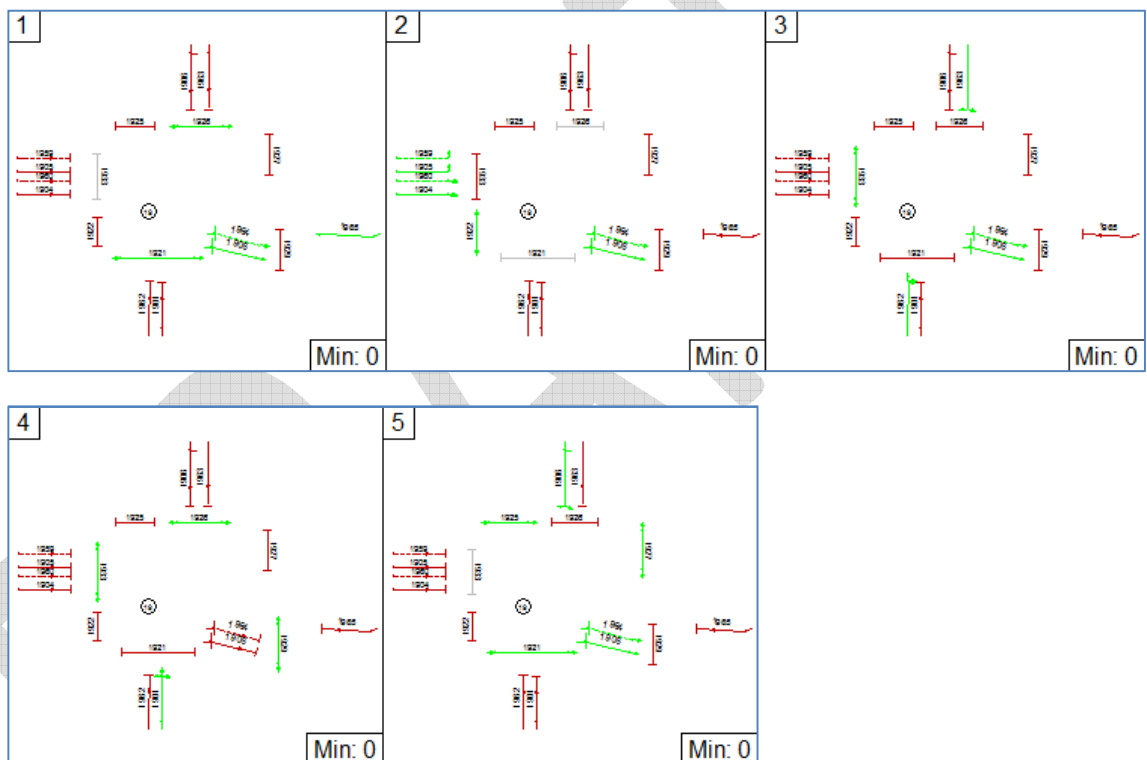
## 2.2 Option 2 – North Contra-Flow Bus Lane

### 2.2.1 Euston Circus Junction

Bus lanes are proposed on Tottenham Court Road and Hampstead Road as for Option 1. In addition to these bus lanes a westbound contra-flow bus lane is proposed from the Gower Street/Euston Road junction to Euston Circus replacing the footpath and cycle lane north of the existing Euston Road/Gower Street slip carriageway. In addition ten mature trees would have to be removed. The contra-flow bus lane intersects the Euston Circus junction to the north of this slip carriageway. The existing pedestrian crossing across the Euston Road slip is widened to accommodate the bus lane.

The revised signal staging for the Euston Circus junction is shown in Figure 2.2 below.

Figure 2.2: Option 2 revised staging for Euston Circus Junction



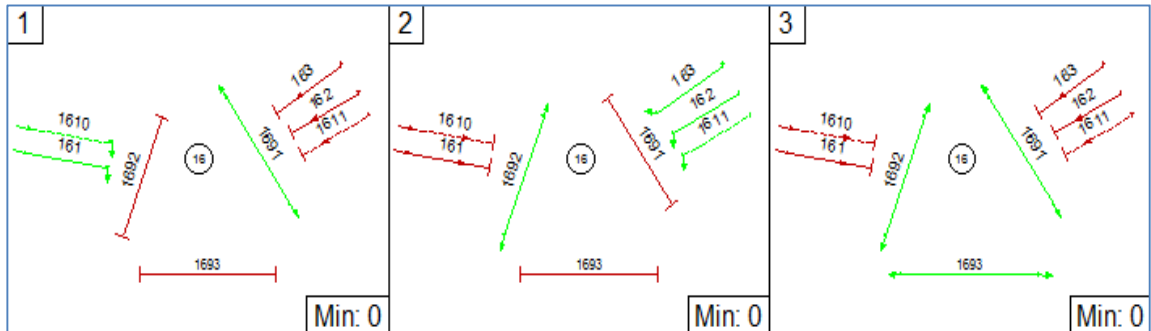
### 2.2.2 Gower Street/Euston Street Junction

To accommodate the westbound contra-flow bus lane on the Euston Road slip, the offside lane on the Euston Road off slip approach becomes a straight ahead lane for buses and cycles entering the contra flow bus lane. The Euston Road off slip nearside lane remains a left turn only lane. The existing cycle/pedestrian crossing across the Euston Road approach remains, allowing cyclists to access the contra-flow bus lane from the nearside.

An addition crossing is proposed across Gower Street. To accommodate this crossing an all-red pedestrian stage is proposed (stage 3) as shown below.

The revised signal staging for the Gower Street/Euston Street junction is shown in Figure 2.3.

**Figure 2.3: Option 2 revised staging for Gower Street/Euston Street Junction**



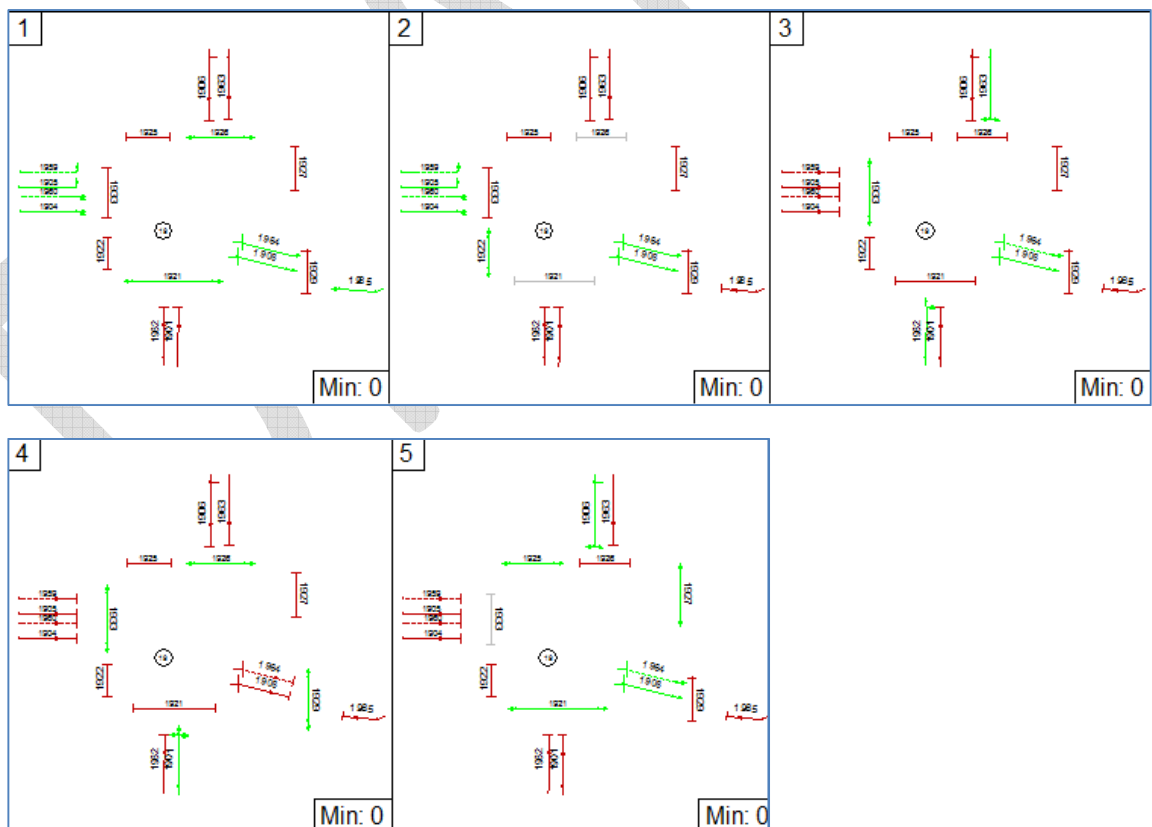
## 2.3 Option 3 – South Contra-Flow Bus Lane

### 2.3.1 Euston Circus Junction

Bus lanes are proposed on Tottenham Court Road and Hampstead Road as for Option 1. In addition to these bus lanes a westbound contra-flow bus lane for use by cyclists is proposed from the Gower Street/Euston Road junction to Euston Circus utilising the existing Euston Road slip carriageway.

The revised signal staging for the Euston Circus junction is shown in Figure 2.4 below.

**Figure 2.4: Option 3 revised staging for Euston Circus Junction**



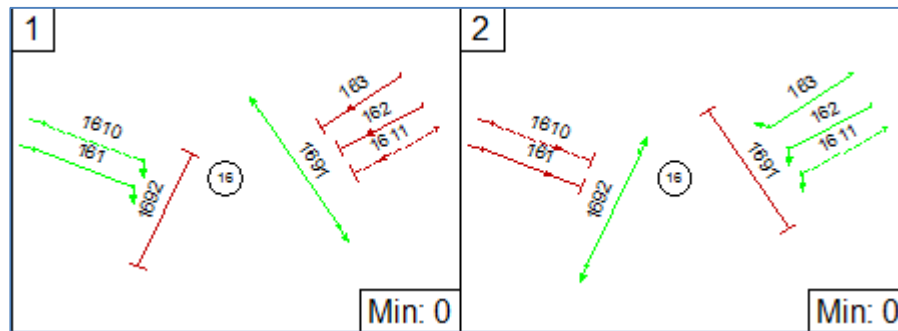


## 2.3.2 Gower Street/Euston Street Junction

To accommodate the westbound contra-flow bus lane on the Euston Road slip, the offside lane on the Euston Road off slip approach becomes a straight ahead lane for buses and cycles entering the contra flow bus lane. The Euston Road off slip nearside lane remains a left turn only lane.

The staging for the Gower Street/Euston Street junction remains the same as shown in Figure 2.5.

**Figure 2.5: Revised staging for Gower Street/Euston Street Junction**



# 3 TRANSYT Model

## 3.1 Road Network

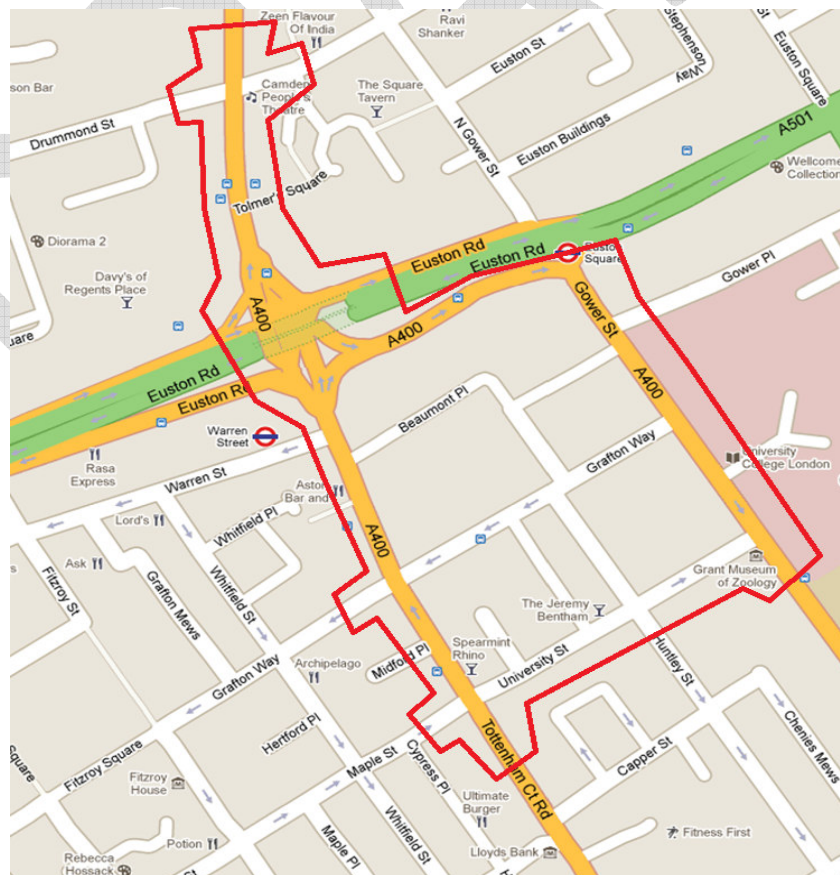
The junction analysis was undertaken using TRANSYT computer software. TRANSYT is a computer model that gives a representation of traffic behaviour at a single or series of signal-controlled junctions operating under a common and fixed cycle time. TRANSYT predicts the performance of each link in the network based on its degree of saturation in percent, and queue length in passenger car units (PCU's). The program does not quantify the effects of blocking back on upstream junctions.

The study network consists of the following junctions operating within UTC SCOOT signal control Group 9:

- A400 Hampstead Road / Drummond Road (02/034);
- Euston Road / Tottenham Court Road / Hampstead Road (02/019);
- Tottenham Court Road / Grafton way (02/059);
- A400 Tottenham Court Road / Maple Street / University Street (02/060);
- Euston Road / Gower Street (02/016);
- Pedestrian Crossing- A501 Tottenham Court Road by Warren Street (02/250); and
- Pedestrian Crossing- Gower Street by Grafton Way (02/179).

The extent of the road network which has been modelled in TRANSYT is shown in Figure 3.1.

**Figure 3.1: TRANSYT Model Extent**



## 4 Base TRANSYT Model

### 4.1 Introduction

Hyders Proposed TRANSYT model and design produced and approved by TfL as part of the Euston Road Study detailed in Report *HGW-5003-UA002838-LNR* and shown in drawing *KH015-UA002838-LND-01* has been used as the base for this study.

### 4.2 Design

The base layout for Euston Circus is shown in drawing *KH015-UA002838-LND-P1*. The base design is described below:-

- Reduced junction footprint;
- Controlled pedestrian crossings across all arms;
- Tottenham Court Road, Euston Road eastbound off-slip and Hampstead Road all have three lane approaches;
- The Euston Circus junction operates a three stage method of signal control;
- Additional Node (1901) added to model separate stage stream for Euston Road southeast bound exit to Gower Road and the associated pedestrian crossing.

### 4.3 Modelling Assumptions

The following assumptions were made whilst modelling the base scenario:

- Cruise Times and intergreens were calculated at Euston Circus based upon drawing *KH015-UA002838-LND-P1*;
- Vehicles will no longer be allowed to turn left from Hampstead Road and will continue ahead onto Gower Road to model a worst case scenario;
- The Saturation flows used in the model were calculated from RR67 or agreed with TfL. A LINSIG model was produced to use as a basis for the TRANSYT model.
- The saturation flow in LINSIG varies between AM and PM models due to differences in traffic flow distribution. As such in each case where the figure varied, the lower figure was used (and input directly);
- A cycle time of 80 seconds has been used in the AM peak and a cycle time of 88 seconds has been used in the PM Peak;
- Node 19 (Euston Circus) has been optimised, all other nodes within the network retain the existing timings;

The base models used are titled:

- Euston Circus\_Gr9\_am\_proposed\_1.5.tnd
- Euston Circus\_Gr9\_pm\_proposed\_1.5.tnd

## 4.4 Base Model Results

Figure 4.1: TRANSYT Base Model Results

Junction	Link Description	Link No	AM Peak		PM Peak	
			Deg of Sat (%)	Queue (PCU)	Deg of Sat (%)	Queue (PCU)
<b>A400 Hampstead Road / Drummond Road (02/34)</b>	Hampstead Road SB	3410	53	8	51	8
	Drummond Road WB	3420	67	4	52	4
	Hampstead Road NB	3430	25	3	47	9
	Drummond Road EB	3440	49	3	39	3
<b>Tottenham Court Road/Beaumont Place Pelican Crossing (02/250)</b>	Tottenham Court Road NB	2501	44	5	53	25
	Tottenham Court Road SB	N/A	N/A	N/A	N/A	N/A
<b>A501 Euston Road / A400 Hampstead Road / A400 Tottenham Court Road (02/19)</b>	Hampstead Road SB Right	1906	77	18	83	19
	Tottenham Court Road NB Ahead	1901	73	22	83	24
	Euston Road EB Off Slip Ahead/Right	1904	74	17	85	25
	Euston Road EB Off Slip Left	1905	30	2	71	8
	Mid Junction SB To A400 Gower St	1908	32	4	36	3
<b>Euston Road WB Off Slip / Euston circus SB Exit Arm (02/16)</b>	Euston Road (SB link from Euston circus)	161	61	9	63	13
	A501 Euston Road WB Off Slip	162	32	3	25	3
<b>A400 Tottenham Court Road / Grafton Way (02/59)</b>	Grafton Way Right Turn / Ahead	594	72	9	73	8
	Tottenham Court Road NB Ahead	592	52	17	91	33
<b>A400 Tottenham Court Road / Maple Street (02/60)</b>	Tottenham Court Road NB Ahead / Right	605	50	5	91	12
	Tottenham Court Road NB Ahead	604	51	10	92	21
	Maple Street Left/ Ahead	601	55	6	79	16

## 5 Proposed TRANSYT Models

### 5.1 Option 1 - Euston Road Slip Cycle Lane

The proposed layout for the CCC design Option 1 – Euston Road slip cycle lane is shown in drawing *Sketch 1* and described in detail in Section 2.1 of this report.

#### 5.1.1 Modelling Assumptions

The following assumptions were made whilst modelling Proposed Scenario 1:-

- Cruise Times and intergreens were calculated at Euston Circus based upon drawing *Sketch 1*;
- A cycle time of 120 seconds has been used in the AM peak and a cycle time of 120 seconds has been used in the PM Peak;
- All nodes have been optimised;

The revised models are titled:

- Euston Circus\_Gr9\_am\_proposed\_4.1.tnd
- Euston Circus\_Gr9\_pm\_proposed\_4.1.tnd

#### 5.1.2 Results Summary

Figure 5.1 shows the results of the AM peak and PM peak hour Option 1 TRANSYT models.

The link with the highest Degrees of Saturation (DoS) in the AM peak hour is the Hampstead Road approach with a DoS of 113% and a corresponding queue length of 65 Passenger Car Units (PCUs). Three other arms at the Euston Circus Junction are also predicted to operate with a DoS over 100%.

The link with the highest Degrees of Saturation (DoS) in the PM peak hour is the Tottenham Court Road approach with a DoS of 151% and a corresponding queue length of 239 PCUs. This predicted queue would block back across all adjacent junctions on Tottenham Court Road back to beyond the junction with Goodge Street.

The Hampstead Road approach is predicted to operate with a DoS of 147% and a corresponding queue length of 126 PCUs. This predicted queue would block back across all adjacent junctions on Hampstead Road to beyond the junction with Robert Street. The Euston Road straight ahead and right turn link is also predicted to operate over capacity with a DoS of 112% and a corresponding queue length of 86 PCUs.

It should be noted the queues TRANSYT predicts are built up over the one hour modelled period. In practice the queue on over capacity links would be considerably longer than modelled, as the queue builds up over time.

## 5.1.3 Proposed TRANSYT Model Results

Figure 5.1: TRANSYT Proposed Model Results- Option 1

Junction	Link Description	Link No	AM Peak		PM Peak	
			Deg of Sat (%)	Queue (PCU)	Deg of Sat (%)	Queue (PCU)
<b>A400 Hampstead Road / Drummond Road (02/34)</b>	Hampstead Road SB	3410	55	13	45	9
	Drummond Road WB	3420	36	5	56	5
	Hampstead Road NB	3430	22	6	32	6
	Drummond Road EB	3440	26	3	41	4
<b>Tottenham Court Road/Beaumont Place Pelican Crossing (02/250)</b>	Tottenham Court Road NB	2501	31	3	41	6
<b>A501 Euston Road / A400 Hampstead Road / A400 Tottenham Court Road (02/19)</b>	Hampstead Road SB Right	1906	113	65	147	126
	Tottenham Court Road NB	1901	110	67	151	239
	Euston Road EB Off Slip Ahead/Right	1904	112	74	112	86
	Euston Road EB Off Slip Left	1905	45	4	93	15
	Mid Junction SB To A400 Gower St	1908	25	4	28	8
	Tottenham Court Road NB Bus Lane	1962	106	19	98	13
	Hampstead Road SB Bus Lane	1963	98	9	89	6
	WB Cycle Lane	1965	15	0	15	0
<b>Euston Road WB Off Slip / Euston circus SB Exit Arm (02/16)</b>	Euston Road (SB link from Euston circus)	161	36	7	41	5
	A501 Euston Road WB Off Slip	162	45	6	27	4
<b>A400 Tottenham Court Road / Grafton Way (02/59)</b>	Grafton Way Right Turn / Ahead	594	66	12	79	17
	Tottenham Court Road NB Ahead	592	38	19	54	31
<b>A400 Tottenham Court Road / Maple Street (02/60)</b>	Tottenham Court Road NB Ahead / Right	605	35	6	68	11
	Tottenham Court Road NB Ahead	604	36	12	69	21
	Maple Street Left/ Ahead	601	54	9	77	20

## 5.2 Option 2– North Contra Flow Bus Lane

The proposed layout for the CCC design Option 2- north contra flow bus lane is shown in drawing *Sketch 2* and described in Section 2.2 of this report.

### 5.2.1 Modelling Assumptions

The following assumptions were made whilst modelling Option 2:-

- Cruise Times and intergreens were calculated at Euston Circus based upon drawing *Sketch 2*;
- A cycle time of 120 seconds has been used in the AM peak and a cycle time of 120 seconds has been used in the PM Peak;
- All nodes have been optimised;

The revised models are titled:

- Euston Circus\_Gr9\_am\_proposed\_5.0.tnd
- Euston Circus\_Gr9\_pm\_proposed\_5.0.tnd

### 5.2.2 Results Summary

Figure 5.2 shows the results of the AM peak and PM peak hour Option 2 TRANSYT models.

The link with the highest Degrees of Saturation (DoS) in the AM peak hour is the Tottenham Court Road approach with a DoS of 110% and a corresponding queue length of 69 PCUs. Two other links at the Euston Circus Junction are also predicted to operate with a DoS over 100%.

The link with the highest Degrees of Saturation (DoS) in the PM peak hour is the Hampstead Road approach with a DoS of 147% and a corresponding queue length of 127 PCUs. This predicted queue would block back across all adjacent junctions on Hampstead Road to beyond the junction with Robert Street.

The Tottenham Court Road approach is predicted to operate with a DoS of 146% and a corresponding queue length of 220 PCUs. This predicted queue would block back across all adjacent junctions on Tottenham Court Road back to the junction with Goodge Street. The Euston Road straight ahead and right turn link is also predicted to operate over capacity with a DoS of 108% and a corresponding queue length of 71 PCUs.

It should be noted the queues TRANSYT predicts are built up over the one hour modelled period. In practice the queue on over capacity links would be considerably longer than modelled, as the queue builds up over time.

## 5.2.3 Proposed TRANSYT Model Results

Figure 5.2: TRANSYT Proposed Model Results- Option 2

Junction	Link Description	Link No	AM Peak		PM Peak	
			Deg of Sat (%)	Queue (PCU)	Deg of Sat (%)	Queue (PCU)
<b>A400 Hampstead Road / Drummond Road (02/34)</b>	Hampstead Road SB	3410	48	10	44	9
	Drummond Road WB	3420	59	5	63	6
	Hampstead Road NB	3430	19	3	31	13
	Drummond Road EB	3440	43	4	46	4
<b>Tottenham Court Road/Beaumont Place Pelican Crossing (02/250)</b>	Tottenham Court Road NB	2501	29	6	40	6
<b>A501 Euston Road / A400 Hampstead Road / A400 Tottenham Court Road (02/19)</b>	Hampstead Road SB Right	1906	107	51	147	127
	Tottenham Court Road NB	1901	110	69	146	220
	Euston Road EB Off Slip Ahead/Right	1904	107	60	108	71
	Euston Road EB Off Slip Left	1905	43	4	90	14
	Mid Junction SB To A400 Gower St	1908	34	5	36	4
	Tottenham Court Road NB Bus Lane	1962	79	7	76	6
	Hampstead Road SB Bus Lane	1963	98	8	89	6
	Euston Road WB Bus Lane	1965	58	3	50	2
<b>Euston Road WB Off Slip / Euston circus SB Exit Arm (02/16)</b>	Euston Road (SB link from Euston circus)	161	75	18	69	19
	A501 Euston Road WB Off Slip	162	73	7	56	4
<b>A400 Tottenham Court Road / Grafton Way (02/59)</b>	Grafton Way Right Turn / Ahead	594	61	10	73	8
	Tottenham Court Road NB Ahead	592	37	7	54	15
<b>A400 Tottenham Court Road / Maple Street (02/60)</b>	Tottenham Court Road NB Ahead / Right	605	36	6	66	10
	Tottenham Court Road NB Ahead	604	36	12	67	21
	Maple Street Left/ Ahead	601	53	9	78	20



## 5.3 Option 3 –South Contra-Flow Bus Lane

The proposed layout for the CCC design Option 3- south contra-flow bus lane is shown in drawing *Sketch 3* and described in detail in Section 2.3.of this report.

### 5.3.1 Modelling Assumptions

The following assumptions were made whilst modelling Option 3:-

- Cruise Times and intergreens were calculated at Euston Circus based upon drawing *Sketch 3*;
- A cycle time of 120 seconds has been used in the AM peak and a cycle time of 120 seconds has been used in the PM Peak;
- All nodes have been optimised;

The revised models are titled:

- Euston Circus\_Gr9\_am\_proposed\_6.0.tnd
- Euston Circus\_Gr9\_pm\_proposed\_6.0.tnd

### 5.3.2 Results Summary

Figure 5.3 shows the results of the AM peak and PM peak hour Option 3 TRANSYT models.

The link with the highest Degrees of Saturation (DoS) in the AM peak hour is the Tottenham Court Road approach with a DoS of 90% and a corresponding queue length of 17 PCUs.

The link with the highest Degrees of Saturation (DoS) in the PM peak hour is the Hampstead Road approach with a DoS of 114% and a corresponding queue length of 65 PCUs. This predicted queue would block back on Hampstead Road across the Drummond Street junction.

The Tottenham Court Road approach is predicted to operate with a DoS of 105% and a corresponding queue length of 73 PCUs. This predicted queue would block back on Tottenham Court Road back to the junction with Grafton Way. The Euston Road straight ahead and right turn link is also predicted to operate over capacity with a DoS of 104% and a corresponding queue length of 57 PCUs.

It should be noted the queues TRANSYT predicts are built up over the one hour modelled period. In practice the queue on over capacity links would be considerably longer than modelled, as the queue builds up over time.

## 5.3.3 Proposed TRANSYT Model Results

Figure 5.3: TRANSYT Proposed Model Results- Option 3

Junction	Link Description	Link No	AM Peak		PM Peak	
			Deg of Sat (%)	Queue (PCU)	Deg of Sat (%)	Queue (PCU)
<b>A400 Hampstead Road / Drummond Road (02/34)</b>	Hampstead Road SB	3410	52	12	45	9
	Drummond Road WB	3420	42	5	56	5
	Hampstead Road NB	3430	23	8	38	14
	Drummond Road EB	3440	31	3	41	4
<b>Tottenham Court Road/Beaumont Place Pelican Crossing (02/250)</b>	Tottenham Court Road NB	2501	30	3	40	3
<b>A501 Euston Road / A400 Hampstead Road / A400 Tottenham Court Road (02/19)</b>	Hampstead Road SB Right	1906	89	25	114	65
	Tottenham Court Road NB	1901	90	17	105	73
	Euston Road EB Off Slip Ahead/	1904	88	29	104	57
	Euston Road EB Off Slip Left	1905	35	4	87	13
	Mid Junction SB To A400 Gower St	1908	38	5	46	6
	Tottenham Court Road NB Bus Lane	1962	74	7	76	7
	Hampstead Road SB Bus Lane	1963	87	7	89	6
	Euston Road WB Bus Lane	1965	52	3	44	2
<b>Euston Road WB Off Slip / Euston circus SB Exit Arm (02/16)</b>	Euston Road (SB link from Euston circus)	161	80	19	80	15
	A501 Euston Road WB Off Slip	162	73	6	66	5
<b>A400 Tottenham Court Road / Grafton Way (02/59)</b>	Grafton Way Right Turn / Ahead	594	62	11	68	14
	Tottenham Court Road NB Ahead	592	38	20	65	32
<b>A400 Tottenham Court Road / Maple Street (02/60)</b>	Tottenham Court Road NB Ahead / Right	605	42	6	66	10
	Tottenham Court Road NB Ahead	604	42	13	67	21
	Maple Street Left/ Ahead	601	46	8	78	20

# 6 Advantages/Disadvantages

The advantages and disadvantages of each of the three Proposed Options compared to the agreed proposed measures are described in Figure 6.1 below.

**Figure 6.1: Advantages and Disadvantages for each Option**

Option	Advantages	Disadvantages
<b>Option 1 Euston Road Slip Cycle Lane</b>	Hampstead Road and Tottenham Court Road approaches to Euston Circus safer for cyclists	Severe delays for general traffic with queues of up to 239 PCUs.
	Dedicated cycle lane and signals for westbound cyclists on Euston Road slip	Delay to pedestrians due to 120 second cycle time
	Removes possible pedestrian/cyclist conflict at south-east corner of Euston Circus	Footpath narrowing at Euston Circus due to carriageway widening
		Conflict point between pedestrians and cyclists on Euston Road slip exacerbated by 'Green Wall'
		Horizontal alignment from Tottenham Court Road to Hampstead Road very poor
<b>Option 2 North Contra-flow Bus Lane</b>	Hampstead Road and Tottenham Court Road approaches to Euston Circus safer for cyclists	Severe delays for general traffic with queues of up to 220 PCUs.
	Pedestrian crossing across Gower Street on desire line and all red pedestrian stage	Delay to pedestrians due to 120 second cycle time
	Bus lane for westbound cyclists on Euston Road slip	Environmental and aesthetical impact of tree removal on Euston Road slip.
	Existing bus routes using Grafton Way could use westbound bus lane and bus stop on Euston Road slip	Inadequate footway between bus lane and general traffic lane
	Removes possible pedestrian/cyclist conflict at south-east corner of Euston Circus	Horizontal alignment from Tottenham Court Road to Hampstead Road very poor
		Design cannot be safely accommodated due to island requirement.
<b>Option 3 South Contra-flow Bus Lane</b>	Hampstead Road and Tottenham Court Road approaches to Euston Circus safer for cyclists	Delays for general traffic with queues of up to 73 PCUs
	Bus lane for westbound cyclists on Euston Road slip	Delay to pedestrians due to 120 second cycle time
	Existing bus routes using Grafton Way could use westbound bus lane on Euston Road slip	Footpath narrowing at Euston Circus due to carriageway widening
	Removes possible pedestrian/cyclist conflict at south-east corner of Euston Circus	Horizontal alignment from Tottenham Court Road to Hampstead Road very poor
	Cheapest of the 3 options to implement	Safety issues of two lane traffic from Euston Road eastbound off-slip merging into one lane towards Gower Street

## 7 Conclusions

Traffic assessments of the three Proposed Camden Cycling Campaign options show the Euston Circus junction would operate well over capacity with any of the options, even with the cycle time increased to 120 seconds, with all the associated disadvantages for pedestrians.

All three options show significant disadvantages for buses, general traffic and pedestrians. In view of the extremely poor operation of this junction no benefit would accrue to cyclists either, as the junction would be blocked for a significant proportion of the peak times. There would also be a detrimental 'knock on' effect on other junctions in the vicinity and exacerbate the poor traffic conditions in the Euston Road underpass.

Option 1 results in the junction being required to operate significantly over capacity with the resulting queues blocking back to other junctions.

Option 2 appears the least viable due to the total impact on other road users, including general traffic and pedestrians. Option 2 would also be the most expensive to implement and mean the removal of ten mature trees in an area with severe air pollution.

Option 3 is not viable due to the impact on other road users including general traffic and pedestrians.

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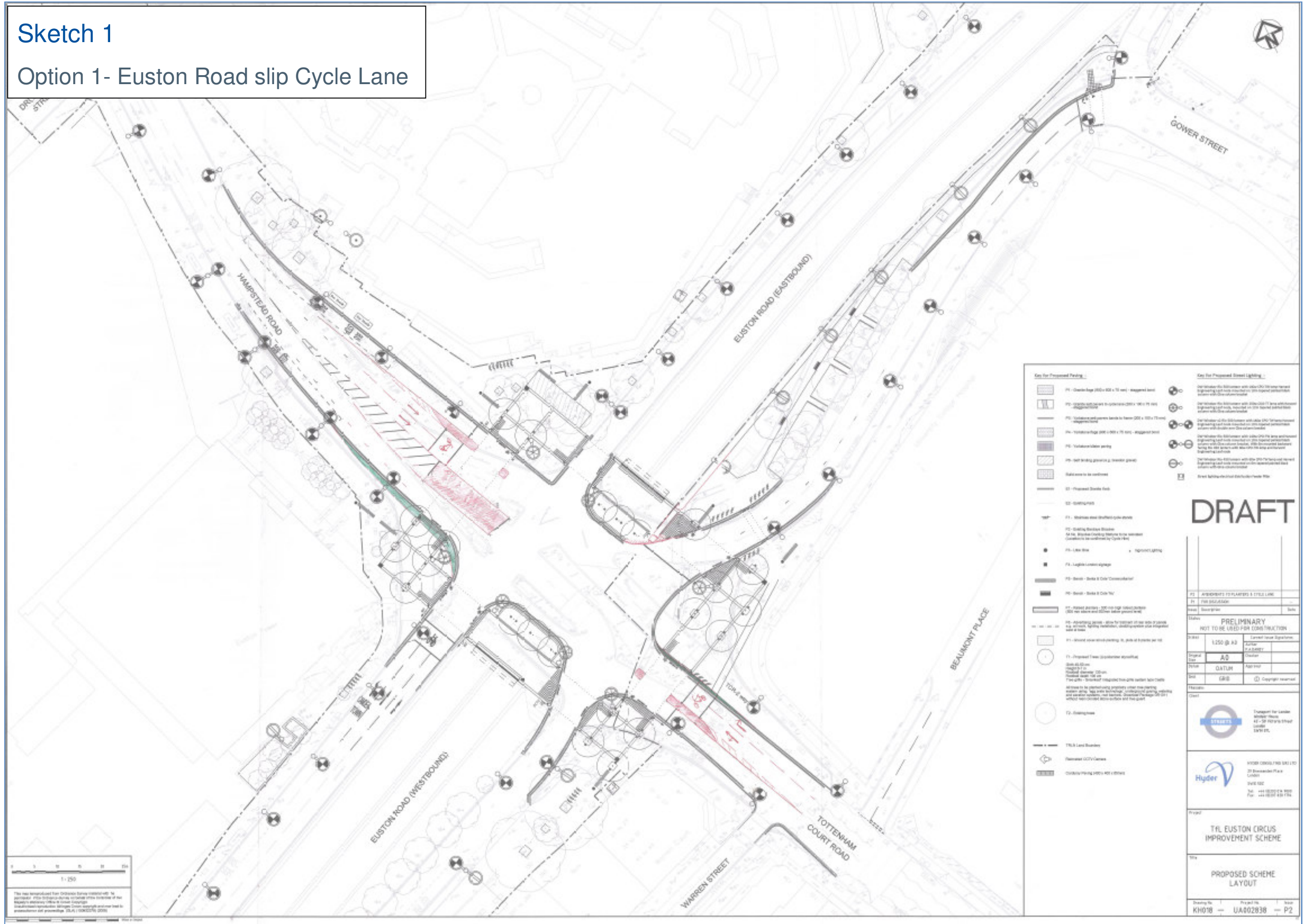
Appendix A

Drawings

DRAFT

# Sketch 1

## Option 1- Euston Road slip Cycle Lane



- Key for Proposed Pavement:

  - P1 - Crack-free (300 x 30) aggregate base
  - P2 - Crack-free (150 x 15) aggregate base
  - P3 - Crack-free (300 x 30) aggregate base
  - P4 - Crack-free (300 x 30) aggregate base
  - P5 - Crack-free (300 x 30) aggregate base
  - P6 - Crack-free (300 x 30) aggregate base

- Key for Proposed Street Lighting:

  - S1 - Street Light (300 x 30) aggregate base
  - S2 - Street Light (300 x 30) aggregate base
  - S3 - Street Light (300 x 30) aggregate base
  - S4 - Street Light (300 x 30) aggregate base
  - S5 - Street Light (300 x 30) aggregate base
  - S6 - Street Light (300 x 30) aggregate base

# DRAFT

PRELIMINARY  
NOT TO BE USED FOR CONSTRUCTION

Rev		Description
	1	ADDITIONAL TO PLANNERS & TRAIL LINE
	2	FOR REVISION

Transport for London  
45 - 50 Whitehall Place  
London  
SW1A 2NL

Hyder  
HYDER CONSULTING (UK) LTD  
21 Broadwalk Place  
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W1G 0JQ  
Tel: +44 (0)20 7720 9500  
Fax: +44 (0)20 7720 9501

Project: **TfL Euston Circus Improvement Scheme**

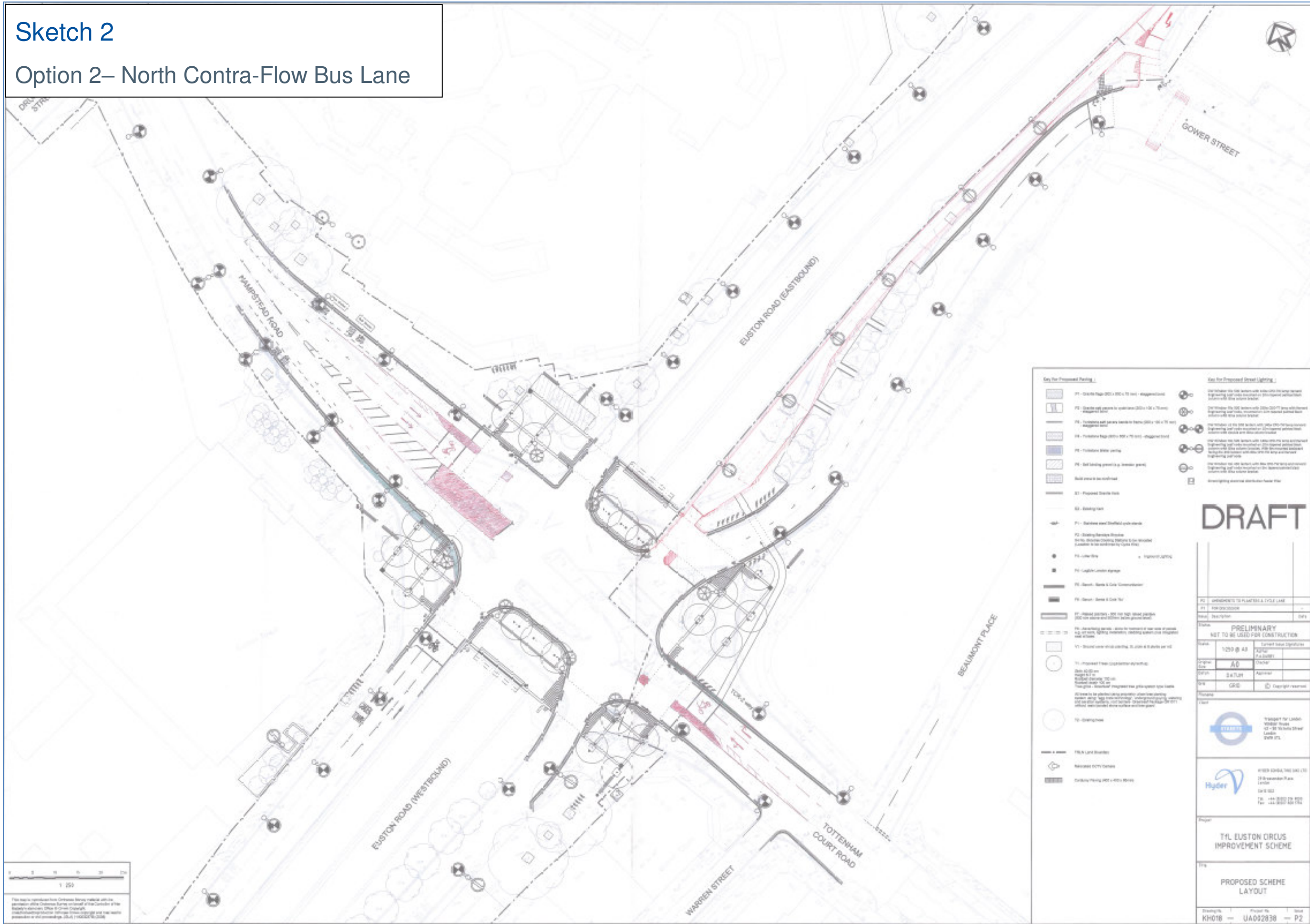
Proposed Scheme Layout

Drawing No:	Project No:	Sheet:
KA018	UA002838	P2

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# Sketch 2

## Option 2– North Contra-Flow Bus Lane



Key for Proposed Parking		Key for Proposed Street Lighting	
	P1 - Double space (20m x 7m) - staggered		S1 - Modern LED luminaire with 180° beam spread
	P2 - Double space (20m x 7m) - staggered		S2 - Modern LED luminaire with 180° beam spread
	P3 - Double space (20m x 7m) - staggered		S3 - Modern LED luminaire with 180° beam spread
	P4 - Double space (20m x 7m) - staggered		S4 - Modern LED luminaire with 180° beam spread
	P5 - Double space (20m x 7m) - staggered		S5 - Modern LED luminaire with 180° beam spread
	P6 - Double space (20m x 7m) - staggered		S6 - Modern LED luminaire with 180° beam spread
	P7 - Double space (20m x 7m) - staggered		S7 - Modern LED luminaire with 180° beam spread
	P8 - Double space (20m x 7m) - staggered		S8 - Modern LED luminaire with 180° beam spread
	P9 - Double space (20m x 7m) - staggered		S9 - Modern LED luminaire with 180° beam spread
	P10 - Double space (20m x 7m) - staggered		S10 - Modern LED luminaire with 180° beam spread
	P11 - Double space (20m x 7m) - staggered		S11 - Modern LED luminaire with 180° beam spread
	P12 - Double space (20m x 7m) - staggered		S12 - Modern LED luminaire with 180° beam spread
	P13 - Double space (20m x 7m) - staggered		S13 - Modern LED luminaire with 180° beam spread
	P14 - Double space (20m x 7m) - staggered		S14 - Modern LED luminaire with 180° beam spread
	P15 - Double space (20m x 7m) - staggered		S15 - Modern LED luminaire with 180° beam spread
	P16 - Double space (20m x 7m) - staggered		S16 - Modern LED luminaire with 180° beam spread
	P17 - Double space (20m x 7m) - staggered		S17 - Modern LED luminaire with 180° beam spread
	P18 - Double space (20m x 7m) - staggered		S18 - Modern LED luminaire with 180° beam spread
	P19 - Double space (20m x 7m) - staggered		S19 - Modern LED luminaire with 180° beam spread
	P20 - Double space (20m x 7m) - staggered		S20 - Modern LED luminaire with 180° beam spread
	P21 - Double space (20m x 7m) - staggered		S21 - Modern LED luminaire with 180° beam spread
	P22 - Double space (20m x 7m) - staggered		S22 - Modern LED luminaire with 180° beam spread
	P23 - Double space (20m x 7m) - staggered		S23 - Modern LED luminaire with 180° beam spread
	P24 - Double space (20m x 7m) - staggered		S24 - Modern LED luminaire with 180° beam spread
	P25 - Double space (20m x 7m) - staggered		S25 - Modern LED luminaire with 180° beam spread
	P26 - Double space (20m x 7m) - staggered		S26 - Modern LED luminaire with 180° beam spread
	P27 - Double space (20m x 7m) - staggered		S27 - Modern LED luminaire with 180° beam spread
	P28 - Double space (20m x 7m) - staggered		S28 - Modern LED luminaire with 180° beam spread
	P29 - Double space (20m x 7m) - staggered		S29 - Modern LED luminaire with 180° beam spread
	P30 - Double space (20m x 7m) - staggered		S30 - Modern LED luminaire with 180° beam spread
	P31 - Double space (20m x 7m) - staggered		S31 - Modern LED luminaire with 180° beam spread
	P32 - Double space (20m x 7m) - staggered		S32 - Modern LED luminaire with 180° beam spread
	P33 - Double space (20m x 7m) - staggered		S33 - Modern LED luminaire with 180° beam spread
	P34 - Double space (20m x 7m) - staggered		S34 - Modern LED luminaire with 180° beam spread
	P35 - Double space (20m x 7m) - staggered		S35 - Modern LED luminaire with 180° beam spread
	P36 - Double space (20m x 7m) - staggered		S36 - Modern LED luminaire with 180° beam spread
	P37 - Double space (20m x 7m) - staggered		S37 - Modern LED luminaire with 180° beam spread
	P38 - Double space (20m x 7m) - staggered		S38 - Modern LED luminaire with 180° beam spread
	P39 - Double space (20m x 7m) - staggered		S39 - Modern LED luminaire with 180° beam spread
	P40 - Double space (20m x 7m) - staggered		S40 - Modern LED luminaire with 180° beam spread
	P41 - Double space (20m x 7m) - staggered		S41 - Modern LED luminaire with 180° beam spread
	P42 - Double space (20m x 7m) - staggered		S42 - Modern LED luminaire with 180° beam spread
	P43 - Double space (20m x 7m) - staggered		S43 - Modern LED luminaire with 180° beam spread
	P44 - Double space (20m x 7m) - staggered		S44 - Modern LED luminaire with 180° beam spread
	P45 - Double space (20m x 7m) - staggered		S45 - Modern LED luminaire with 180° beam spread
	P46 - Double space (20m x 7m) - staggered		S46 - Modern LED luminaire with 180° beam spread
	P47 - Double space (20m x 7m) - staggered		S47 - Modern LED luminaire with 180° beam spread
	P48 - Double space (20m x 7m) - staggered		S48 - Modern LED luminaire with 180° beam spread
	P49 - Double space (20m x 7m) - staggered		S49 - Modern LED luminaire with 180° beam spread
	P50 - Double space (20m x 7m) - staggered		S50 - Modern LED luminaire with 180° beam spread

# DRAFT

PRELIMINARY NET TO BE USED FOR CONSTRUCTION	
Scale	1:250 @ A3
Author	AD
Check	SATURN
Date	GRS

Transport for London  
15-16 The Strand  
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WC2R 0PH

Hyder  
115-117 Tottenham Court Road  
London  
W1P 8LP  
Tel: 020 7070 1234

Project: TFL EUSTON CIRCUS IMPROVEMENT SCHEME

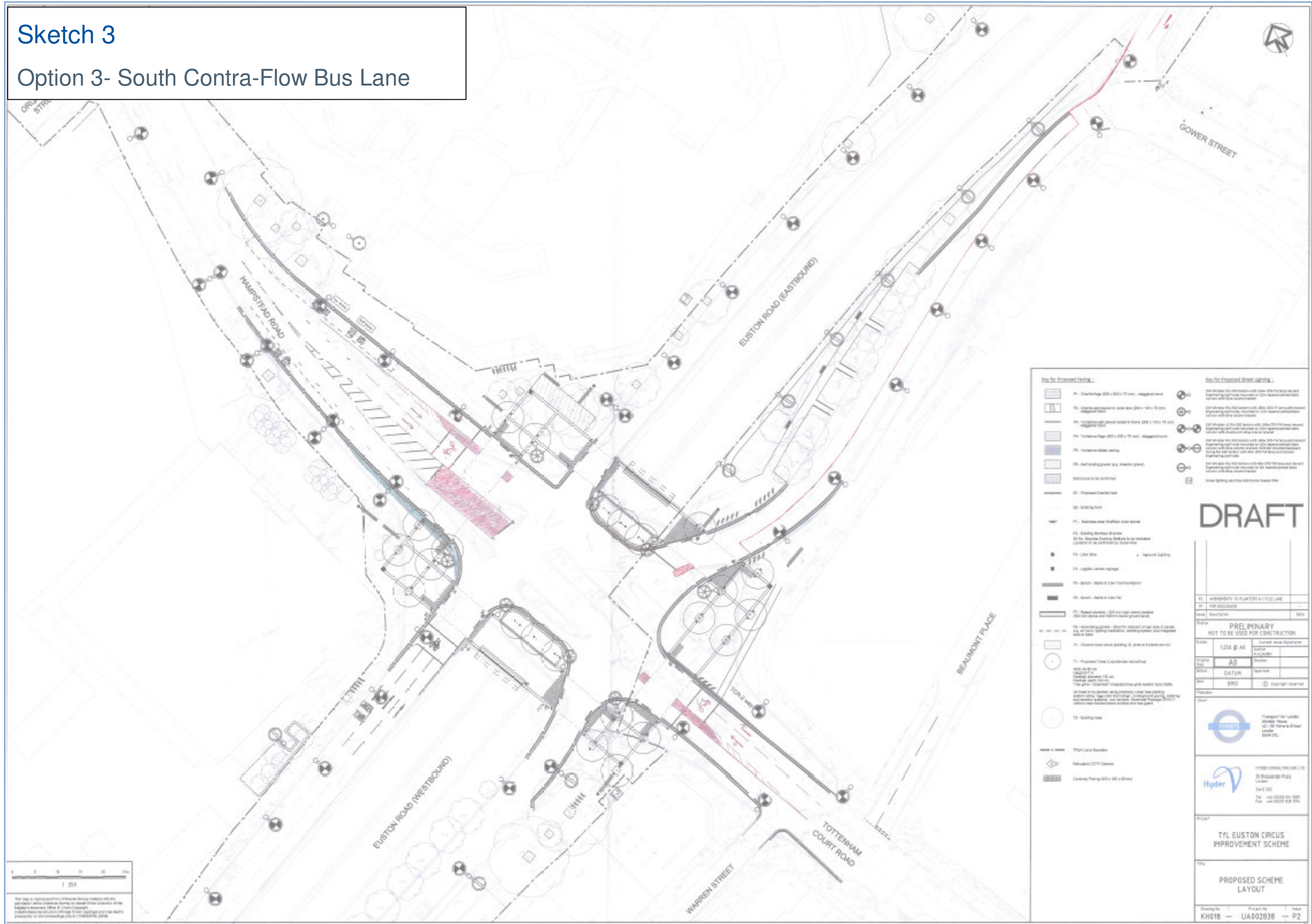
Title: PROPOSED SCHEME LAYOUT

Drawing No: KH018 | Project No: UA052838 | Sheet: P2

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# Sketch 3

## Option 3- South Contra-Flow Bus Lane



**Key for Proposed Parking:**

- P1 - Overlap 200 x 200 x 15 mm - staggered row
- P2 - Overlap 200 x 200 x 15 mm - staggered row
- P3 - Overlap 200 x 200 x 15 mm - staggered row
- P4 - Overlap 200 x 200 x 15 mm - staggered row
- P5 - Overlap 200 x 200 x 15 mm - staggered row
- P6 - Overlap 200 x 200 x 15 mm - staggered row
- P7 - Overlap 200 x 200 x 15 mm - staggered row
- P8 - Overlap 200 x 200 x 15 mm - staggered row
- P9 - Overlap 200 x 200 x 15 mm - staggered row
- P10 - Overlap 200 x 200 x 15 mm - staggered row
- P11 - Overlap 200 x 200 x 15 mm - staggered row
- P12 - Overlap 200 x 200 x 15 mm - staggered row
- P13 - Overlap 200 x 200 x 15 mm - staggered row
- P14 - Overlap 200 x 200 x 15 mm - staggered row
- P15 - Overlap 200 x 200 x 15 mm - staggered row
- P16 - Overlap 200 x 200 x 15 mm - staggered row
- P17 - Overlap 200 x 200 x 15 mm - staggered row
- P18 - Overlap 200 x 200 x 15 mm - staggered row
- P19 - Overlap 200 x 200 x 15 mm - staggered row
- P20 - Overlap 200 x 200 x 15 mm - staggered row
- P21 - Overlap 200 x 200 x 15 mm - staggered row
- P22 - Overlap 200 x 200 x 15 mm - staggered row
- P23 - Overlap 200 x 200 x 15 mm - staggered row
- P24 - Overlap 200 x 200 x 15 mm - staggered row
- P25 - Overlap 200 x 200 x 15 mm - staggered row
- P26 - Overlap 200 x 200 x 15 mm - staggered row
- P27 - Overlap 200 x 200 x 15 mm - staggered row
- P28 - Overlap 200 x 200 x 15 mm - staggered row
- P29 - Overlap 200 x 200 x 15 mm - staggered row
- P30 - Overlap 200 x 200 x 15 mm - staggered row
- P31 - Overlap 200 x 200 x 15 mm - staggered row
- P32 - Overlap 200 x 200 x 15 mm - staggered row
- P33 - Overlap 200 x 200 x 15 mm - staggered row
- P34 - Overlap 200 x 200 x 15 mm - staggered row
- P35 - Overlap 200 x 200 x 15 mm - staggered row
- P36 - Overlap 200 x 200 x 15 mm - staggered row
- P37 - Overlap 200 x 200 x 15 mm - staggered row
- P38 - Overlap 200 x 200 x 15 mm - staggered row
- P39 - Overlap 200 x 200 x 15 mm - staggered row
- P40 - Overlap 200 x 200 x 15 mm - staggered row
- P41 - Overlap 200 x 200 x 15 mm - staggered row
- P42 - Overlap 200 x 200 x 15 mm - staggered row
- P43 - Overlap 200 x 200 x 15 mm - staggered row
- P44 - Overlap 200 x 200 x 15 mm - staggered row
- P45 - Overlap 200 x 200 x 15 mm - staggered row
- P46 - Overlap 200 x 200 x 15 mm - staggered row
- P47 - Overlap 200 x 200 x 15 mm - staggered row
- P48 - Overlap 200 x 200 x 15 mm - staggered row
- P49 - Overlap 200 x 200 x 15 mm - staggered row
- P50 - Overlap 200 x 200 x 15 mm - staggered row

**Key for Proposed Street Lighting:**

- S1 - Street lighting pole 12m high - staggered row
- S2 - Street lighting pole 12m high - staggered row
- S3 - Street lighting pole 12m high - staggered row
- S4 - Street lighting pole 12m high - staggered row
- S5 - Street lighting pole 12m high - staggered row
- S6 - Street lighting pole 12m high - staggered row
- S7 - Street lighting pole 12m high - staggered row
- S8 - Street lighting pole 12m high - staggered row
- S9 - Street lighting pole 12m high - staggered row
- S10 - Street lighting pole 12m high - staggered row
- S11 - Street lighting pole 12m high - staggered row
- S12 - Street lighting pole 12m high - staggered row
- S13 - Street lighting pole 12m high - staggered row
- S14 - Street lighting pole 12m high - staggered row
- S15 - Street lighting pole 12m high - staggered row
- S16 - Street lighting pole 12m high - staggered row
- S17 - Street lighting pole 12m high - staggered row
- S18 - Street lighting pole 12m high - staggered row
- S19 - Street lighting pole 12m high - staggered row
- S20 - Street lighting pole 12m high - staggered row
- S21 - Street lighting pole 12m high - staggered row
- S22 - Street lighting pole 12m high - staggered row
- S23 - Street lighting pole 12m high - staggered row
- S24 - Street lighting pole 12m high - staggered row
- S25 - Street lighting pole 12m high - staggered row
- S26 - Street lighting pole 12m high - staggered row
- S27 - Street lighting pole 12m high - staggered row
- S28 - Street lighting pole 12m high - staggered row
- S29 - Street lighting pole 12m high - staggered row
- S30 - Street lighting pole 12m high - staggered row
- S31 - Street lighting pole 12m high - staggered row
- S32 - Street lighting pole 12m high - staggered row
- S33 - Street lighting pole 12m high - staggered row
- S34 - Street lighting pole 12m high - staggered row
- S35 - Street lighting pole 12m high - staggered row
- S36 - Street lighting pole 12m high - staggered row
- S37 - Street lighting pole 12m high - staggered row
- S38 - Street lighting pole 12m high - staggered row
- S39 - Street lighting pole 12m high - staggered row
- S40 - Street lighting pole 12m high - staggered row

**Legend:**

- W1 - Proposed footway
- W2 - Proposed footway
- W3 - Proposed footway
- W4 - Proposed footway
- W5 - Proposed footway
- W6 - Proposed footway
- W7 - Proposed footway
- W8 - Proposed footway
- W9 - Proposed footway
- W10 - Proposed footway
- W11 - Proposed footway
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- W91 - Proposed footway
- W92 - Proposed footway
- W93 - Proposed footway
- W94 - Proposed footway
- W95 - Proposed footway
- W96 - Proposed footway
- W97 - Proposed footway
- W98 - Proposed footway
- W99 - Proposed footway
- W100 - Proposed footway

**Scale:** 1:250

**North Arrow:** (Symbol pointing North)

**DRAFT**

NO. 11	ADDITIONS TO PLANETS & CYCLE LANE FOR EXISTING	25th
<b>PRELIMINARY</b> NOT TO BE USED FOR CONSTRUCTION		
Date:	1/25/2024	Current Issue/Revision
Author:	AD	Checked:
Drawn:	DAT	Reviewed:
Scale:	1:250	Project:
Sheet:	01	Project Name:
<b>TfL EUSTON CIRCUS IMPROVEMENT SCHEME</b>		
<b>PROPOSED SCHEME LAYOUT</b>		
Drawing No:	Project No:	Issue:
KH01B	UA102036	P2