

The British Library Board and SMBL Developments Ltd

British Library Extension

Transport Assessment Addendum

Issue | 16 September 2022

This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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1. Introduction

1.1 Scoping

This Transport Assessment (TA) Addendum has been prepared by Ove Arup and Partners Ltd. ('Arup') on behalf of the British Library Board and SMBL Developments Ltd ('the Developer') in response to the bus impact assessment comments received from the Greater London Authority (GLA) within its Stage 1 Report, dated 20 June 2022 (ref: GLA/2022/0363/S1/01), from Transport for London (TfL), dated 30 June 2022 (ref: 2022/0363), and from Camden Council, dated 5 July 2022 (ref: 2022/1041/P) in respect of the applications for planning permission and listed building consent (London Borough of Camden (LBC) references: 2022/1041/P and 2022/1320/L) at the Land to the North of the British Library (hereafter referred to as 'the Proposed Development') in the LBC. This application is still under consideration and has yet to be determined.

The stakeholders' comments on bus impact assessment are as follows:

- *GLA: the predicted trips from the proposed development may have an impact on the surrounding bus network. The applicant should provide bus trip figures assigned appropriately by route based on the existing network to determine whether any mitigation will be necessary. It is also expected that the proposed bus trip figures be higher for routes closer to the site, and that the number of bus route frequencies are incorrect and should be corrected.*
- *TfL: the predicted trips from this development may have an impact on the surrounding bus network. The applicant should provide bus trip figures by route based on the existing network so we can determine whether the additional demand can be accommodated. We would also expect that the proposed bus trip figures be higher for routes closer to the site, and that the number of bus route frequencies are incorrect and should be corrected.*
- *Camden Council: further detailed information should be provided regarding trip distribution on specific bus routes and underground lines, as requested by TfL/GLA.*

As requested in TfL's *Public Transport Service Planning* guidance document, the originally submitted TA (January 2022) provided bus analysis by corridor, and this TA Addendum provides further analysis by bus route in response to subsequent comments from the stakeholders. Therefore, this TA Addendum should be read in conjunction with the originally submitted TA for the Proposed Development and does not supersede that document.

1.2 Proposed Development

The Proposed Development would involve extending the northern aspect of the existing British Library to provide library accommodation; commercial space designed to cater for knowledge quarter uses (including life sciences, cultural, scientific and heritage collections and data sciences); retail space; and the Crossrail 2 works at basement level.

The Proposed Development would provide a gross internal area (GIA) of up to approximately 97,000m². The new library accommodation and the Alan Turing Institute (ATI) and public circulation, including a public foyer, would be provided at approximately 10,000m² in addition to a replaced British Library Centre for Conservation (BLCC) and British Library tank farm and other library infrastructure. Approximately 76,000m² (GIA) would be provided for commercial space together with retail. Infrastructure related to Crossrail 2 would be provided at approximately 4,300m² (GIA), plus a shaft descending between basement levels 2-7.

With respect to Crossrail 2, the Proposed Development would provide the main civils and structural elements of the Euston St Pancras station eastern shaft and passenger subway tunnel. There will be adaptations to existing library operational areas, including the loading bay.

1.3 Report structure

Following this first chapter which provides an introduction to the Proposed Development and the purpose of this TA Addendum, this report is structured as follows:

- **Section 2** summarises the trip generation forecasts in the TA.
- **Section 3** sets out the forecast bus demand on the existing bus network.
- **Section 4** summarises the TA Addendum and draws together the conclusions of the impact of the Proposed Development on the local bus network.

2. Trip generation

2.1 Overview

The TA (refer to Section 5 – London wide network) describes a detailed analysis of the likely trip generation and modal share associated with the Proposed Development.

The trip generation methodology has been derived from information contained in the TRICS (Trip Rate Information Computer System) database 2021 Version 7.8.1, which forecasts trip rates of new developments based on survey information of comparable sites across the UK. Mode shares have been calculated using TRICS and the local 2011 Census data and adjusted to reflect the provision of limited car parking spaces (five wheelchair-accessible car parking spaces).

Employee trips related to the ATI and retail uses have been derived using a first principles approach and mode shares have been calculated using local 2011 Census data, which have been adjusted to reflect the provision of limited car parking spaces.

For the purpose of the TA, this TA Addendum and to present a robust analysis, a worst case assessment has been analysed assuming a proposed number of staff and a maximum number of visitors for the daily condition of the proposed facility.

2.2 Total multi-modal trip generation

As stated in the TA (refer to Section 5.2 – Existing person trip generation), for a robust assessment, it has been assumed that the existing site generates no trips except for the existing British Library which will continue unchanged. Therefore, all the trips generated by the Proposed Development are considered as net trips.

The TA considers the AM peak hour (08:00-09:00) and the PM peak hour (17:00-18:00) as these are when the Proposed Development is forecast to generate the most hourly trips on a weekday, with an additional 2,305 and 3,274 two-way person trips across all modes of transport in the AM and PM peak hours respectively, as shown in Table 30 of the TA and reproduced in Table 1.

Table 1: Proposed multi-modal trip generation and mode share (employees and visitors)

Main mode	Proposed employee mode share	Proposed library visitor mode share	AM peak hour (08:00 – 09:00)			PM peak hour (17:00 – 18:00)		
			In	Out	Total	In	Out	Total
Walking	5.3%	3.0%	113	9	122	17	131	148
Cycling	10.0%	6.0%	213	18	231	34	249	283
Bus	15.7%	13.0%	334	28	362	65	419	484
London Underground/ Overground	40.0%	36.0%	851	70	922	174	1,091	1,265
National Rail	27.0%	40.0%	576	48	623	168	860	1,029
Taxi	0.1%	1.0%	2	0	2	3	10	13
Motorcycle, scooter or moped	1.2%	1.0%	26	2	28	5	32	37
Car/van driver	0.2%	0.0%	4	0	5	0	4	4

Main mode	Proposed employee mode share	Proposed library visitor mode share	AM peak hour (08:00 – 09:00)			PM peak hour (17:00 – 18:00)		
			In	Out	Total	In	Out	Total
Car/van passenger	0.0%	0.0%	0	0	0	0	0	0
Other	0.5%	0.0%	11	1	12	1	10	11
Total	100.0%	100.0%	2,129	176	2,305	467	2,807	3,274

Source: TA, Table 30

2.3 Cumulative schemes

A list of committed developments within the area of influence is illustrated in the TA (Appendix G), and the additional person trips by each mode generated by these developments in the AM and PM peak hours are presented in Section 5.4 – Cumulative schemes of the TA.

3. Impact on bus services

3.1 Overview

As described in the TA (refer to Section 5.5.3 – Impact on bus services), it is forecast that the Proposed Development, when fully occupied, will generate 362 two-way bus trips in the AM peak hour, as shown in Table 30 of the TA and reproduced in Table 1 (refer to Section 2.2), of which 334 are arrivals and 28 are departures, and 484 two-way bus trips in the PM peak hour, of which 65 are arrivals and 419 are departures.

In response to the stakeholders' comments on the bus impact assessment, this section demonstrates the impact of the Proposed Development on the existing local bus routes in the vicinity of the Proposed Development.

3.2 Impact on bus route

The TA (refer to Section 5.5.3 – Impact on bus services) assesses the impact of the Proposed Development on the local bus corridors (refer to TA, Table 34) as requested in TfL's *Public Transport Service Planning* guidance document, and this TA Addendum assesses the impact of the Proposed Development on the individual local bus routes in response to subsequent comments from the stakeholders.

Within 640m of the site, there are 16 bus services, and an average of 186 and 182 two-way bus services in the AM and PM peak hours respectively (based on the current number of bus route frequencies). TfL's bus spider maps for King's Cross and Euston areas (attached as Appendix A, to the rear of this TA Addendum) have been reviewed to identify the direction of the bus services outlined in Table 2.

To assess the impact of the Proposed Development on the local bus services, a high-level assessment has been undertaken on the general direction of the bus trips and the associated bus routes, and the frequency of bus services (e.g. buses per hour per direction).

The directional split has been determined by analysing the location of residence of those that travel to the site's middle super output area (MSOA) – Camden 022 to work by bus, and the employees' and visitors' home postcode data. The Census dataset 'WU03EW – Location of usual residence and place of work by method of travel to work (MSOA level)' was used in obtaining the location of residence from those that are travelling to the MSOA 'E02000187: Camden 022', where the site is located, for work. This provides an estimation on the distribution of trips across the modes (e.g. bus) and the public transport nodes (e.g. bus stops).

The local bus routes and the resultant trips for the Proposed Development are shown in Table 2.

Table 2: Additional AM and PM peak hour trips per bus route

Bus route	Origin - destination	Frequency (per direction)	Distribution (%)	Additional trips (arrive / depart)		Additional trips per bus (arrive / depart)	
				AM peak hour (08:00-09:00)	PM peak hour (17:00-18:00)	AM peak hour (08:00-09:00)	PM peak hour (17:00-18:00)
17	London Bridge station - Archway station	Every 8-12 minutes	5%	18 / 1	3 / 21	1.50 / 0.12	0.27 / 1.75
18	Euston station - Sudbury & Harrow Road station	Every 3-5 minutes	4%	14 / 1	3 / 17	0.90 / 0.07	0.26 / 1.68
30	Hackney Wick/ Trowbridge Road - Marble Arch station	Every 9-12 minutes	8%	26 / 2	5 / 34	2.23 / 0.18	0.45 / 2.93

Bus route	Origin - destination	Frequency (per direction)	Distribution (%)	Additional trips (arrive / depart)		Additional trips per bus (arrive / depart)	
				AM peak hour (08:00-09:00)	PM peak hour (17:00-18:00)	AM peak hour (08:00-09:00)	PM peak hour (17:00-18:00)
46	Paddington station/ Eastbourne Terrace - St Bartholomew's hospital	Every 8-12 minutes	5%	18 / 1	3 / 21	1.50 / 0.12	0.27 / 1.75
59	Telford Avenue - Euston bus station	Every 6-10 minutes	4%	14 / 1	3 / 17	1.81 / 0.15	0.34 / 2.23
63	St Pancras International station - St Saviours & St Olaves school	Every 8-10 minutes	9%	30 / 2	6 / 38	4.52 / 0.37	0.78 / 5.03
68	St Julian's Farm Road - Euston bus station	Every 6-10 minutes	5%	15 / 1	3 / 21	2.06 / 0.17	0.43 / 2.79
73	Stoke Newington Common - Great Titchfield St/ Oxford Circus station	Every 5-9 minutes	8%	26 / 2	5 / 34	1.49 / 0.12	0.30 / 1.96
91	Northumberland Avenue / Trafalgar Square - Rosebery Gardens	Every 8-10 minutes	9%	31 / 3	6 / 38	2.34 / 0.19	0.44 / 2.83
168	South End Green - Dunton Road	Every 7-10 minutes	5%	15 / 1	3 / 21	1.18 / 0.10	0.25 / 1.60
205	Bow Church - Cleveland Terrace	Every 8-12 minutes	8%	26 / 2	5 / 34	2.23 / 0.18	0.45 / 2.93
214	Highgate school/ Hampstead Lane - Finsbury Square	Every 6-10 minutes	2%	8 / 1	1 / 8	0.52 / 0.04	0.09 / 0.56
253	Hackney Central station - Euston bus station	Every 7-11 minutes	8%	26 / 2	5 / 34	3.83 / 0.32	0.78 / 5.03
259	Swinton Street - Edmonton Green bus station	Every 8-12 minutes	11%	39 / 3	7 / 46	3.22 / 0.27	0.59 / 3.84
390	Archway station - Victoria bus station	Every 8-11 minutes	5%	18 / 1	3 / 21	1.35 / 0.11	0.24 / 1.57
476	Wharfdale Road/ London Canal Museum - Northumberland Park	Every 8-12 minutes	4%	12 / 1	3 / 17	1.00 / 0.08	0.22 / 1.40

The additional bus trips expected to be generated by the Proposed Development will result in approximately one to six additional two-way passenger trips per bus on each bus route in the AM and PM peak hours, as outlined in Table 2.

Based on the frequencies and capacities of the surrounding bus services (55 seats for a single decker, 87 seats for a double decker), a total of 580-1,491 seats are available for each bus route in the AM and PM peak hours, depending on the type and frequency of buses. An additional one to six two-way passengers per bus in

the AM and PM peak hours equate to an increase of approximately 1-7% in bus patronage; more than 80% of the local bus services will have less than a 5% increase in bus patronage, which is considered a modest increase only in patronage.

3.2.1 Cumulative schemes

The effect of the Proposed Development on the local bus services has also been considered with respect to the cumulative schemes, which are expected to generate 899 and 728 bus trips in the AM and PM peak hours respectively. Together with the Proposed Development, the total two-way additional demand on local bus services in the AM peak hour will be 1,260, of which 1,045 are arrivals and 216 are departures, and in the PM peak hour will be 1,212, of which 241 are arrivals and 971 are departures (refer to TA, Section 5.5.3 – Impact on bus services).

For the distribution of trips associated with the cumulative schemes, the average of the Census dataset for the middle super output areas ‘E02000184: Camden 019, E02000189: Camden 024 and E02000190: Camden 025’, where the sites are located, were obtained.

To assess the impact of the Proposed Development and the cumulative schemes on the local bus services, the methodology from Section 3.2 has been applied and the average directional split for the cumulative schemes has been used.

The local bus routes and the resultant trips for the Proposed Development and cumulative schemes are shown in Table 3.

Table 3: Additional AM and PM peak hour trips per bus route (Proposed Development and cumulative schemes)

Bus route	Origin – destination	Frequency (per direction)	Distribution (%)	Additional trips (arrive / depart)		Additional trips per bus (arrive / depart)	
				AM peak hour (08:00-09:00)	PM peak hour (17:00-18:00)	AM peak hour (08:00-09:00)	PM peak hour (17:00-18:00)
17	London Bridge station - Archway station	Every 8-12 minutes	5%	57 / 12	13 / 53	4.74 / 0.98	1.09 / 4.40
18	Euston station - Sudbury & Harrow Road station	Every 3-5 minutes	4%	43 / 9	10 / 40	2.85 / 0.59	0.99 / 3.98
30	Hackney Wick/ Trowbridge Road - Marble Arch station	Every 9-12 minutes	8%	81 / 17	19 / 75	7.07 / 1.46	1.63 / 6.57
46	Paddington station/ Eastbourne Terrace - St Bartholomew’s hospital	Every 8-12 minutes	5%	57 / 12	13 / 53	4.74 / 0.98	1.09 / 4.40
59	Telford Avenue - Euston bus station	Every 6-10 minutes	4%	43 / 9	10 / 40	5.71 / 1.18	1.31 / 5.30
63	St Pancras International station - St Saviours & St Olaves school	Every 8-10 minutes	8%	88 / 18	20 / 82	13.20 / 2.72	2.70 / 10.90
68	St Julian’s Farm Road - Euston bus station	Every 6-10 minutes	4%	43 / 9	10 / 40	5.74 / 1.18	1.32 / 5.33
73	Stoke Newington Common - Great Titchfield St/ Oxford Circus station	Every 5-9 minutes	8%	81 / 17	19 / 75	4.71 / 0.97	1.08 / 4.38

Bus route	Origin – destination	Frequency (per direction)	Distribution (%)	Additional trips (arrive / depart)		Additional trips per bus (arrive / depart)	
				AM peak hour (08:00-09:00)	PM peak hour (17:00-18:00)	AM peak hour (08:00-09:00)	PM peak hour (17:00-18:00)
91	Northumberland Avenue / Trafalgar Square – Rosebery Gardens	Every 8-10 minutes	10%	102 / 21	23 / 95	7.64 / 1.58	1.76 / 7.10
168	South End Green – Dunton Road	Every 7-10 minutes	4%	43 / 9	10 / 40	3.29 / 0.68	0.76 / 3.06
205	Bow Church - Cleveland Terrace	Every 8-12 minutes	8%	81 / 17	19 / 75	7.05 / 1.46	1.62 / 6.55
214	Highgate school/ Hampstead Lane - Finsbury Square	Every 6-10 minutes	3%	26 / 5	6 / 24	1.73 / 0.36	0.40 / 1.61
253	Hackney Central station - Euston bus station	Every 7-11 minutes	8%	81 / 17	19 / 75	12.11 / 2.50	2.79 / 11.26
259	Swinton Street - Edmonton Green bus station	Every 8-12 minutes	12%	126 / 26	29 / 117	10.48 / 2.16	2.41 / 9.74
390	Archway station - Victoria bus station	Every 8-11 minutes	5%	57 / 12	13 / 53	4.25 / 0.88	0.98 / 3.95
476	Wharfdale Road/ London Canal museum - Northumberland Park	Every 8-12 minutes	4%	38 / 8	9 / 35	3.16 / 0.65	0.73 / 2.94

The additional bus trips expected to be generated by the Proposed Development and the cumulative schemes will result in approximately two to 16 additional two-way passenger trips per bus on each bus route, which equates to an increase of 4-18% in bus patronage.

Approximately 70% of the bus services in the local area will have an increase in patronage of less than 10%, with three bus services (routes 63, 253 and 259) are forecast to have an increase of more than 10% in its patronage.

4. Summary

This TA Addendum has been prepared by Ove Arup and Partners Ltd. ('Arup') on behalf of the British Library Board and SMBL Developments Ltd ('the Developer') in response to the transport comments on the bus impact assessment received from the stakeholders (GLA, TfL and Camden Council) in June/July in respect of the applications for planning permission and listed building consent (LBC references: 2022/1041/P and 2022/1320/L) at the Land to the North of the British Library in the LBC. This application is still under consideration and has yet to be determined.

It is forecast that the Proposed Development, when fully occupied, will generate 2,305 and 3,274 two-way person trips across all modes of transport in the AM and PM peak hours respectively. Based on the proposed employee mode share of 15.7% and proposed library visitor mode share of 13% for local buses, it is forecast that the Proposed Development will generate 362 two-way bus trips in the AM peak hour, of which 334 are arrivals and 28 are departures, and 484 two-way bus trips in the PM peak hour, of which 65 are arrivals and 419 are departures.

Together with the cumulative schemes, the total two-way additional demand on local bus services in the AM peak hour will be 1,260, of which 1,045 are arrivals and 216 are departures, and in the PM peak hour will be 1,212, of which 241 are arrivals and 971 are departures.

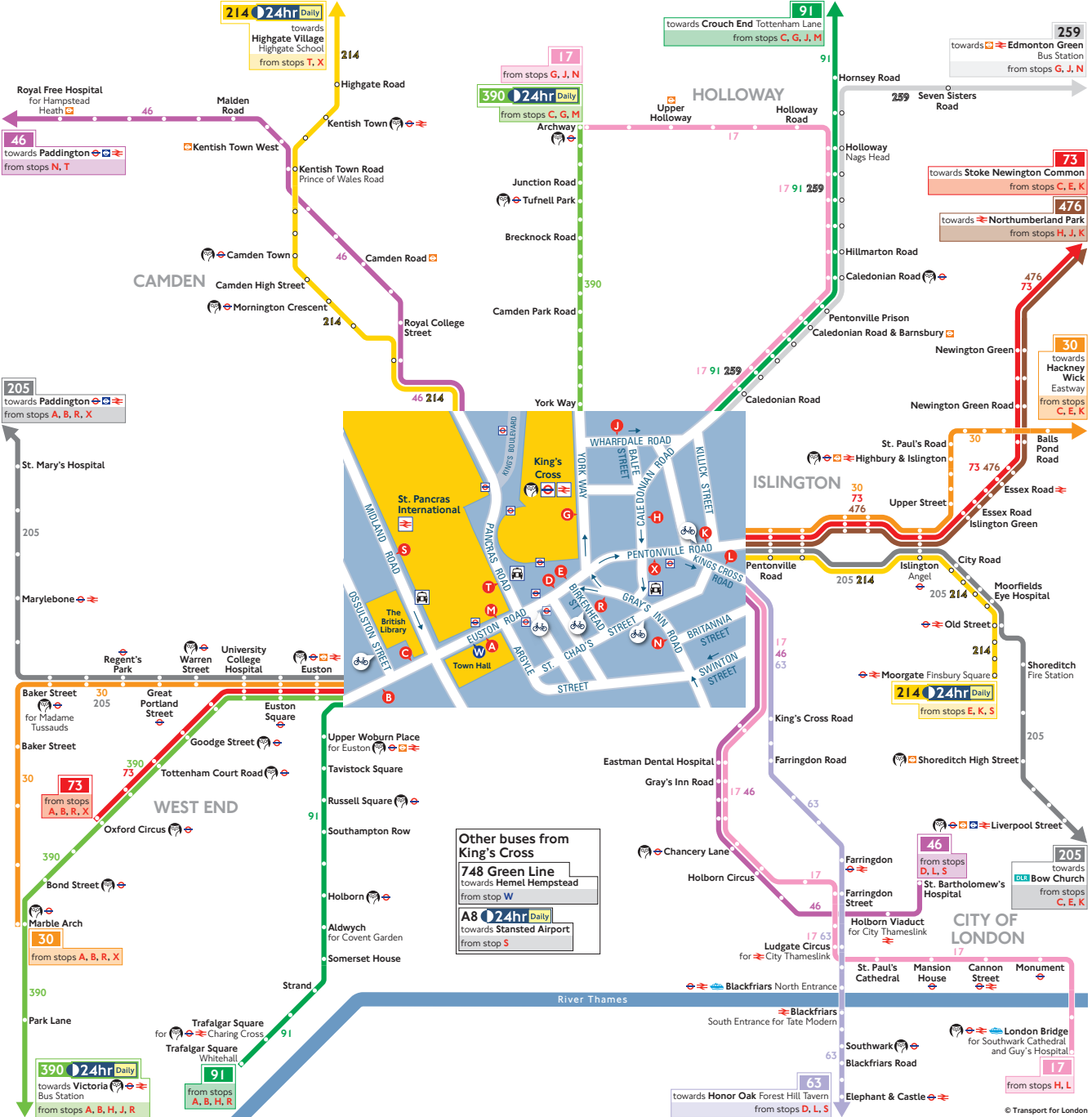
Within 640m of the site, there are 16 bus services, and an average of 186 and 182 two-way bus services in the AM and PM peak hours respectively. The additional bus trips expected to be generated by the Proposed Development will result in approximately one to six additional two-way passenger trips per bus on each bus route, based on a frequency of buses in the peak hours. This equates to an increase of approximately 1-7% in bus patronage, with more than 80% of the local bus services having less than a 5% increase in bus patronage, which is considered a modest increase in patronage. With the cumulative schemes, this will result in approximately two to 16 additional two-way passenger trips per bus on each bus route, which equates to an increase of 4-18% in bus patronage.

In summary, the additional bus trips generated by the Proposed Development have been allocated to individual bus routes and the forecast increases are considered to be modest and expected to disperse across the majority of the bus network. Therefore, it is considered that the comments received have now been responded to insofar as they relate to bus trips and that the conclusions outlined in the TA remain valid and robust.

Appendix A

TfL's bus spider maps for King's Cross and Euston areas

Buses from King's Cross



Other buses from King's Cross

- 748 Green Line** towards Hemel Hempstead from stop W
- A8 24hr Daily** towards Stansted Airport from stop S

How to use this map

- Find your destination on the map
- See the coloured lines on the map for the bus routes that go to your destination
- Check the map (at the end of each coloured line) for the bus stops to catch your bus from
- Use the central map to find the nearest bus stop for your route
- Look for the bus stop letters at the top of the stop (see example for stop A to the right)



Key

	Connections with London Underground
	Connections with London Overground
	Connections with TFL Rail
	Connections with National Rail
	Connections with DLR
	Connections with river boats
	Cycle hire docking station
	Taxi rank
	Tube/London Overground station with 24-hour service Friday and Saturday nights

Ways to pay

- Use contactless (card or device). It's the same fare as Oyster pay as you go and you don't need to top up
- Download the free TFL app to top up or buy a ticket anytime, anywhere, or visit tfl.gov.uk/oyster. Alternatively, find your nearest Oyster Ticket Stop at tfl.gov.uk/ticketstopfinder or visit your nearest TFL station
- The Hopper fare offers you unlimited pay as you go Bus and Tram journeys within one hour. Always use the same card or device to touch in
- If you fail to show on demand a ticket, validated smartcard or other travel authority valid for the whole of your journey you may be liable for a penalty fare or prosecuted.

Buses from Euston

Other buses from Euston

748 Greenline ▲
towards Hemel Hempstead
from stop CH

748 Greenline ▼
towards Victoria
from stop AZ

18
towards Sudbury & Harrow Road
from stops E, H, P

168
towards Hampstead Heath
South End Green
from stops A, K, L

390 24hr Daily
towards Archway
from stop C

253
towards Hackney Central
from stops A, G

91
towards Crouch End Broadway
from stops C, K, L

30
towards Hackney Wick
Eastway
from stop D

73
towards Stoke Newington Common
from stop D

18
towards Sudbury & Harrow Road
from stops E, H, P

73
towards Stoke Newington Common
from stops H, P

390
towards Archway
from stop C

91
towards Crouch End Broadway
from stops C, K, L

30
towards Hackney Wick
Eastway
from stop D

73
towards Stoke Newington Common
from stop D

205
towards Bow Church
from stop D

390
towards Archway
from stop C

91
towards Crouch End Broadway
from stops C, K, L

59
towards West Norwood
from stops E, M, N

168
towards Old Kent Road Tesco
from stops B, M, N

18
towards Sudbury & Harrow Road
from stops E, H, P

73
towards Stoke Newington Common
from stops H, P

390
towards Archway
from stop C

91
towards Crouch End Broadway
from stops C, K, L

30
towards Hackney Wick
Eastway
from stop D

73
towards Stoke Newington Common
from stop D

205
towards Bow Church
from stop D

390
towards Archway
from stop C

91
towards Crouch End Broadway
from stops C, K, L

59
towards West Norwood
from stops E, M, N

168
towards Old Kent Road Tesco
from stops B, M, N



How to use this map

- Find your destination on the map
- See the coloured lines on the map for the bus routes that go to your destination
- Check the map (at the end of each coloured line) for the bus stops to catch your bus from
- Use the central map to find the nearest bus stop for your route
- Look for the bus stop letters at the top of the stop (see example for stop A to the right)



Key

- Connections with London Underground
- Connections with TfL Rail
- Connections with National Rail
- Connections with DLR
- Connections with river boats
- Cycle hire docking station
- Taxi rank
- Tube/London Underground station with 24-hour service Friday and Saturday nights
- Monday to Friday morning peak
- Monday to Friday evening peak

Ways to pay

- Use contactless (card or device). It's the same fare as Oyster pay as you go and you don't need to top up
- Download the free TfL app to top up or buy a ticket anytime, anywhere, or visit tfl.gov.uk/oyster. Alternatively, find your nearest Oyster Ticket Stop at tfl.gov.uk/ticketstopfinder or visit your nearest TfL station
- The Hopper fare offers you unlimited pay as you go Bus and Tram journeys within one hour for £1.50. Always use the same card or device to touch in
- If you fail to show on demand a ticket, validated smartcard or other travel authority valid for the whole of your journey you may be liable for a penalty fare or prosecuted.