Bloomsbury Research Institute
15-17 Tavistock Place
London

Transport Statement

Wilde

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UCL Tavistock Place TS

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UCL and London School of Hygiene & Tropical Medicine – Bloomsbury Research Institute
15-17 Tavistock Place Camden London

Transport Statement

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Transport Statement

Introduction

1 Introduction

1.1 This Transport Statement has been prepared by Wilde Carter Clack, Consulting Civil Engineers, on behalf of University College London (UCL) and the London School of Hygiene & Tropical Medicine (the School) in support of a planning application for a proposed development to the rear of the School building at 15-17 Tavistock Place, Camden, London.

1.2 The existing building at Tavistock Place, owned by the School, is an early twentieth century brick-faced building comprising four storeys plus a basement. It faces directly onto Tavistock Place, to which it has a highways frontage and from which it is accessed by vehicles and pedestrians. To the rear of the main building is a small courtyard area and towards the rear of the site is a single storey structure being a former depot.

1.3 The proposed development is part of a broader building and development programme that UCL is implementing within its extensive London estate. UCL and the School seek permission to demolish the single storey structure to the rear of the site and to develop this area to provide additional laboratory and office space. Once completed, the finished building will become the Bloomsbury Research Institute (BRI), a global centre of excellence.

1.4 The School building at 15 – 17 Tavistock Place lies within the King's Cross Ward of the London Borough of Camden, which is the local planning authority. Highway responsibilities within the area are split between Transport for London, which is responsible for the Transport for London Road Network, TLRN, and the London Borough of Camden, which is the local highway authority.

1.5 At a pre-application meeting with officers of the London Borough of Camden (LBC) on 3 February 2015 the highways development control engineer indicated that a Transport Statement would be required in support of the planning application for the proposed development. A Transport Statement, as opposed to a full Transport Assessment, is appropriate where it is recognised that the proposed development would have relatively small transport implications.

1.6 This Transport Statement has been prepared in accordance with best practice and having regard to the guidance published by London Borough of Camden (LBC), in particular CPG7: Camden Planning Guidance 7 Transport. Reference has also been made to the Transport Assessment Guidance published online by Transport for London. With regards to the scope and content of a Transport Statement, reference was made to Chapter 3 of the guidance on the preparation of Transport Assessments published jointly by the Departments for Transport and Communities and Local Government in March 2007[1], which in these respects is considered to remain valid notwithstanding that it is acknowledged that the guidance was withdrawn by Government in October 2014.

1.7 The purpose of this Transport Statement is to consider the transport characteristics of the proposed development, in the context of the existing School use on the site, and to examine the impact that the proposal would have on the local transport network in order to enable the local planning and highway authorities to judge the merits of the proposal in transport terms.

2 Structure of this Transport Statement

2.1 This Transport Statement is divided into two main sections, corresponding with the recommendations of the former national guidance.

2.2 Following an examination, in section 3 below, of the Policy Context for this Transport Statement, **Section A** describes existing conditions, broken down into two areas covering **Existing Site Information** and **Baseline Transport Data.**

[1] Guidance on Transport Assessment: DCLG/DfT – The Stationery Office, March 2007

2.3 Existing Site Information provides a description of the site, its current and permitted use and its surroundings.

2.4 Baseline Transport Data presents an assessment of existing public transport services accessible from the site (including the results of a PTAL assessment) and examines the accessibility of the site by sustainable modes of transport. It provides details of the results of a multi-modal survey of existing trips to and from the site commissioned specifically for this study and carried out by an independent survey company during April 2015. It also describes the results of a survey of existing service and delivery vehicle trips undertaken by the School specifically for the current study, again during April 2015.

2.5 Section B of the report provides a detailed description of the proposed development, including the internal floor area and its proposed uses, details of the access, parking provision for disabled persons and cycles and servicing arrangements. Disabled persons' and cycle parking provision is described and assessed in the context of prevailing parking standards. Based on the trip data presented in Part A, an assessment is made of the likely effects of the proposed development on person trips to and from the site. A similar assessment is made of the likely changes to the numbers of service and delivery vehicle trips and the future arrangements for vehicular access for servicing/delivery vehicles are discussed. The impacts on the local transport system of the demolition/construction phase of the development are considered, together with the contents of a draft Construction Management Plan (CMP) that contains suitable measures to mitigate those impacts and which accompanies the planning application. The proposed arrangements to encourage sustainable travel to and from the development, through the medium of a site-specific Travel Plan are described.

2.6 Finally, the report provides a summary of and conclusions arising from the assessments carried out. It is concluded that the proposed development of the existing School building would not have a significant impact on the local transport network and should, as a result, be acceptable to the local planning and highway authorities.

Policy Context

3 The Policy Framework

3.1 The Transport Statement has been prepared within a framework of national and local policies that support the principle of sustainable development. These can be briefly summarised as follows.

National Planning Policy Framework (NPPF) (2012)

3.2 The principle of sustainable development is at the heart of the National Planning Policy Framework. The framework sets out 12 core land-use planning principles, one of which is that:

Planning should actively manage patterns of growth to make the fullest possible use of public transport, walking and cycling and focus significant development in locations which are or can be made sustainable.

3.3 The framework establishes a presumption in favour of sustainable development. Section 4 of the framework provides the planning policy framework for promoting sustainable transport. Paragraph 32 requires that planning decisions about developments that generate significant numbers of trips should take account of the extent to which opportunities for sustainable transport modes have been taken up, safe access is provided for all people, and whether cost-effective improvements to the transport network can be undertaken to limit the impacts of the development. The National Planning Policy Framework states that development should only be prevented or refused where the residual cumulative impacts of development are severe. A specific reference is made ot the role of Transport Statements in helping planning authorities to fulfil this requirement. Paragraph 34 requires that plans and decisions should ensure that developments that generate significant movement are located where the need to travel will be minimised and the use of sustainable transport modes can be maximised. This Transport Statement describes the opportunities that exist within proximity of the School site that will help to maximise trips by sustainable transport modes. Paragraph 35 requires development plans to exploit opportunities for the use of sustainable transport modes for the movement of goods or people and requires developments to be designed where practicable to accommodate the efficient delivery of goods and supplies. The Transport Statement

describes the features of the proposed development that will promote the use of sustainable transport modes and facilitate the efficient delivery of goods and supplies.

The London Plan (2015)

3.4 Spatial planning at a strategic level in London is set out in the **London Plan[2],** which was published in July 2011**.** The plan considers the future development of the Capital to 2031 and beyond. In March 2015 the Mayor formally adopted the Further Alterations to the London Plan and a consolidated, updated London Plan[3] which extends the formal end date of the plan to 2036.

3.5 As with the previous London Plan[4], the idea of **sustainable development** is central to the current London Plan and all policies in the plan are designed to promote sustainable development. The plan identifies the Mayor's aim as being to '…seek to manage growth to ensure it takes place in the most sustainable way possible.' From the Mayor's vision of the Capital as a place that 'excel[s] among global cities' to individual policies, managing and planning for growth that is sustainable is a recurring feature of the plan.

3.6 To deliver this vision, the Mayor has set six objectives that are the embodiment of sustainable development. They envisage a city that is prosperous, competitive, diverse, accessible and environmentally responsible, where growth is accommodated within its existing boundaries.

3.7 **Objective 6** of these six objectives is to **improve London's accessibility**, creating:

'A city where it is easy, safe and convenient for everyone to access jobs, opportunities and facilities with an efficient and effective transport system which actively encourages more walking and cycling, makes better use of the Thames and supports delivery of all the objectives of this Plan.'

3.8 This Transport Statement demonstrates that the existing School building, the site of the proposed development, is in a sustainable location that will encourage all those travelling to and from the site to travel by sustainable modes of transport.

[2] 'The London Plan – Spatial Development Strategy for Greater London' Greater London Authority, July 2011
[3] 'The London Plan – Spatial Development Strategy for Greater London Consolidated with Alterations since 2011' Greater London Authority, March 2015
[4] 'The London Plan – Spatial Development Strategy for Greater London Consolidated with Alterations since 2004' Greater London Authority, February 2008

3.9 Chapter 6 of the Plan deals with London's Transport, setting out a series of strategic policies that will encourage patterns of development that reduce the need to travel, especially by car; that seek to improve the capacity and accessibility of public transport, walking and cycling; that will promote a shift to more sustainable modes of travel with significant increases in walking and cycling and a reduction in congestion; and that facilitate the efficient distribution of freight whilst minimising its impacts on the transport network. Policy 6.3 refers specifically to the need to ensure that the impacts of development proposals on transport capacity and the transport network are fully assessed. This Transport Statement fulfils that requirement and demonstrates that the proposed development would encourage sustainable transport modes, in particular walking, cycling and public transport, and would therefore contribute towards the objectives of the Plan.

Local authority policy

3.10 Planning decisions in the London Borough of Camden are made with regard to the London Plan and a number of planning documents adopted by the Council. Currently, the planning policy documents comprise the **Core Strategy[5] and Development Policies[6]**. These are supported by planning guidance. The London Borough of Camden is currently reviewing these main planning policies and is consulting on a draft **Local Plan,** which will ultimately replace the Core Strategy and Camden Development Policies. The Core Strategy (CS) and Development Policies (DP) contain several strategic objectives and detailed policies that support and promote sustainable transport.

3.11 Core Strategy Policy CS1 says that London Borough of Camden will focus Camden's growth in the most suitable locations and will promote appropriate development in highly accessible locations. The site of the proposed development lies within the defined Central London Area of Camden and Policy CS3 states that the Council will promote appropriate development in the Central London area, recognising that this area is highly accessible by a range of means of transport. Policy CS3 recognises that this area is '…particularly suitable for uses that are likely to significantly increase the demand for travel.' The proposed development would therefore be sited in an

[5] 'Camden Core Strategy 2010-2025 Adoption version 2010' London Borough of Camden 2010
[6] 'Camden Development Policies 2010-2025' London Borough of Camden, November 2010

area that LBC acknowledges is a sustainable location, highly accessible by a range of travel modes, that offers broad travel choice by sustainable modes in particular.

3.12 Policy CS11 'Promoting Sustainable and Efficient Travel' states that in order to support Camden's economic growth, the Council will promote the delivery of transport infrastructure and the availability of sustainable transport choices, reduce the environmental impact of travel and relieve pressure on the borough's transport network. The policy supports initiatives to promote sustainable travel, particularly walking, cycling and public transport, and in order to reduce congestion and adverse environmental impacts, the Council will minimise provision for private parking in new developments by promoting car free development in the most accessible locations in the borough. The policy seeks to minimise the adverse impacts of freight movement, including during construction, and to ensure that new development acknowledges the road hierarchy and does not cause harm to the management of the road network. The proposed development is consistent with this policy; it is proposed to be car-free (other than for disabled persons) and makes adequate provision for on-site servicing whilst a Construction Management Plan, which accompanies the planning application, demonstrates how the potentially adverse impacts of the demolition and construction phases of the project, including those associated with construction traffic, will be effectively managed and mitigated.

3.13 Camden's Development Policies 2010-2025 contain the detailed policies that are designed to deliver the strategic objectives of the Core Strategy. There are several policies that relate to the delivery of sustainable transport. Policies DP16-21 specifically support Core Strategy Policy CS11 under the heading of 'Promoting Sustainable and Efficient Transport'.

3.14 Policy DP16 considers the transport implications of development, and seeks to ensure that new development is properly integrated with the transport network, with adequate provision of walking, cycling and public transport links. Specific reference is made to the need to ensure that a development proposal will not cause harm to the transport network or to highway safety, evidenced through appropriate assessments and effective management plans, including a Travel Plan, Construction Management Plan and Delivery and Servicing Plan. This Transport Statement assesses the transport characteristics of the proposed development and shows that there would not be a substantial impact on the transport system. The Transport Statement also

describes the scope and contents of the supporting management plans that comprise measures to effectively control, and where necessary mitigate, the potential highway impacts associated with the construction and subsequent servicing of the development and the measures that would be adopted to further encourage those travelling to and from the development to do so in as sustainable a way as possible.

3.15 Policy DP17 states that the Council will promote walking, cycling and public transport use. The application site is in a location that is highly accessible by public transport, by cycle and on foot and the proposed development would be car-free. The proposal therefore supports this policy by making suitable provision for pedestrians, cyclists and public transport access and not being dependent upon travel by private motor vehicles.

3.16 Policy DP18 says that the Council will seek to ensure that car parking provision for new development is the minimum necessary, with an expectation that development in Central London will be car-free. The Council will also require new developments to meet the published minimum standards for cycle parking. The proposed development accords with this policy.

3.17 Policy DP20 relates to the 'Movement of Goods and Materials' and sets out the Council's requirements both during construction and when the development is in operation. The thrust of the policy is to minimise both the number and impact of the movements of goods and materials by road. The documents supporting the present planning application, as set out in this Transport Statement, describe how this would be achieved.

3.18 Policy DP22 'Promoting Sustainable Design and Construction' requires new development to incorporate sustainable design and construction measures. Policy DP26 relates to 'Managing the Impact of Development on Occupiers and Neighbours' and makes specific reference to the role of Construction Management Plans (CMPs) in mitigating those impacts. DP28 states that the Council will seek to minimise the impact on local amenity from the demolition and construction phases of development. DP32 discusses air quality. The draft CMP that accompanies the planning application supports these policies.

3.19 Sustainable transport will remain central to the emerging Local Plan. The Council will continue to promote sustainable modes of transport as a means of reducing congestion, air pollution and carbon emissions, whilst promoting improvements in health and well-being. Policies T1 – T4 deal with sustainable transport requirements for new development. Policy T1 states that the Council will promote sustainable transport by prioritising walking, cycling and public transport, requiring new developments to make suitable provision for these modes of travel. Policy T2 would extend the present Camden Development Policies to require all new development in the borough to be car-free. Policy T4 will seek to minimise the movement of goods and materials by road, making specific reference to Construction Management Plans and Delivery and servicing Plans. The proposed development would remain consistent with and supportive of these emerging development policies.

3.20 LBC's forward strategy for the direction of transport provision in the borough is contained within the document '**Camden's Transport Strategy – Camden's Local Implementation Plan**'[7] published in August 2011. The strategy sets out nine principle objectives for the transport network which include a reduction in motor traffic and vehicle emissions, encouraging healthy and sustainable travel choices, improving road safety and personal security, and the effective management of the road network to reduce congestion, improve journey reliability and ensure the efficient movement of goods and people. Clearly, these objectives are consistent with the development planning policies described above. The proposed development is consistent with the policies and objectives of the Transport Strategy as demonstrated in this report and the accompanying supporting documents.

Section A – Existing Conditions

Site Information

4 Site Location and Description

4.1 The site of the proposed development, known as 15 – 17 Tavistock Place, is located in the King's Cross Ward of the London Borough of Camden.

[7] 'Camden's Transport Strategy Camden's Local Implementation Plan' London Borough of Camden August 2011

4.2 The subject site is located in the Bloomsbury area of Central London, within postcode area WC1.

4.3 The location of the site is shown in Figure 4.1 below.

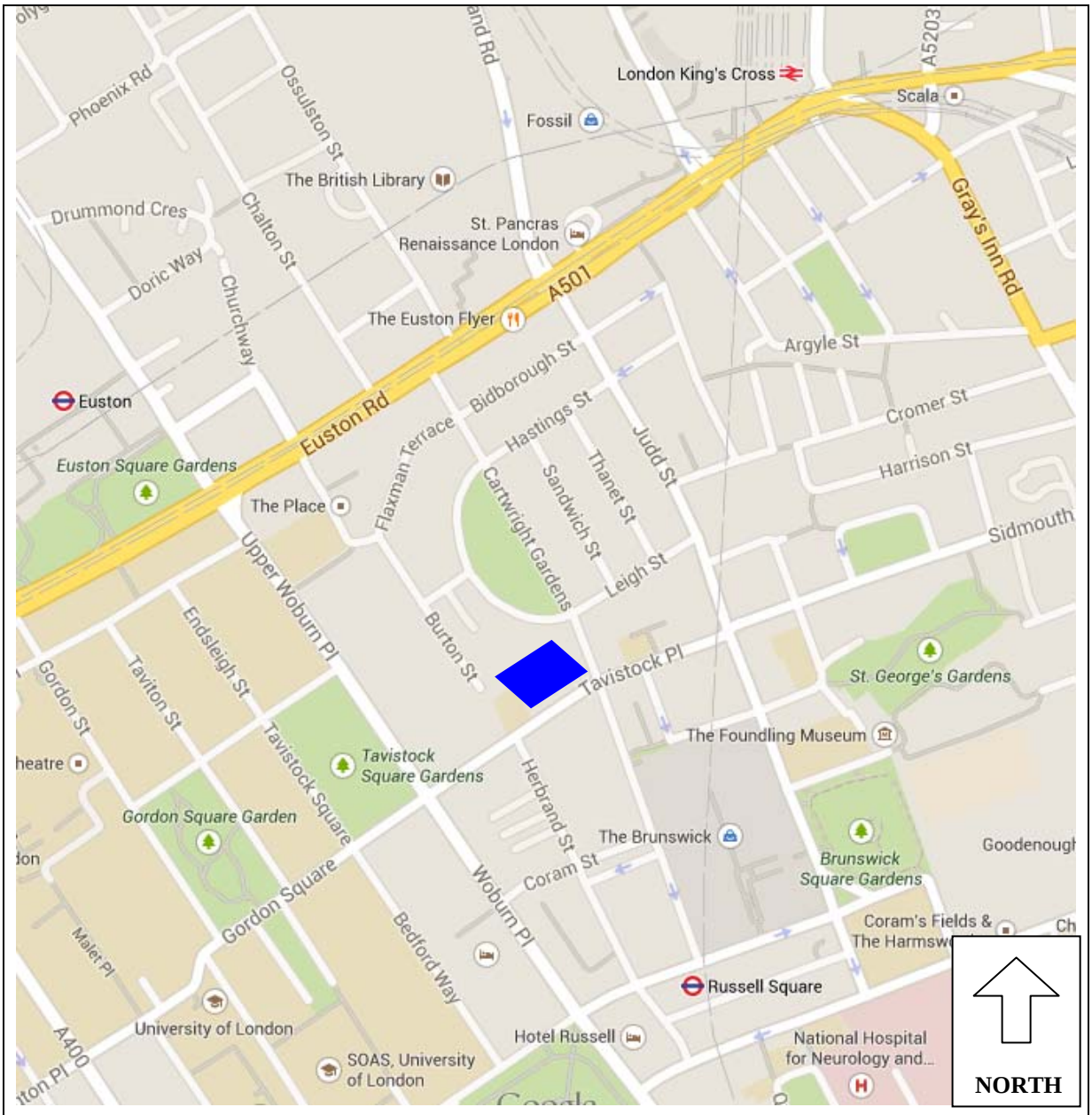


Figure 4.1 Location Plan

Location of Site

4.4 The site is located on the northern side of Tavistock Place, approximately 150m to the north east of Tavistock Square (the easterly side of which, Woburn Place, is

designated as part of the A4200) and approximately 300m south of the Euston Road, A501.

4.5 With area of some 0.303 hectares, the site is broadly rectangular in shape, with a single highway frontage, to Tavistock Place, which runs along its southern boundary. The main building on the site, having four-storeys plus basement, is located on this southerly boundary, for all practical purposes contiguous with the highway. The proposals envisage a development towards the rear of the site.

4.6 The existing main vehicular and pedestrian access to the site is from Tavistock Place. This is located towards the westerly end of the site frontage. Given the developed form of the site, the vehicular access passes through the principal building via a gated passageway that provides access to the internal courtyard. The main pedestrian entrance to the building is accessed from the covered passageway.

4.7 A short distance to the east of the site and separated from it by a largely retail frontage, is Marchmont Street, which runs in a generally north-south direction leading to the Euston Road to the north and to the B502 Bernard Street to the south.

4.8 Leading from the westerly side of Marchmont Street, South Crescent Mews passes through the developed frontage, to the side of the Lord John Russell public house. The cul-de-sac end of the mews provides a gated access to the School's Tavistock Place site, from which the School have a right of way for emergency evacuation only over South Crescent Mews.

4.9 The main building dates from the early twentieth century and is laid out in a 'U' shape, with the main elevation to Tavistock Place and with two rear wings, one on each side boundary. Towards the rear boundary of the site is a former depot structure, now D1 use.

4.10 The site is within the Bloomsbury Conservation Area. The building itself is not listed.

4.11 Figure 4.1 shows the location of the site relative to the local highway network and to London Underground and mainline rail stations. Euston Mainline Railway Station and Euston Underground Station are located approximately 590m to the north west of the application site, King's Cross Mainline Railway Station and King's Cross St Pancras

Underground Station are located approximately 600m to the north east and Russell Square Underground Station around 280m to the south.

4.12 The application site is located within the heart of Bloomsbury, home of numerous cultural, educational and healthcare institutions, including the British Museum and Great Ormond Street Hospital. The area immediately surrounding the application site is characterised by residential accommodation, hotels, and commercial properties, the latter extending along Marchmont Street from Cartwright Gardens to the Brunswick Shopping Centre and Bernard Street. To the east of the School's building are the properties that front Marchmont Street which are generally four storeys in height, with retail and commercial activity at ground floor level and residential accommodation above. To the west of the site is a part three, part six storey residential mansion block which is divided from the application site by an access way. On the opposite side of Tavistock Place is a row of terrace properties of four storeys with basement accommodation. These buildings are predominantly in use as hotels. To the rear of the site there are residential properties, especially on Burton Street, and hotel accommodation on Cartwright Gardens.

5 The Existing and Permitted Use of the Site

5.1 In May 2009, planning permission was granted for a change of use and works of conversion of 15 – 17 Tavistock Place from offices (Use Class B1) to flexible business/non-residential institution floorspace (Use Class B1/D1). Planning permission 2009/0067/P refers.

5.2 The planning approval, since implemented, included the construction of a four-storey rear extension to the principal building to provide circulation space between the floors of the existing building, including new internal and external stairs and lift access.

5.3 The purpose of the implemented planning approval was to adapt the building to enable its use by the London School of Hygiene and Tropical Medicine. The building now accommodates a combination of educational facilities, research programmes and administrative offices.

Baseline Transport Data

6 PTAL Assessment

6.1 PTAL (Public Transport Accessibility Level) is a measure of the accessibility of a site to public transport services. It is based on an assessment of walking distance from the site to nearby public transport access points (bus stops and railway stations) within 640m for bus services and 960m for rail, and the average waiting time in the morning peak hour (derived from the frequency of service). It results in a score of between 1 and 6, with 1 representing poor accessibility to public transport and 6 indicating excellent accessibility.

6.2 A PTAL calculation has been undertaken for 15 – 17 Tavistock Place using Transport for London's on-line PTAL calculator[8]. **This resulted in a PTAL score of 6b**, the highest score achievable, indicating an excellent level of accessibility to public transport services. The report generated by the calculator is presented at Appendix A to this report.

6.3 The following paragraphs show that the site benefits from convenient access to local bus and underground services, and to regional and national rail services, offering good opportunities for those studying and working at and visiting the site to travel by public transport rather than by private car.

7 Site Accessibility – Bus Services

7.1 Figure 7.1 below shows the location of the nearest bus stops that are within a convenient walking distance of the application premises. All of the stops shown are within the 640m walking distance (8 minute walking time) used by Transport for London as the basis of their PTAL calculation. The two nearest stops, on Tavistock Square, are within approximately 210m and 310m from the application site, accessible within a walking time of approximately 2 to 3 minutes respectively. The bus stops indicated on Euston Road, near to the British Library, are within approximately 300m to 500m of the site, accessible on foot in around 4.5 – 6 minutes

[8] www.webptals.org.uk Transport for London Planning Information Database

respectively. Euston Station Bus Station and bus stops at Russell Square and on Woburn Place and Gray's Inn Road are all within the 8-minute maximum walking time used in the PTAL assessment.

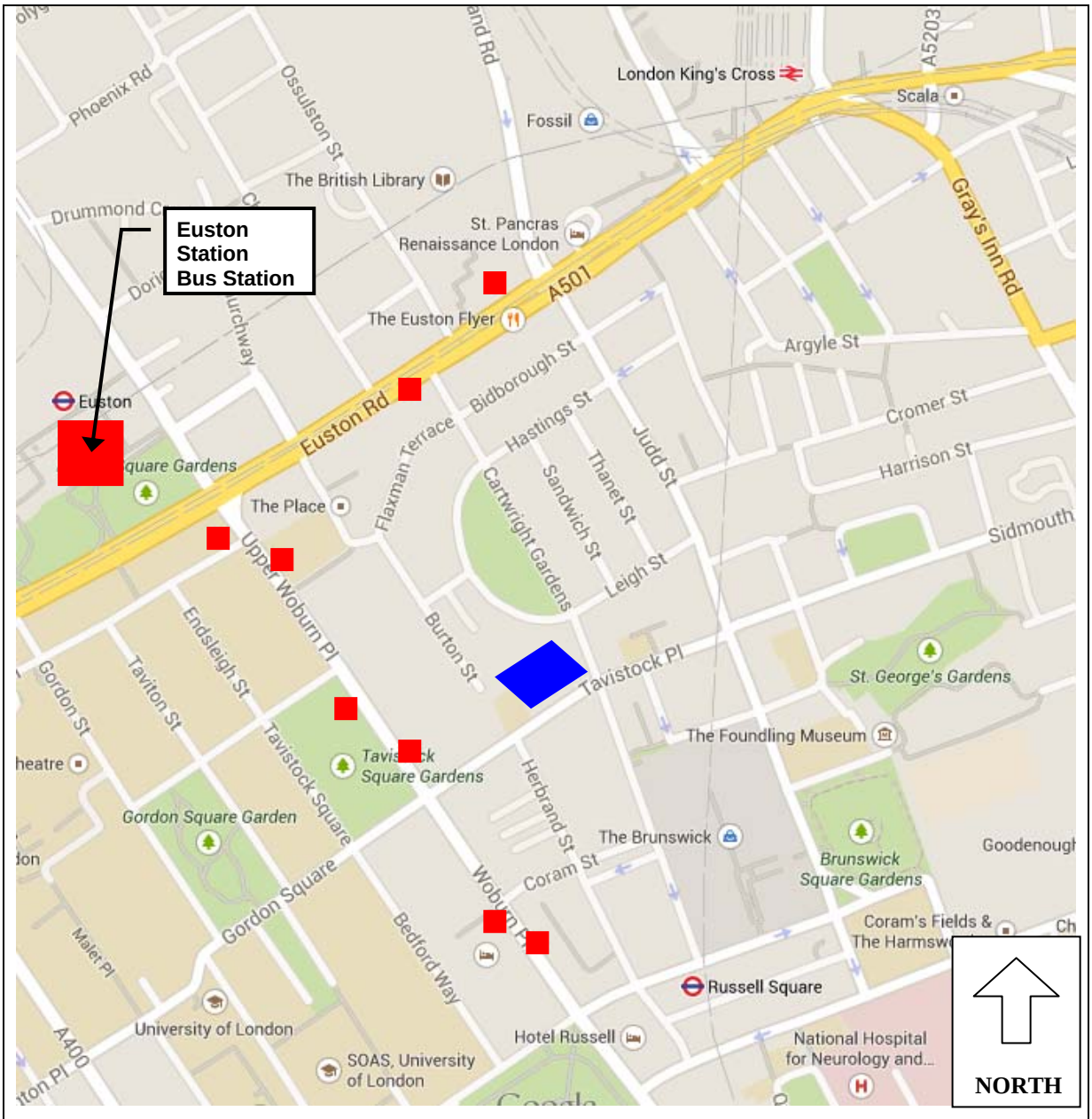


Figure 7.1 Location Plan ■ Location of Nearby Bus Stops ■ Location of Site

7.2 The nearest, Tavistock Square, stops afford access to the bus services detailed in the table below.

Service No.	Service Route	Frequency/Operating Hours					
		Monday- Friday		Saturday		Sunday	
		Day	Eve	Day	Eve	Day	Eve
59	**King's Cross – Streatham Hill (Telford Avenue**	9-15 bph	4-6 bph	7-12 bph	4-5 bph	4-6 bph	4-6 bph
		0405 - 0010		0405 - 0010		0435 - 0010	
68	**Euston Bus Station – West Norwood Station**	7-12 bph	5-7 bph	6-10 bph	5bph	4-5 bph	4-5 bph
		0521 - 0037		0521 - 0037		0521 - 0037	
91	**Trafalgar Sq – Crouch End (Rosebery Gardens)**	6-10 bph	6-10 bph	6-9 bph	6-9 bph	5-7 bph	5-7 bph
		0505- 0015		0505- 0015		0605- 0015	
168	**Dunton Road – Hampstead Heath (South End Green)**	7-12 bph	6-7 bph	6-10 bph	6-10 bph	5-7 bph	5-7 bph
		0500 - 0025		0500 - 0025		0500 - 0025	

Table 7.1 Summary of Daytime and Evening Timetable Details for Local Bus Services Accessible From Bus Stops Nearest to 15-17 Tavistock Place

bph = buses per hour in each direction Times of first and last bus are approximate

7.3 The Euston Road bus stops afford access to the bus services detailed in Table 7.2 below.

7.4 Additionally, the stops on Gray's Inn Road to the east of the site provide access to services 17, 45 and 46, which operate respectively between London Bridge and Archway Station, St Pancras and New Park Road and Lancaster Gate Station and St Bartholomew's Hospital (via Hampstead).

7.5 All of these services operate throughout the daytime and evening on all days of the week. Service 17 operates with a frequency of every 7-10 minutes on Mondays to Fridays, 10 minutes on Saturdays and 15 minutes on Sundays. Service 45 operates with a frequency of every 7-9 minutes in the daytime and every 15 minutes in the evening on Mondays to Fridays, every 6-10 minutes in the daytime and every 15 minutes in the evening on Saturdays and every 15 minutes throughout the day on Sundays. Service 46 operates with a frequency of every 8-12 minutes in the daytime and every 15 minutes in the evening on Mondays to Fridays, every 8-10 minutes in

the daytime and every 15 minutes in the evening on Saturdays and every 15 minutes throughout the day on Sundays.

Service No.	Service Route	Frequency/Operating Hours					
		Monday- Friday		Saturday		Sunday	
		Day	Eve	Day	Eve	Day	Eve
10	**King's Cross-Hammersmith**	6-8 bph	5 bph	5-7 bph	5-7 bph	5 bph	5 bph
		24 hours		24 hours		24 hours	
30	**Marble Arch – Hackney Wick**	6-8 bph	5 bph	5-7 bph	5-7 bph	4-5 bph	4-5 bph
		0443 - 0105		0443 - 0105		0443 - 0105	
59	**King's Cross – Streatham Hill (Telford Avenue**	9-15 bph	4-6 bph	7-12 bph	4-5 bph	4-6 bph	4-6 bph
		0405 - 0010		0405 - 0010		0435 - 0010	
73	**Victoria Bus Station – Stoke Newington**	8-20 bph	8-20 bph	10-15 bph	10-15 bph	7-12 bph	7-12 bph
		0510 - 0111		0510 - 0105		0510 - 0111	
91	**Trafalgar Sq – Crouch End (Rosebery Gardens)**	6-10 bph	6-10 bph	6-9 bph	6-9 bph	5-7 bph	5-7 bph
		0505- 0015		0505- 0015		0605- 0015	
205	**Bow Church – Paddington (Cleveland Terrace)**	6-10 bph	5 bph	6-10 bph	5-6 bph	4-6 bph	4-6 bph
		0455 - 0030		0455 - 0030		0500 - 0030	
390	**Archway Station – Notting Hill Gate**	2 bph	-	2 bph	-	2 bph	-
		0002 - 0555		0002 - 0555		0002 - 0600	
476	**Euston Bus Station – Northumber-land Park**	7-10 bph	5-6 bph	7-8 bph	5-6 bph	5 bph	5 bph
		0525 - 0005		0525 - 0005		0525 - 0005	

Table 7.2 Summary of Daytime and Evening Timetable Details for Local Bus Services Accessible From Bus Stops on Euston Road Nearest to 15-17 Tavistock Place

bph = buses per hour in each direction Times of first and last bus are approximate

7.6 Euston Station Bus Station is within a 7 – 8 minute walk of the site. The bus station provides access to further services as shown in the Bus Station map included at Appendix B to this report.

7.7 From the map it will be seen that a wide range of destinations can be reached from the Euston Station Bus Station throughout the day. Destinations served include Wembley, Harlesden, Camden Town, Hampstead Heath, Archway, Tottenham, Hackney, Islington, Bow, Elephant and Castle, Brixton, Streatham Hill, Hammersmith, Kensington, Paddington and Notting Hill Gate as well as the City and the West End.

7.8 The above text and tables show that from stops within close proximity of 15 – 17 Tavistock Place a large number of services operate at high frequencies throughout the daytime and evening to a broad range of destinations across London, including to the south of the river. All of the routes serving these destinations operate on all days of the week, throughout the likely opening hours of the School buildings.

7.9 The above demonstrates that the application site is exceptionally well served by local bus services, as the excellent PTAL score would suggest. Local bus services therefore offer an excellent alternative to the private car for students, employees or visitors wishing to travel to and from the application site.

7.10 Continuing improvements to local bus stops, including the provision of passenger shelters, site-specific timetable information, route maps and real time passenger information including Countdown information, will enhance the passenger waiting experience, whilst on-bus facilities such as CCTV (now fitted to all London buses) will make passengers feel safer. Strict bus lane enforcement is one factor in ensuring greater service reliability, which is likely to promote greater confidence in bus services. Introduction of the Oyster Card, a ‘’pay-as-you-go” re-usable smart card, has made bus travel faster, easier and cheaper than paying by cash in the conventional way. All of these factors help to make bus travel more attractive and an increasingly realistic alternative to the use of the private car.

7.11 The Countdown Live bus arrivals system is just one measure that has been introduced by Transport for London to promote greater bus patronage in the area. Each bus stop offers a mobile telephone text message service allowing intending passengers to receive details of the next bus to arrive at that stop on their mobile telephone by sending the bus stop code as a text message to TfL. The information can also be accessed on line.

8 Site Accessibility – Rail Services

8.1 The acceptable walking time for access to rail services used by TfL in its PTAL calculation is 12 minutes, a distance of 960m.

8.2 Five Underground stations and three mainline railway stations meet these criteria.

8.3 The nearest Underground station is Russell Square, accessible within a walking time of around 4 minutes from the application site. Russell Square provides access to London Underground services on the Piccadilly Line, operating between Heathrow and Cockfosters via Hounslow, Acton, Hammersmith, Central London, King's Cross and Finsbury Park. There are numerous connections to other London Underground lines, including the Victoria Line linking to Brixton in the south and Walthamstow in the north east. Trains operate to and from Russell Square to a high frequency between approximately 6am and 1am on Mondays to Saturdays and 7am and 1am on Sundays. The journey time between Russell Square and Heathrow is 54 minutes and between Russell Square and Cockfosters is 34 minutes. All of the stations on the Piccadilly Line are therefore within acceptable commuting time of the application site, offering a convenient alternative to the private car.

8.4 King's Cross St Pancras is a ten-minute walk from the application site and offers access to London Underground services on the Piccadilly Line, Victoria Line, Northern Line, Hammersmith and City Line, Circle Line and Metropolitan Line. Northern Line trains operate between High Barnet or Edgware to the north and Morden to the south. The Metropolitan Line provides links to the north west of London, including Watford, Amersham and Uxbridge whilst the Hammersmith and City Line provides an east-west connection between Barking in the east and Hammersmith in the west. Via the Metropolitan Line, Watford is accessible in approximately 50 minutes from King's Cross, Amersham in 59 minutes and Uxbridge in 48 minutes. Northern Line services provide access from King's Cross to High Barnet in 30 minutes, Edgware in 28 minutes and Morden in 38 minutes. The Hammersmith and City Line offers a travel time of 26 minutes from King's Cross to Hammersmith and 34 minutes to Barking. All of these destinations, and intermediate stations, are within acceptable commuting times of the application site.

8.5 Euston Underground Station is accessible within a 9-minute walking time of the site and provides access to Northern Line and Victoria Line services, Goodge Street (an approximate 11½-minute walk) to the Northern Line and Euston Square Underground Station (a similar 11½-minute walk) to Metropolitan, Circle and Hammersmith and City Lines.

8.6 All of the above London Underground lines provide high frequency services on all days of the week throughout the day and evening.

8.7 The three mainline railway stations readily accessible on foot from the application site are King's Cross, St Pancras and Euston. King's Cross provides the London terminal of the East Coast mainline and services to destinations such as Cambridge and Peterborough. Euston provides the London terminal of the West Coast mainline London Midland services to destinations such as Watford and Milton Keynes and London Overground services to Wembley and Watford Junction. St Pancras provides a terminal for domestic services linking to Luton Airport, Bedford and the Midlands. National rail services therefore provide regional connections to the site serving a range of destinations to the north of London that are within acceptable commuting time.

8.8 The London Overground service between London Euston and Watford Junction, provides access to destinations in north west London, including South Hampstead, Willesden, Harlesden, Wembley, Kenton, Harrow and Wealdstone, Hatch End, Carpenders Park and Bushey. The service operates on all days of the week, providing journey times of 7 minutes to South Hampstead, 14 minutes to Willesden, 16 minutes to Harlesden, 19 minutes to Wembley Central, 27 minutes to Kenton, 29 minutes to Harrow and Wealdstone, 34 minutes to Hatch End, 37 minutes to Carpenders Park, 40 minutes to Bushey and 47 minutes to Watford Junction, all within an acceptable commuting time of 15 – 17 Tavistock Place. Trains operate between 0537 and 0044 northbound and 0511 and 0012 southbound on Mondays to Saturdays and 0647 and 0035 northbound and 0651 and 0010 southbound on Sundays with generally 2 or 3 trains per hour in the daytime and evenings.

8.9 Rail services therefore provide frequent connections within acceptable commuting times between the application site at 15 – 17 Tavistock Place and a broad range of

destinations throughout the opening hours of the development, providing an efficient and practical alternative to the use of the private car.

9 Site Accessibility – Walking and Cycling

9.1 The Government's former guidance to local planning authorities on the transport aspects of planning policy, PPG13[9], sought to achieve an integration between planning and transport at all levels so that the need to travel, (especially by car), is reduced, more sustainable transport choices are encouraged and accessibility to jobs, leisure facilities, services and shopping by public transport, by cycle and on foot is promoted.

9.2 PPG13 stated that walking is the most important mode of travel at the local level, offering the greatest potential to replace short car trips of up to 2km. The Chartered Institution of Highways and Transportation (CIHT) suggests walking to be a 'desirable' mode for journeys up to 400m and 'acceptable' for journeys up to 800m with a preferred maximum of 1200m.

9.3 Not only is walking important as a mode of travel in itself, it also generally forms the start and end of every journey type. Walking is obviously an important part of public transport journeys and the quality and convenience of the walking environment could be a crucial element in mode choice decisions. For those travelling further distances it is important that local public transport facilities, such as bus stops, are readily accessible on foot if trips by private car to and from these more remote locations are to be discouraged. As already described, public transport facilities, including bus stops, five London Underground stations and three mainline railways stations are within 960m of the site and are therefore within acceptable walking distance, offering connections to many parts of London and beyond.

9.4 The walking environment in the vicinity of the site is good, with all roads having footways of an appropriate standard and reasonable quality, and with street lighting to aid personal security and promote road safety. To assist pedestrians to safely cross the roads in the vicinity of the site, there are signalised pedestrian crossing facilities at the traffic signal controlled junctions of Tavistock Place with Woburn

[9] Planning Policy Guidance Note 13 – Transport: Department for Communities and Local Government, January 2011. Replaced by National Planning Policy Framework March 2012

Place/Upper Woburn Place and with Marchmont Street, with similar facilities at traffic signal-controlled junctions further afield. At these junctions and at other, uncontrolled junction crossing points, there is good provision of dropped crossings and tactile paving to assist pedestrians, especially those with mobility impairment.

9.5 The application site lies within the heart of Bloomsbury, within convenient walking distance of a range of educational, cultural, leisure, residential and shopping facilities. The main UCL buildings are located an approximate 800m walking distance to the west of the application site, the British Library on Euston Road, a walking distance of around 500m to the north, and the British Museum is within a one-kilometre walking distance to the south.

9.6 There are extensive shopping and leisure facilities within the immediate vicinity of the School building, allowing a number of trips for a variety of purposes (shopping, banking, fitness and leisure trips for example) to be undertaken on foot during break periods.

9.7 On Marchmont Street, north of Tavistock Place, a short walk of under 1 minute, there is a public house, café, laundrette, betting shop, book shop, dentist and supermarket, together providing a range of goods and services. To the south of Tavistock Place, Marchmont Street offers a further range of commercial outlets, including further cafes and food outlets, a computer shop, dry cleaner, newsagent and post office. A short distance to the south is The Brunswick, a purpose built pedestrianised district shopping centre that provides a broad range of retail outlets and service providers, including a Waitrose supermarket, Halifax building society and Boots the Chemist, in addition to restaurants, food outlets, card shop, clothes shops, opticians, mobile phone shops, betting shop and an NHS medical centre. A health club is located on Woburn Place within a walking distance of approximately 160m of the School building.

9.8 Figure 9.1 below shows the area in the immediate vicinity of the School site and the various facilities that are readily accessible on foot. The approximate distances and walking times to a number of these shops and services are presented in Table 9.1 below.

9.9 It is clear, therefore, that should planning permission be granted, students, staff and visitors to the School would be able to choose to walk to and from the application premises for a variety of trip purposes.

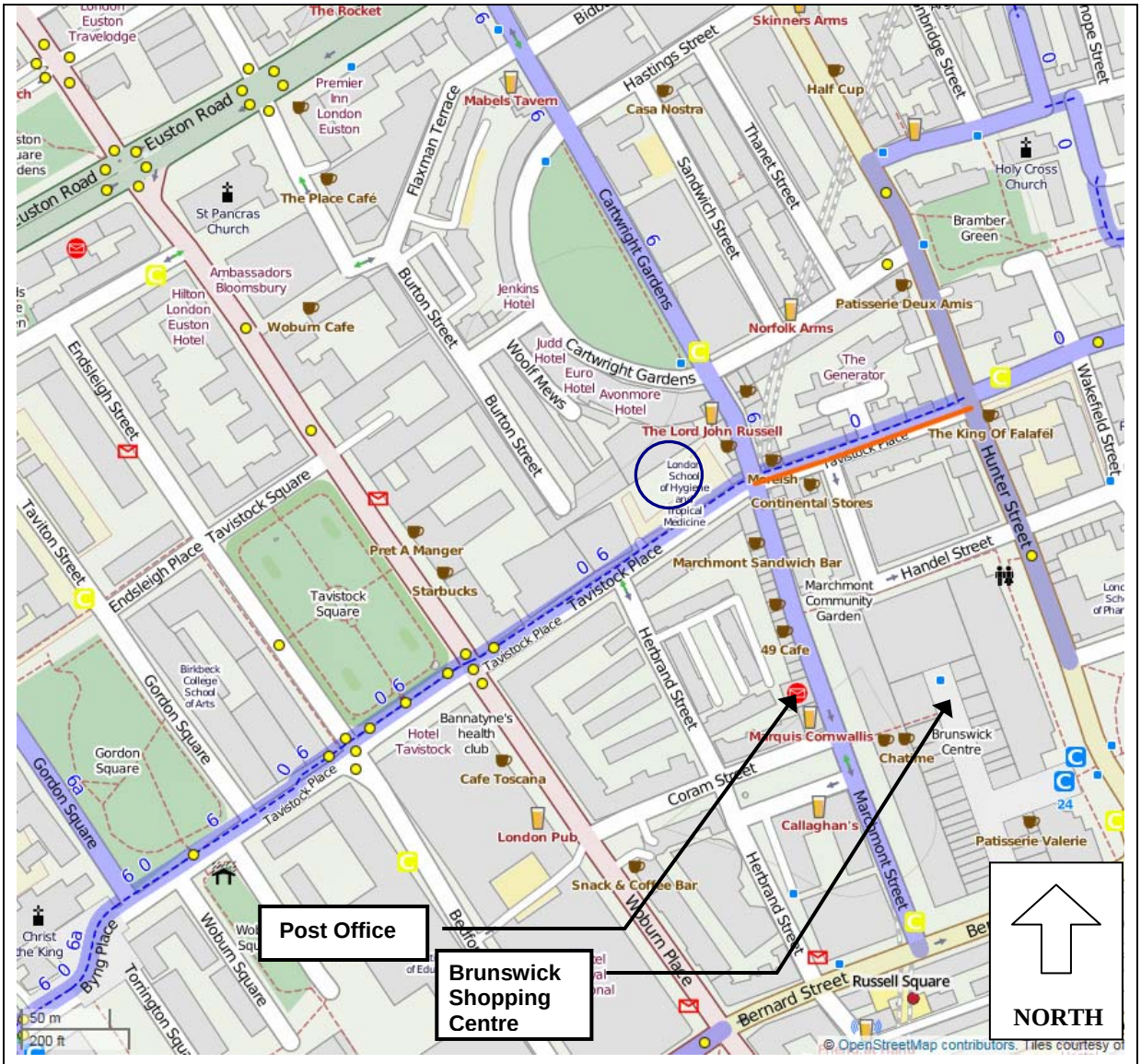


Figure 9.1 Facilities and Cycle Routes in the Vicinity of the Site

Location of Site

© OpenStreetMap

9.10 PPG13 also stated that cycling has the potential to replace car trips of, in particular, 5km or less in length. Clearly, all the local shopping, service and leisure amenities that are within a short and convenient walking distance of the site are also readily

accessible by cycle, but far more extensive residential areas lie within 5km of the site, making the School readily accessible by bicycle to those commuting to the application site.

Facility	Approximate Distance from site (m)	Approximate Walking Time (mins', secs")
Marchmont Street shops (north of Tavistock Place)	70	1
Marchmont Street shops (south of Tavistock Place)	80	1
Health Club Woburn Place	160	2
Marchmont Street Post Office	160	2
Tavistock Square Bus Stop (southbound)	211	2' 40"
Tavistock Square Bus Stop (northbound)	320	4'
Brunswick Shopping Centre	320	4'
Russell Square Underground Station	329	4' 10"
Euston Road Bus Stop (westbound)	350	4' 30"
Euston Station Bus Station	640	8'
Euston Railway Station	692	8' 40"
UCL Chadwick Building	965	12'

Table 9.1 Approximate Walking Distances and Associated Walking Times to Public Transport Facilities, Shops and Services within the Immediate Vicinity of 15-17 Tavistock Place

9.11 Facilitating access to the site by bicycle, the School building lies at the intersection of two designated local cycle routes, 0 and 6. The alignments of these cycle routes are shown in pale blue on Figure 9.1 above.

9.12 These two designated routes share facilities along Tavistock Place, passing the frontage of the building. At present a two-way dedicated cycle facility runs along the northerly side of Tavistock Place, segregated from general traffic by a series of raised, kerbed and paved islands. These latter provide a largely continuous division of the cycle lanes from the main carriageway, interrupted only to provide level crossing points for pedestrians and to afford vehicular access to off-street parking and loading areas. There is a break in the island at each of the existing vehicular access points to the subject site from Tavistock Place. The darker, dashed line, on Figure 9.1 shows the extent of the segregated facility, extending from Goodge Street in the west to Judd Street in the east.

9.13 Route 0 extends from Marble Arch to the west to Finsbury (1 mile) and the City (2½ miles) in the east and on to Elephant and Castle, with a spur to Kings Cross St Pancras Station and another to Old Street. Route 6 provides a north-south route, starting near to Waterloo, south of the river and running via Covent Garden and the British Museum to Tavistock Place, then turning northwards via Marchmont Street and Cartwright Gardens and extending to Camden Town (1½ miles) and to the vicinity of Caledonian Park. The two routes connect with a network of other cycle routes serving the area, facilitating and promoting access to LSHTM by bicycle.

9.14 The Tavistock Place cycle route is one of the busiest in Camden. Cycling is already a popular means of getting around this part of London and would provide an attractive means of travel to and from the application site.

10 The Local Highway Network

10.1 Tavistock Place in the vicinity of the subject site is a single carriageway, currently two-way urban street with footways to both sides. At this location the development within the street is predominantly residential in character, some premises providing hotel accommodation.

10.2 The carriageway of Tavistock Place at this point presently provides a single traffic lane in each direction. As described in paragraph 9.12 above, at the present time a two-way cycle lane, segregated from the main carriageway, is located on the northerly side of Tavistock Place, adjacent to the frontage of the application site.

10.3 The junction of Tavistock Place with Marchmont Street is controlled by traffic signals. Both the left turn and right turn for general traffic from Tavistock Place into the northerly arm of Marchmont Street are prohibited at this junction, whilst Marchmont Street to the south of the Tavistock Place junction is one-way in a southwards direction, leading away from the junction.

10.4 Effectively, therefore, within the immediate vicinity of its junction with Tavistock Place, Marchmont Street to the north of the junction is one-way southbound for motor vehicles, with only pedal cyclists allowed to turn into Marchmont Street to proceed in a northerly direction. Nevertheless, this single carriageway road is marked with a single traffic lane southbound, approaching the signals, with a full-width northbound lane preserved.

10.5 The Marchmont Street frontages within the vicinity of the subject site are largely retail and commercial in character and are likely, therefore, to generate a requirement for on-street loading and servicing activity. Footways are present on each side of the street.

10.6 In the summer of 2015, for a period of nine months initially, LBC propose to introduce an experimental traffic regulation order, the effect of which will be to make Tavistock Place one-way eastbound for motor vehicles, from Gower Street to Judd Street. A cycle lane will be provided down both sides of the carriageway, allowing two-way cycle movements to be retained. During the experimental period no physical works are planned. The changes will therefore be in place before the present application is determined. Consequently, the changes have been anticipated and are taken into account both in relation to the access arrangements for construction vehicles and in relation to access for delivery and servicing vehicles once the building is completed.

10.7 The application site lies within a Controlled Parking Zone (CPZ). The King's Cross CPZ, designated CA-D, extends from Euston Road in the north to Holborn/High Holborn in the south and from Woburn Place/Southampton Row in the west to the easterly side of Gray's Inn Road. Within the CPZ the standard waiting restrictions are No Waiting Monday – Friday, 0830 – 1830 and Saturday, 0830 – 1330. These restrictions, identified by single yellow lines, are in force on both sides of Marchmont Street to the easterly side of the application site. More restrictive waiting restrictions

are in force on Tavistock Place to the frontage of the application site, with double yellow waiting restriction lines in evidence on both sides of the road, indicating No Waiting At Any Time.

10.8 Residents' permit parking is in operation within the CPZ, allowing residents' vehicles to be parked in marked bays during the operative hours. This applies to both sides of Burton Street, for example, to the north west of the application site. Residents can apply for visitor permits. Business permits are available within CPZ CA-D for commercial vehicles for which on-street parking is required for the operational needs of the business concerned (i.e. not to accommodate commuter parking). Business permits would not be granted in circumstances where public transport offers a reasonable alternative. On-street parking for non-residents' vehicles is therefore closely controlled and largely restricted. This serves to provide a disincentive to travel to and from the application site by private motorcar and encourages sustainable travel.

10.9 A borough-wide 20mph speed limit order applies to all roads that are managed by LBC, including Tavistock Place and other roads in the immediate vicinity of the application site. The restriction excludes the majority of the Transport for London Road Network (TLRN).

Collision Record

10.10 In order to establish the record of road crashes resulting in personal injury on the local highway network within the latest available three-year period, reference was made to the Crashmap website[10], a national map-based database of official Government data relating to road traffic collisions.

10.11 Crashmap allows collisions to be displayed by calendar year, so data for the latest three full years were displayed, these being 2011, 2012 and 2013.

10.12 The enquiry concentrated on Tavistock Place in the immediate vicinity of the frontage of the application site, between Herbrand Street and Marchmont Street. A screenshot of the resulting enquiry is presented as Figure 10.1 below.

[10] www.crashmap.co.uk

10.13 From Figure 10.1 below it will be seen that in the three years under consideration, three collisions resulting in personal injury were recorded in the vicinity of the Tavistock Place junction with Herbrand Street, whilst a total of thirteen collisions resulting in personal injury were recorded in the vicinity of the Tavistock Place junction with Marchmont Street.

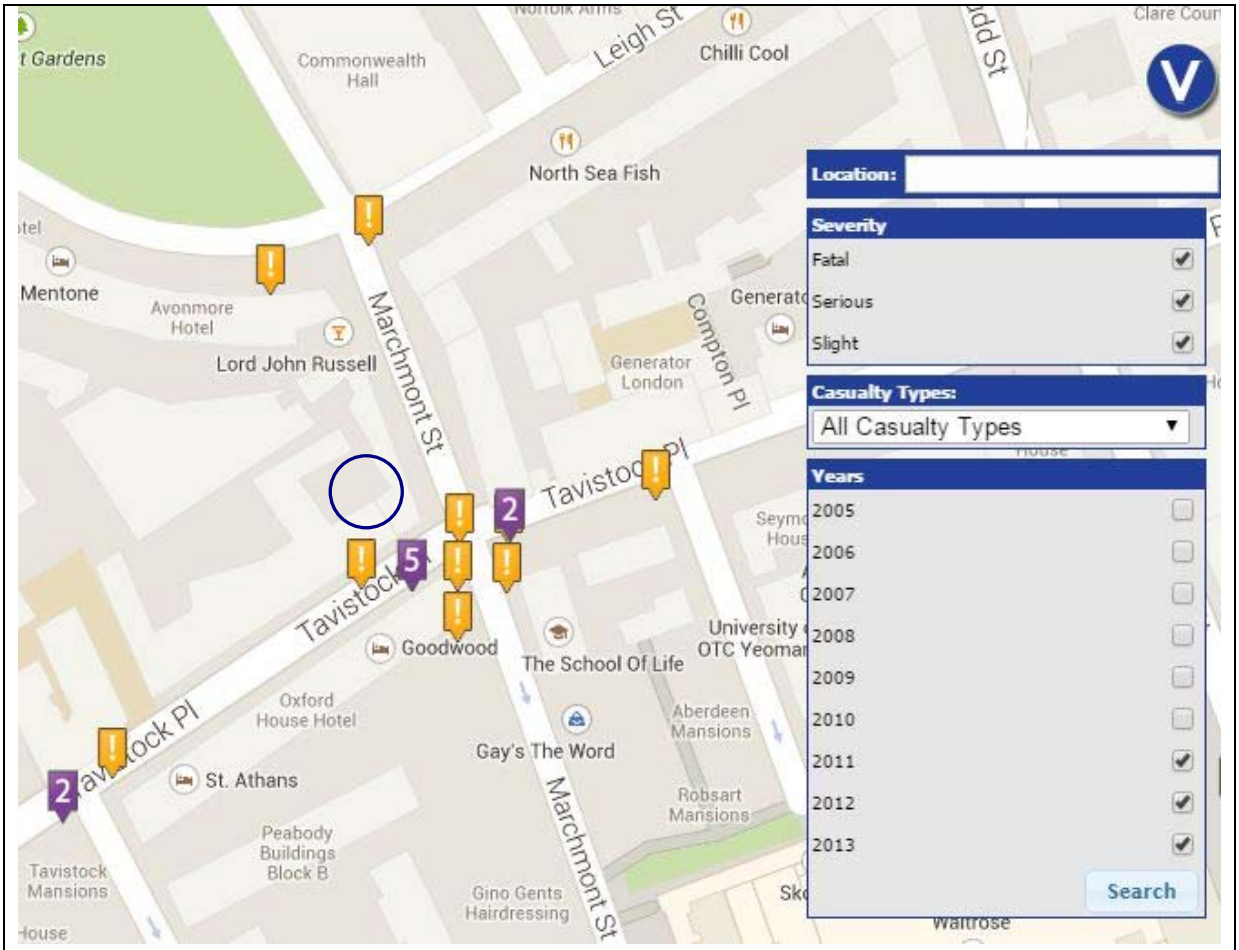


Figure 10.1 Locations of Recorded Personal Injury Road Collisions within the Vicinity of the Application Site 2011-13

Location of Site

Incident Severity
Slight Serious Fatal

Source: Crashmap
www.crashmap.co.uk

NORTH

10.14 None of the recorded collisions resulted in fatal injuries. All three of the collisions recorded at or near to the junction with Herbrand Street resulted in Slight casualties. Of the thirteen recorded collisions at or near to the Tavistock Place/Marchmont Street junction, eleven resulted in Slight casualties and two resulted in Serious casualties.

Of these thirteen latter collisions, six occurred in 2011, three occurred in 2012 and four occurred in 2013.

10.15 Crashmap reports for the incidents were, therefore, purchased, allowing a broad, high-level analysis of the recorded collisions to be undertaken.

10.16 The data provides a level of detail appropriate to the current study, enabling location, the number, type and severity of casualty, numbers and types of vehicles involved, time, day, date and prevailing weather and road conditions to be examined. Given the potentially sensitive nature of the data it is not reproduced as part of this report.

10.17 All of the incidents at or near to the Tavistock Place/Marchmont Street junction occurred in fine weather when the road surface was described as dry. Only two of the thirteen collisions (15.4%) occurred in the dark, which is a relatively low proportion.

10.18 There is no consistency with regards to day of the week (although 4 of the 13 incidents, 30.8%, occurred on Mondays) or month of the year, although it is perhaps notable that 9 of the 13 incidents (69.2%) occurred in the Spring months of March (4), April (4) and May (1).

10.19 With regards to time of day, there is something of a pattern, with only one collision occurring in the traditional morning peak hour (0851) and two in the traditional evening peak hour (1722 and 1745), whilst the majority, 7, occurred between 1335 and 1630, with three of those occurring between 1620 and 1630.

10.20 The thirteen collisions resulted in 14 casualties, 12 slight and 2 serious. Eleven of the incidents involved a single vehicle, whilst the two remaining incidents each involved two vehicles; in one collision both vehicles were cycles and in the other one was a cycle and the other a taxi/private hire vehicle. Taxi/private hire vehicles were involved in five of the collisions, pedal cycles in three, 3.5T goods vehicles in two and a motorcycle in one.

10.21 By far the most significant feature in the collision record is the number of collisions involving pedestrians. Pedestrians were involved in 11 of the thirteen collisions, 84.6%, including both of the collisions resulting in serious casualties. Eight of the

eleven collisions were described as not occurring at the controlled pedestrian crossing, with three described as occurring at the pedestrian crossing.

10.22 Given the popularity of the cycle route along Tavistock Place, the incidence of collisions involving cyclists does not appear to be particularly high, but there is clearly a high incidence of collisions involving pedestrians at or near to the Marchmont Street junction.

11 Travel Characteristics of the Existing Site

11.1 As indicated in paragraphs 1.1 and 1.3 above, University College London (UCL) and the London School of Hygiene & Tropical Medicine (the School) propose to develop the existing School building at 15 – 17 Tavistock Place to provide additional laboratory and office space, forming the Bloomsbury Research Institute (BRI). The existing School building is currently in similar use and the travel characteristics of the existing site will therefore provide a reliable indication of the travel characteristics of the proposed BRI development once complete and in operation.

11.2 In order to determine the existing pattern of trips to and from the present site, a multi-modal survey was commissioned for this present study and was undertaken on Tuesday, 21 April 2015 by an independent survey company. This date was selected because it was during term time and was regarded as a 'typical' day as advised by the School.

11.3 The survey consisted of two elements. Firstly, a count of all arrivals and departures at the site entrance was undertaken, recorded in fifteen-minute intervals between the hours of 0800 and 1800. The School advised that the opening hours of the building for the majority of staff, students and visitors are 0900 – 1700. The School confirmed that only the single entrance to the School building at Tavistock Place, located under the arch furthest from Cartwright Gardens, is in use for normal arrivals/departures of people. The numbers of people entering and leaving the building during the survey period are presented in Table 11.1 below.

11.4 From Table 11.1 below it will be seen that over the ten-hour survey period between 0800 and 1800, a total of 464 people arrived at 15 – 17 Tavistock Place and a total of 396 departed from the site. A total of 860 people trips equates to 1.43 arrivals or

departures per minute on average. As arrivals exceed departures over the survey period there are clearly some trips that took place outside the survey times of 0800 to 1800, however these trips are considered unlikely to have a significant impact on the transport system due to the lower level of activity generally on the network at these other times.

11.5 It will also be noted that the peak periods for arrivals and departures at the site do not coincide with the traditional peak hours of 0800-0900 and 1700-1800. Between 0800 and 0900 only 43 person trips were generated, 35 arriving and 8 departing, fewer than one per minute on average. Between 1700 and 1800 a higher number of trips was recorded, with 88 people arriving or departing, 19 arriving at and 69 leaving the site.

11.6 The peak period for trips associated with the existing School building occurred between 1200 and 1400. This is perhaps not surprising, as this period would coincide with lunch breaks when people might reasonably be expected to make short trips into the surrounding neighbourhood for a variety of trip purposes and with the end of morning and commencement of afternoon study/work periods. The highest number of trips, 126, was recorded between 1200 and 1300 (65 arriving and 61 departing) with a slightly lower number, 121, between 1300 and 1400 (66 arriving and 55 departing), in each case representing in broad terms one arrival and one departure per minute on average, which is not considered to be a high flow.

11.7 Outside of these peak hours, the highest number of hourly trips recorded was 103 (81 arriving and 22 departing) between 1000 and 1100. 81 was the highest number of arrivals recorded in any of the ten surveyed hours. 69 was the highest number of departures per hour, between 1700 and 1800.

TIME (start)	IN			OUT			TOTAL		
	Arrive (1/4 hr)	Time (Hour)	Arrive (Hour)	Depart (1/4 hr)	Time (Hour)	Depart (Hour)	Total (1/4 hr)	Time (Hour)	Depart (Hour)
0800	6	**0800 - 0900**	**35**	2	**0800 - 0900**	**8**	8	**0800 - 0900**	**43**
0815	6			1			7		
0830	10			5			15		
0845	13			0			13		
0900	10	**0900 - 1000**	**71**	1	**0900 - 1000**	**11**	11	**0900 - 1000**	**82**
0915	21			1			22		
0930	16			3			19		
0945	24			6			30		
1000	29	**1000 - 1100**	**81**	5	**1000 - 1100**	**22**	34	**1000 - 1100**	**103**
1015	21			6			27		
1030	19			4			23		
1045	12			7			19		
1100	10	**1100 - 1200**	**42**	2	**1100 - 1200**	**27**	12	**1100 - 1200**	**69**
1115	6			3			9		
1130	8			8			16		
1145	18			14			32		
1200	8	**1200 - 1300**	**65**	13	**1200 - 1300**	**61**	21	**1200 - 1300**	**126**
1215	16			12			28		
1230	20			14			34		
1245	21			22			43		
1300	16	**1300 - 1400**	**66**	16	**1300 - 1400**	**55**	32	**1300 - 1400**	**121**
1315	12			10			22		
1330	19			9			28		
1345	19			20			39		
1400	13	**1400 - 1500**	**38**	20	**1400 - 1500**	**48**	33	**1400 - 1500**	**86**
1415	9			7			16		
1430	6			8			14		
1445	10			13			23		
1500	13	**1500 - 1600**	**27**	10	**1500 - 1600**	**44**	23	**1500 - 1600**	**71**
1515	4			8			12		
1530	9			17			26		
1545	1			9			10		
1600	4	**1600 - 1700**	**20**	10	**1600 - 1700**	**51**	14	**1600 - 1700**	**71**
1615	7			13			20		
1630	5			18			23		
1645	4			10			14		
1700	7	**1700 - 1800**	**19**	18	**1700 - 1800**	**69**	25	**1700 - 1800**	**88**
1715	5			15			20		
1730	4			22			26		
1745	3			14			17		
TOTAL	**464**			**396**			**860**		

Table 11.1 Results of Multi-Modal Survey of Arrivals and Departures at 15 – 17 Tavistock Place on Tuesday 21 April 2015 (Part 1 – Numbers of Trips)

11.8 The second element of the survey was to record mode of travel. This was achieved by direct interview with people arriving at the building. As many interviews as possible were recorded. As this type of survey relies on the co-operation of those being interviewed, the survey was confined to simple questions about mode of travel and where people were making their second or subsequent entry to the building, and identified themselves to the interviewers as such, they were not asked further questions. It is considered reasonable to assume that most peoples' first interview would relate to their 'commuting trip', rather than, say, to a lunchtime trip within the local neighbourhood or short trip between buildings, and is therefore more likely to lead to an over-estimate of trips by car or public transport and an under-estimate of trips on foot for example. Of the 464 people entering the site during the survey period only 13, 2.8%, were recorded as 'missed or refused to answer'. A good sample size of interviews was therefore achieved and the results are considered to be representative of travel patterns to the site.

11.9 With regards to the method of travel of those people interviewed, enumerators were asked to establish from interview and record the following trip types:

- Cycle
- Walk
- Walk and Private Car
- Walk and taxi
- Walk and bus
- Walk and train
- Walk and tube
- Walk and motorcycle
- Cycle and rail

11.10 Only the main secondary mode, by distance, was to be recorded.

11.11 The resulting modal split of trips to the site over the course of the ten-hour study period is presented in Table 11.2 below.

Mode of Travel (including main secondary mode by distance travelled)	Mode Share (%) All Hours
Walk all the way	32.5%
Walk and Tube	28.4%
Walk and Train	15.5%
Cycle all the way	12.2%
Walk and Bus	7.7%
Walk and Taxi	1.8%
Cycle and Rail	1.5%
Walk and Motorcycle	0.4%
Walk and Motor Car	0.0%
TOTAL	**100%**

Table 11.2 Results of Multi-Modal Survey of Arrivals and Departures at 15 – 17 Tavistock Place on Tuesday 21 April 2015 (Part 2 – Modal Share of Trips)

11.12 From Table 11.2 above it will be seen that no-one arriving at LSHTM during the survey hours travelled by private car, and only 0.4% by motorcycle, with 1.8% arriving by taxi. Almost a third of those travelling to the site did so on foot for the whole of the journey (32.5%) and 12.2% travelled all the way by bicycle.

11.13 Over half of journeys (53.1%) involved a trip by public transport, with 51.6% completing their journey on foot having travelling by tube (28.4%), train (15.5%) and bus (7.7%), and with 1.5% completing their rail journey by bicycle.

11.14 Overall during the survey period, 44.7% travelled wholly by non-motorised means (32.5% walking and 12.2% cycling), whilst 53.1% of trips involved public transport. In total 97.8% of trips were made by sustainable modes of transport.

11.15 If the morning peak period, from 0800-1000, is considered, the effects of non-interviewed second entrances are minimised, with only two people falling into this category and with only 4 people (3.77%) recorded as ‘missed or refused to answer’. The modal split of those arriving during this period is presented in Table 11.3 below.

11.16 From Table 11.3 it will be seen that in the period between 0800 and 1000, over half of arrivals (56%) travelled by rail, completing their journeys on foot, (38% by tube and 18% by train) with a further 3% travelling by rail and completing the journey by cycle. 18% of arrivals cycled all the way, higher than for the day as a whole, whilst walking all the way was lower in the 0800-1000 period (12%) compared with the day as a whole (32.5%). Bus journeys accounted for a higher proportion of trips between 0800 and 1000 compared with the day as a whole (10% and 7.7% respectively). Nevertheless, 30% travelled wholly by non-motorised means (12% walking and 18% cycling), whilst 69% of trips involved public transport. In total 99% of trips were made by sustainable modes of transport. No journeys were made by private car and only 1% of trips were made by motorcycle.

Mode of Travel (including main secondary mode by distance travelled)	Mode Share (%) 0800 - 1000
Walk and Tube	38%
Cycle all the way	18%
Walk and Train	18%
Walk all the way	12%
Walk and Bus	10%
Cycle and Rail	3%
Walk and Motorcycle	1%
Walk and Taxi	0%
Walk and Motor Car	0%
TOTAL	**100%**

Table 11.3 Results of Multi-Modal Survey of Arrivals and Departures at 15 – 17 Tavistock Place on Tuesday 21 April 2015 (Part 2 – Modal Share of Trips) (0800 – 1000)

11.17 Applying the above modal split to the overall number of arrivals surveyed provides an indication of the number of people arriving at LSHTM by mode of travel. This information is presented in Table 11.4 below.

11.18 Table 11.4 indicates that in the morning peak period between 0800 and 1000, of the 106 people arriving at LSHTM, 32 would either have cycled or walked for the whole of their journey, 62 would have travelled by rail, completing their journey on foot or by bicycle, and 11 would have travelled by bus. Only one person travelled by a motor vehicle, in this case a motorcycle. For the whole of the survey period, 0800 – 1800, of the 464 people arriving at LSHTM, 208 would either have cycled or walked for the whole of their journey, 211 would have travelled by rail, completing their journey on foot or by bicycle, and 36 would have travelled by bus. Ten journeys were made by motor vehicle, including 8 by taxi. It is considered that these numbers of trips would not have a significant impact on the relative transport network.

Mode of Travel (including main secondary mode by distance travelled)	Mode Share (%) 0800 - 1000	Arrivals by Mode 0800 - 1000		Mode Share (%) 0800 - 1800	Arrivals by Mode 0800 - 1800	
Walk all the way	12%	13	**32**	32.5%	151	**208**
Cycle all the way	18%	19		12.2%	57	
Walk and Tube	38%	40	**62**	28.4%	132	**211**
Walk and Train	18%	19		15.5%	72	
Cycle and Rail	3%	3		1.5%	7	
Walk and Bus	10%	11	**11**	7.7%	36	**36**
Walk and Motorcycle	1%	1	**1**	0.4%	2	**10**
Walk and Taxi	0%	0		1.8%	8	
Walk and Motor Car	0%	0		0.0%	0	
TOTAL	**100%**	**106**		**100%**	**464**	

Table 11.4 Number of Arrivals by Mode of Travel for Morning Peak Period (0800 – 1000) and for Overall Survey Period (0800 – 1800) based on Surveyed Modal Split

11.19 The survey enumerators were asked to record the number of motor vehicles entering the site. These would be expected to be either delivery vehicles or disabled persons. The enumerators recorded that, during the ten-hour survey period, only two motor vehicles entered the site, viz:

At 1012 a delivery vehicle arrived and left again at 1035

At 1058 a delivery vehicle arrived and left again at 1117

No other motor vehicles were recorded as entering the courtyard.

11.20 To complement this information the School were asked to record details of delivery and service vehicle activity at the site, each day for the working week 20th – 24th April 2015. This includes the period of the above survey. The results of this survey are presented in Table 11.5 below.

TIME OF ARRIVAL	TYPE OF VEHICLE (eg Transit, large box van, refuse vehicle, articulated lorry, rigid lorry)	PURPOSE (eg refuse collection, delivery to refectory, personal, postal etc)	TIME OF DEPARTURE	CURRENT FREQUENCY OF DELIVERY/ COLLECTION
	NO VEHICLE DELIVERIES ON MONDAY OR THURSDAY			
1010 Tue	**TRANSIT VAN**	**WATER DELIVERY**	**1035**	**WEEKLY**
1059 Tue	**SCHOOL VAN**	**PORTERING**	**1116**	**AS AND WHEN REQUIRED**
1120 Wed	**TRANSIT VAN**	**CONTRACTOR**	**1350**	**ONE OFF**
1200 Wed	**TRUCK**	**RUBBISH REMOVAL**	**1220**	**WEEKLY**
1350 Fri	**SCHOOL VAN**	**ESTATES**	**1400**	**AS AND WHEN REQUIRED**
1455 Fri	**SCHOOL VAN**	**IT EQUIPMENT**	**1520**	**AS AND WHEN REQUIRED**

Table 11.5 Recorded Service/Delivery Vehicle Activity 20 – 24 April 2015 by Day and Time and Type of Vehicle and Activity (LSHTM)

11.21 From Table 11.5 it will be seen that currently, activities at the School generate few service and delivery vehicle movements. In the week under consideration, 20 – 24

April 2015, there were no service/delivery vehicles recorded on Monday or Thursday and only two vehicle movements on each of the other three days.

11.22 The School confirm that the number of service and delivery vehicles accessing the site as recorded above is typical. It should also be noted that three of the six deliveries are identified as ‘School van’; this is in the ownership of the School and therefore under the School’s direct control.

Section B – Proposed Development

12 Description of the proposed development

12.1 University College London (UCL) and the London School of Hygiene & Tropical Medicine (the School) seek planning approval for a proposed development to the rear of the School building at 15-17 Tavistock Place, Camden, London.

12.2 The project would involve the demolition of the structure located at the rear of the site and the construction on the area to the rear of the site of a new building to provide additional laboratory and office space, forming the Bloomsbury Research Institute (BRI), a global centre of excellence.

12.3 The BRI building would comprise two basement levels, ground floor and two upper storeys plus accommodation for roof-level plant. It is currently proposed to seek planning approval for the development in June 2015.

12.4 The project will provide two basement levels each of 1,040m^2 (Gross Internal Floor Area), a ground floor level of 1,120m^2 (including a covered atrium), a first floor level of 1,071m^2, and a second floor level of 782m^2 with roof level provision for plant and equipment. The London School of Hygiene & Tropical Medicine will retain floor space of 3,488m^2, whilst a total of 1,430m^2 (Gross External Floor Area) of floor space would be demolished, including the rear courtyard shed (957m^2).

12.5 The proposed development would provide additional laboratory and office space as part of the Bloomsbury Research Institute (BRI). The School will continue to occupy and operate from the existing building, suitably refurbished. The proposed development will provide accommodation for teaching, research and administrative staff.

12.6 The outline programme indicates a construction period of 104 weeks (two years). Subject to receipt of planning approval, it is envisaged that building completion would be towards the end of 2018.

12.7 Pedestrian access to BRI will be from Tavistock Place, via the existing easterly entrance, closest to Marchmont Street. This will provide access to an entrance atrium from where there would be access to ground floor meeting rooms and to the other levels via stairs and lift. There will also be access to the rear of the building where cycle parking would be provided. Accessed from within the atrium, would be shower and locker facilities.

12.8 Vehicular access for both the School and BRI would be via the existing vehicular access from Tavistock Place, located to the westerly end of the frontage. This would provide access to two disabled persons' parking spaces and for service and delivery vehicles. The access arrangements are described in greater detail below.

13 Transport Characteristics of the Proposed Development

13.1 In accordance with current and emerging development plan policies, the completed BRI development at Tavistock Place would be car-free. The only car parking that will be permitted on site would be for the use of disabled drivers; two parking spaces, designed to appropriate mobility standards, would be provided within the courtyard.

13.2 Cycle parking would be provided for both the proposed BRI and for the retained existing School building in line with LBC's published parking standards as set out in Appendix 2 to the Camden Development Policies 2010-2025. The standard for use class D1, Non-Residential Institutions applies above a threshold of 500m^2 Gross Floor Area and requires, thereafter, one space per 250m^2 GFA for both staff and visitors.

13.3 The architect's drawings accompanying the planning application show the location of the proposed cycle parking provision.

13.4 For the retained School building, having a GFA of 3,488m^2 GFA, a total of 12 staff and 12 visitor spaces are required. Paragraph 9.4 of CPG7: Camden Planning Guidance 7 Transport makes it clear that "Throughout the standards, the stated number of spaces relates to the number of bicycles to be accommodated, not to the number of stands." Therefore, a total of 12 Sheffield Stand hooped cycle stands are proposed. These would be located within the existing building, towards its easterly

end, with access directly from the street and internally. Lockers would also be provided within this area. This would therefore provide secure, covered cycle parking for the retained School building.

13.5 For the proposed BRI, having a GFA of 5,474m^2, a total of 20 staff and 20 visitor spaces are required. It is proposed to provide a total of 36 Sheffield Stand hooped cycle stands, located as shown on the drawings. Four of these would provide standard, double sided access and the remaining 32 would provide single sided access, resulting in a total of 40 cycle parking spaces. It is proposed to provide lockers and showers on all occupied floors.

13.6 All cycle parking would be readily accessible at ground floor level.

13.7 Section 11 above provides a detailed assessment, based on survey data collected for the present study, of existing trips to and from the site by all modes. A modal split of trips in both the morning peak period and over the course of the survey period, 0800 – 1800, are presented.

13.8 Given that the proposed BRI development would be co-located with the existing School building and that the uses are comparable, it is considered that the modal split of trips to and from BRI would be the same as that recorded as part of the multi-modal survey undertaken in April 2015, as presented in Table 11.2 for the full period of the survey (0800-1800) and in Table 11.3 for the morning peak period (0800-1000). It is similarly considered reasonable to assume that the pattern of arrivals and departures associated with BRI would be broadly comparable with those recorded in the survey.

13.9 In assessing the person trip generation characteristics of the proposed BRI development it is therefore relevant to consider the quantum of arrivals and departures, based on the mode share and trip patterns derived from the multi-modal survey of the existing School building. In this context, an assessment based on a consideration of relative floor areas between the existing and proposed building is not considered appropriate.

13.10 Persons using the proposed BRI development would largely be accommodated on the ground, first and second floors. The two basement levels would largely be given

over to storage and to 'secondary laboratories'; the latter would be visited typically twice per week, and then by people already using other parts of the building. In the upper storeys, there would be a mixture of accommodation, including laboratories, break out areas, write-up areas, desk space, offices and meeting rooms. In many cases in the course of a single visit to BRI persons would utilise some or all of these spaces at one time or another, moving from space to space as their needs dictate. The population of the building at any one time would therefore be limited. Under such circumstances, in determining the likely trip generation associated with the proposed BRI building, it is considered most appropriate to consider the relative populations for which the two buildings are designed.

13.11 The existing School building accommodates a permanent occupancy of up to 319 people and 152 visitors[11]; a maximum occupancy of 471. The proportion of these that were present on site on the day of the survey is not known, but it is considered that if the number of potential visitors is discounted in its entirety and the number of permanent occupants is discounted by 10% to account for absentees (bearing in mind that the survey was carried out in term time, thereby minimising the number of persons absent due to holidays) this would provide a robust basis for the assessment of trips per person on the day of the survey. Taking this approach, and applying it to the number of arrivals recorded during the survey period (which was higher than the recorded departures), generates a trip rate for arrivals (or departures) of 1.617 trips per person, based on 287 people. [This is consistent with information provided by the School when preparations were in hand for the multi-modal survey, when it was indicated that the number of staff working in the building is 290.]

13.12 As part of the proposed development for which planning approval is sought, it is proposed to demolish part of the existing School building, thereby reducing floor space and, hence, accommodation. The architects have indicated that the reduction in floor area would remove accommodation for 52 people. As this would tend to reduce the number of trips generated by the School relative to the existing building, a robust assessment of the likely trip generation of the overall proposed development is achieved by applying a lower trip rate to this reduction of 0.985 trips per person, based on maximum occupancy, including permitted visitors and no absentees (464 arrivals divided by 471 maximum occupancy).

[11] Maximum numbers of occupants for which a fire certificate has been issued

13.13 The BRI development is designed for maximum occupancy of 220 people.

13.14 A realistic, robust assessment of the trip generation characteristics of the proposed development is therefore considered to be obtained by applying a reduction on the existing, recorded trips (calculated at a trip rate of 0.985 trips per person for 52 people) and adding the trips associated with 220 new people at a trip rate of 1.617 trips per person. The resulting trip numbers are presented in the table below, assuming the same pattern of arrivals and departures as was recorded in the survey.

HOURS	LSHTM (RETAINED)		BRI		OVERALL	
	REVISED ARRIVALS	REVISED DEPART-URES	NEW ARRIVALS	NEW DEPART-URES	ARRIVALS	DEPART-URES
0800-0900	31	7	27	6	58	13
0900-1000	63	10	54	8	117	18
1000-1100	72	20	62	17	134	37
1100-1200	37	24	32	21	69	45
1200-1300	58	54	50	47	108	101
1300-1400	59	49	51	42	110	91
1400-1500	34	43	29	37	63	80
1500-1600	24	39	21	34	45	73
1600-1700	18	45	15	39	33	84
1700-1800	17	61	15	53	32	114
TOTAL	**413**	**352**	**356**	**304**	**769**	**656**

Table 13.1 Projected Revised Person Trips (Arrivals and Departures) for Retained School, Projected Person Trips (Arrivals and Departures) for BRI and Projected Total Person Trips (Arrivals and Departures)

13.15 From Table 13.1 above, it will be seen that the projected total number of arrivals for the proposed development (including the retained School) over the ten-hour period under consideration is 769, an increase of 305, equivalent to one additional arrival every two minutes on average. It will also be seen that the projected total number of departures over the same period is 656, an increase of 260, equivalent to one additional departure every 2.3 minutes on average. These increases are therefore unlikely to have a significant impact on the transport system.

13.16 In the morning peak period, 0800-1000, the projected total number of arrivals for the proposed development (including the retained School) is 175, an increase of 69, equivalent to one additional arrival every 1.7 minutes on average. The projected total number of departures over the same period is 31, an increase of 12, equivalent to one additional departure every 10 minutes on average. These increases are, similarly, unlikely to have a significant impact on the transport system.

13.17 It is appropriate to consider the modal split of these additional trips in order to establish the impact of the development on the transport network. As indicated in paragraph 13.8 it is considered that the modal split of surveyed trips would apply equally to trips generated by BRI. Therefore, applying the modal split of trips across the survey period overall (Table 11.2) to the number of additional person trips predicted to be generated between 0800 and 1800, gives an indication of the impact of the proposed development on the transport network over the working day as a whole, whilst applying the surveyed modal split presented in Table 11.3 above to the predicted increase in person trips between 0800 and 1000 gives an indication of the impact of the proposed development on the transport network during the morning peak period. The results of this assessment are presented in Table 13.2 below.

13.18 From Table 13.2 below it will be seen that in the morning peak period (0800 – 1000) the number of additional trips arising from the proposed development that are predicted to be undertaken entirely sustainably (on foot or by cycle) would be 24. It is predicted that 8 trips would be by bus and 49 trips would be by rail (the journey completed on foot or by cycle) with 32 by tube and 17 by other rail services, which spread across the public transport network is considered to represent an insignificant impact. Only one arrival is predicted to be by personal motorised transport (motorcycle), which again would not be a significant impact on the local highway network.

Mode of Travel (including main secondary mode by distance travelled)	Mode Share (%) 0800 - 1000	Additional Trips by Mode 0800 - 1000			Mode Share (%) 0800 - 1800	Additional Trips by Mode 0800 - 1800		
		A	D	Total		A	D	Total
Walk all the way	12%	8	1	**24**	32.5%	99	85	**253**
Cycle all the way	18%	13	2		12.2%	37	32	
Walk and Tube	38%	27	5	**49**	28.4%	87	74	**257**
Walk and Train	18%	13	2		15.5%	47	40	
Cycle and Rail	3%	2	0		1.5%	5	4	
Walk and Bus	10%	7	1	**8**	7.7%	23	20	**43**
Walk and Motorcycle	1%	1	0	**1**	0.4%	1	1	**12**
Walk and Taxi	0%	0	0		1.8%	5	5	
Walk and Motor Car	0%	0	0		0.0%	0	0	
TOTAL	**100%**	**70**	**12**	**82**	**100%**	**305**	**260**	**565**

Table 13.2 Number of Predicted Additional Arrivals and Departures by Mode of Travel for Morning Peak Period (0800 – 1000) and for Overall Survey Period (0800 – 1800) based on Surveyed Modal Split

Notes – A = Arrivals; D = Departures; small discrepancies in totals due to rounding errors

13.19 Taking the working day as a whole, over the ten-hour period between 0800 and 1800 the number of additional trips arising from the proposed development that are predicted to be undertaken entirely sustainably (on foot or by cycle) would be 253. It is predicted that 43 trips would be by bus and 257 trips would be by rail (the journey completed on foot or by cycle) with 161 by tube and 96 by other rail services, which is similarly considered to be a modest increase across the public transport network as a whole. Only 2 trips are predicted to be by personal motorised transport (motorcycle), whilst ten trips are predicted to be by taxi, which again would not represent a significant impact on the local highway network.

13.20 Table 11.5 above presents the results of a survey of service and delivery vehicle trips to and from the existing School building at 15-17 Tavistock Place conducted over the course of a week. This demonstrates that a very low number of service vehicle/delivery trips are generated by the existing use on the site during a typical working week. No trips were recorded on Monday or Thursday and only two vehicle movements on each of the other three days, with three of the six recorded visits undertaken by the School's own vehicle.

13.21 It is the applicant's view that the number of service vehicle/delivery vehicle trips will increase as a result of the BRI project. The assessment is that vehicle trips could increase to a maximum of around 5 per day and would be largely laboratory related. This remains a low number of trips.

13.22 As described in Section 15 below, access to the site for service and delivery vehicles would continue to be accommodated via the existing vehicular access from Tavistock Place and would thus continue to impose a constraint on the size of vehicles.

13.23 It is clear that the number of vehicles accessing the site following completion of the project would be significantly lower than the number generated during the demolition and construction phases of development. There is a natural emphasis, therefore, on ensuring that there are robust protocols and measures in place to adequately manage and control the potential adverse impacts of construction traffic generated by the project, and consequently a need for an effective Construction Management Plan.

14 Construction Management Plan

Access Options Appraisal

14.1 As required by the London Borough of Camden, the planning application is accompanied by a **Draft Construction Management Plan** that describes the management arrangements and measures that would be put in place to control and mitigate the environmental and highways/traffic impacts that it is anticipated would arise during the demolition and construction phases of the proposed development. The draft document would be finalised in conjunction with the Principal Contractor, once appointed, should planning permission for the proposed development be granted.

14.2 As indicated in paragraph 12.6 above, a construction period of 104 weeks (two years) is envisaged, with the scheme completed towards the end of 2018.

14.3 The following provides a summary of the highways and traffic management aspects of the Construction Management Plan (CMP), setting out the anticipated movements and type of construction traffic associated with the demolition and construction phases of the project and the measures that it is proposed would be put in place to mitigate the adverse impacts of that traffic.

14.4 The proposed working hours at the site would be 8am to 6pm on Monday to Friday and 8am to 1pm on Saturday, with no working on Sunday or Bank Holidays, in accordance with the Considerate Constructor Code of Practice. These hours would be varied as necessary to accord with any specific planning conditions imposed on any approval for the proposed development.

14.5 As part of the process of preparing a comprehensive planning application for the development, there have been on-going discussions with officers of the London Borough of Camden, as part of which the highways officer raised concerns about the access to the site for vehicles during the demolition and construction phases.

14.6 In response, available access options have been examined, in conjunction with the Council's highways officer, and a detailed appraisal of the options available was undertaken and a report detailing the findings was prepared and submitted to the Council for consideration. A copy of the appraisal report is included as Appendix C to this report. The conclusions of the appraisal, as described below, were subsequently agreed by the Council.

14.7 In the context of the appraisal, it was agreed that there were three possible access options to be considered:

- Burton Street, to the north west of the site;
- Marchmont Street, to the east of the site; and
- Tavistock Place, to the southerly frontage of the site.

14.8 A site visit with representatives of UCL, the School, the project design team and the London Borough of Camden's highways engineer in attendance took place on Tuesday, 31 March 2015.

14.9 As indicated above, the School site has a single direct highway frontage, to Tavistock Place. In the other two cases, third party agreements would be required to secure access rights to the site for vehicles. Negotiations have already taken place with the owners of the land that would need to be used if an access from Burton Street were feasible. Extensive negotiations have failed to secure any agreement with the owners beyond the lease, for the duration of the works only, of two car parking spaces to provide working space on the boundary of the works. In the case of the Marchmont Street access, the land in question is used as an external extension of the activities of the adjoining public house. Whilst the School have a right of way over this land for emergency evacuation purposes, its use by construction vehicles would be detrimental to the operation of the business and the safety of patrons and would be unlikely to be secured.

14.10 There are also physical constraints in respect of all three access options. Due to the nature of the buildings, access in all cases would be through developed frontages, via covered passageway with limited headroom. Additionally, the Burton Street and Marchmont Street accesses have limited manoeuvring space, being arranged at ninety degrees to the highway and with restricted width.

14.11 A consideration of the maximum size of vehicle that would be anticipated during the demolition and construction phase of the project, relative to the maximum available width and headroom of the three passageways, quantifies the extent to which vehicular access to the site during construction is constrained.

14.12 The maximum height of vehicle to be accommodated during construction is a concrete lorry, at 3.75m. Table 14.1 below provides the height and width dimensions of the three passageways in question.

Access Passageway	Width (m)	Height (m)
Tavistock Place (LSHTM)	3.87	3.35
Marchmont Stree	3.3	3.64
Burton Street	3.59	3.65

Table 14.1 Width and Headroom of the Three Passageways Providing Potential Access to the Application Site During Demolition and Construction

14.13 From the above table it will be seen that none of the three potential passageway access points has sufficient headroom to accommodate the maximum size of construction vehicle anticipated. Additionally, Marchmont Street is the narrowest of the three. The Council highways engineer agreed that the Marchmont Street passageway could be discounted as a viable access during the site visit. There is no practical means of increasing the headroom of the Burton Street passageway or its width, not least because it is in third party ownership, and this means of access, which would also require construction vehicles to pass between sensitive residential frontages, was therefore also discounted.

14.14 It is also true that the existing School access from Tavistock Place has restricted headroom, insufficient to accommodate concrete lorries. However, as the building and its forecourt area are within the ownership of the School there is greater scope than elsewhere to make alterations in order to accommodate the anticipated construction vehicles. Preliminary examinations have been carried out and it is considered that the opportunity exists to amend the levels of the forecourt area and passageway in order to achieve an increase in headroom, sufficient to enable access to the inner courtyard for all anticipated construction vehicles requiring access to the workface. Suitable protection measures for any underground services could be provided.

14.15 It is therefore proposed to reduce the level of the entrance to gain the additional headroom needed to allow access through to the rear courtyard for all construction vehicles. A ramp will be provided between the new reduced level and the existing footway/carriageway level. Steel road plates will be provided as protection to underground services. A hoarding would be erected to enclose the works, including those to reduce the levels in front of the entrance. A section through the proposed ramp, showing its relation to the existing footway, is included at Appendix C to the CMP.

14.16 With these accommodation works carried out, it is considered that the Tavistock Place access can be safely used for access to and egress from the site for all construction vehicles likely to require access throughout the duration of the demolition/construction phases of the project.

14.17 As a result, there will be no need to accommodate the standing, loading or unloading of these construction vehicles on the public highway.

Proposed Access Logistics and Routes

14.18 It is nonetheless recognised that the Tavistock Place access places constraints on the size of construction vehicle that would be able to enter the site and a logistics operation would therefore be implemented that ensures that only vehicles of that size will travel to the site and that no loading or unloading would take place from the highway of Tavistock Place. There would be a small number of exceptions to this; temporary, one day closures of Tavistock Place would be required for the placing and decommissioning of the on-site tower crane required (it is anticipated that these would take place at weekends) and there would be a small number of abnormal loads for plant deliveries and for rebar/pile cages etc, in respect of which the timing and any special traffic management measures would be agreed in advance with the local authority.

14.19 UCL is currently carrying out a major building programme at a number of sites within its estate and has established a logistics centre at Silvertown in Docklands for the receipt of large, indivisible loads. For sites in the Bloomsbury area, a **Local Logistics Zone** has been established at Gordon Square by the temporary closure of part of Endsleigh Place, adjacent to the UCL Department of Anthropology. This provides an area where vehicles can be marshalled before being despatched, by radio, to the relevant construction site. This holding area would ensure not only that vehicles of the requisite size are despatched to the Tavistock Place site, but also that only one vehicle at a time is so despatched. This would prevent a build up of vehicles at the site that might otherwise lead to construction vehicles standing on the highway.

14.20 As required by the London Borough of Camden's planning guidance, the CMP considers the proposed routes for vehicles between the site and the Transport for London Road Network (TLRN), the objective being to minimise the length of access routes that do not form part of the TLRN.

14.21 In this context, consideration has been given to the effects of the experimental traffic scheme that LBC propose to implement in the summer of 2015 as described in

paragraph 10.6 above. The arrangements for access to the proposed development site take this experimental arrangement into account.

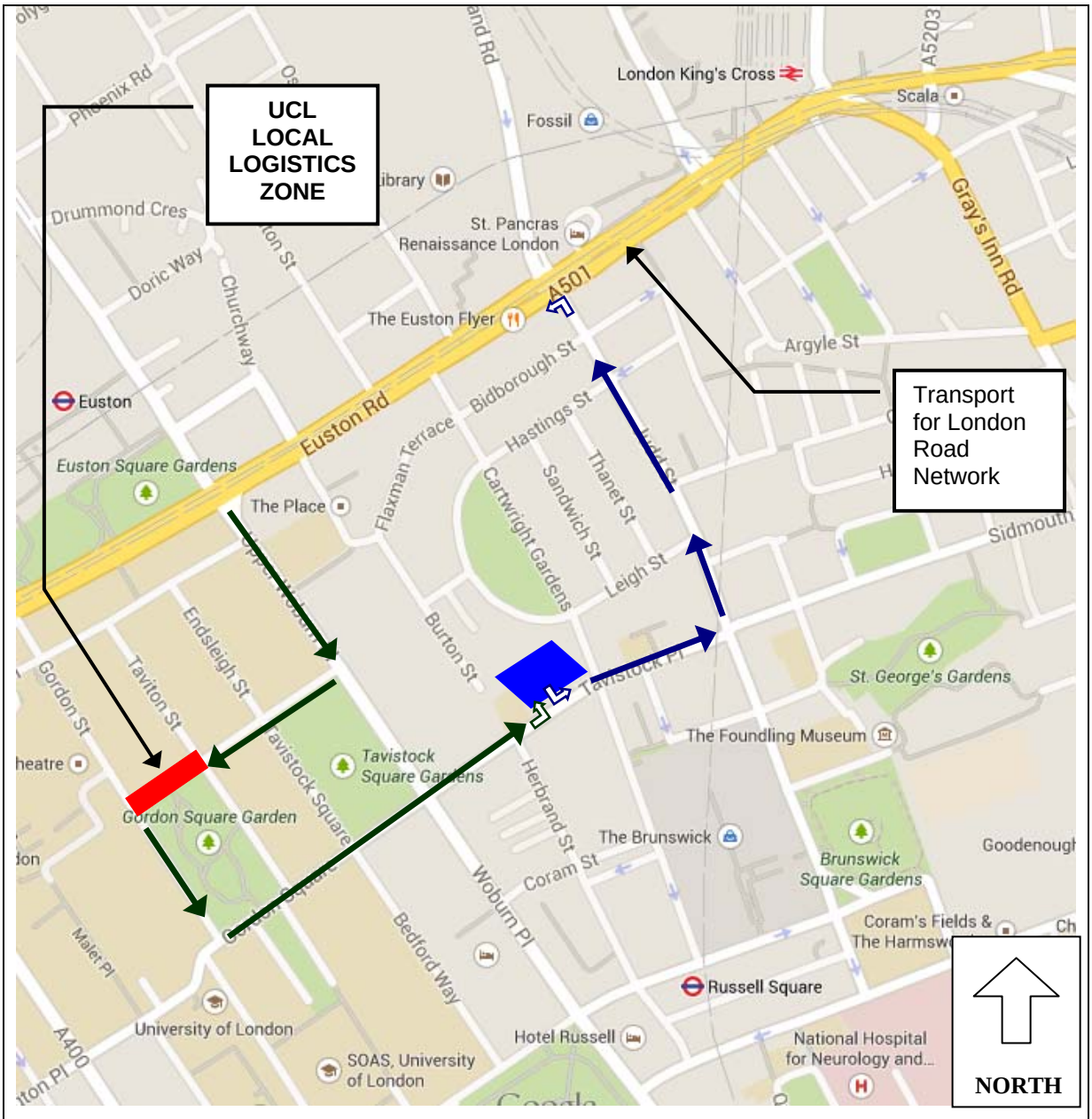


Figure 14.1 Site Access Routes

14.22 The suggested designated access routes are shown in Figure 14.1 above. They show vehicles routed to and from Euston Road, A501, part of the TLRN. It is

proposed that construction vehicles would access the Local Logistics Zone (LLZ) via Upper Woburn Place A4200 and Endsleigh Place. On leaving the LLZ, construction vehicles would proceed via Gordon Square and Tavistock Square (by then operating one way eastbound) into Tavistock Place to access the site.

14.23 Leaving the site, vehicles would have to turn left, in accordance with the one-way system, proceeding via Tavistock Place to Judd Street, where they would turn left to follow Judd Street northwards to Euston Road.

14.24 One constraint on a direct route to Euston Road for all vehicles, including construction vehicles, leaving the site, is a prescribed left turn on Judd Street at its junction with Euston Road that requires all vehicles to turn westwards onto Euston Road. A width restriction on Regent Square precludes exit for larger vehicles to A5200 Gray's Inn Road. This will require vehicles wishing to turn right onto Euston Road to proceed via Bidborough Street and Mabledon Place, but this involves a modest increase in mileage.

Size and Frequency of Vehicle Movements

14.25 It is anticipated that construction vehicles that would access the site during construction would include concrete lorries, 8.7m long and 3.75m high and small tipper lorries, 8m in length and 3.5m high.

14.26 An assessment has been made of the anticipated movements of vehicles to and from the site as the works progress. The following table provides an indication of the frequency of vehicle movements per week for each week of the 104-week demolition/construction phase. Note that 'movement' equates to either a vehicle arrival at or a dispatch from the site.

14.27 From the table below it will be seen that the anticipated peak is 180 lorry movements per week, between weeks 17-26, equal to an average of 33 per day based on a 5.5 day week and 4.1 per hour based on an 8-hour working day.

14.28 The number of lorry movements per week on average across the full construction phase is 103, equivalent to 19 per day based on a 5.5 day week and 2.3 per hour based on an 8-hour working day.

Project Week(s)	Lorry Movements per week	Project Week(s)	Lorry Movements per week
1	30	**17-26**	**180**
2	44	27-29	170
3	52	30-33	160
4	62	34-37	140
5	82	38-39	120
6	92	40-73	90
7	120	74-84	70
8	140	85-101	60
9-13	160	102-104	50
14-16	170		

Table 14.2 Anticipated Numbers of Lorry Movements Per Week During the Demolition and Construction Phases of the Project

Servicing Arrangements During Demolition and Construction

14.29 The developer acknowledges that the restrictions and requirements imposed by the local authority as set down in the final version of the CMP and relevant planning conditions will need to be complied with.

14.30 Key matters to be considered include:

- Agreed traffic routes to and from the site (See above)
- Co-ordinated deliveries to minimise disruption
- Use of modular components to mitigate traffic movements and reduce man hours on site
- Segregation of vehicular movements and redirection of pedestrians

14.31 Delivery companies will be made aware of the site access/egress routes, operational hours, the offloading area and the general site protocol by means of careful written instructions and directions supplied to them at the time of confirming the delivery schedule.

14.32 Site access/egress for all material deliveries and waste removal would be carefully controlled. A scheduling system would be developed to provide an efficient means of controlling all deliveries and ensuring that deliveries arrive at the right time and are speedily despatched. Scheduling would, wherever possible, be used to minimise or avoid lorry movements to and from the site during peak hours.

14.33 At no time would project-related vehicles be permitted to stack up and park on any adjoining or nearby roads. Any unscheduled or early deliveries would be moved on and told to return at the correct time.

14.34 As explained in the CMP and based on the advice of a leading contractor with experience of working within constrained, inner-London sites, it is proposed that a gantry is constructed within the site at ground level, above the basement construction, to provide somewhere to stand vehicles during delivery and removal of material from the site. Given the size of vehicles that would be able to gain entry to this area, it is envisaged that there would be sufficient space to allow vehicles to turn within the site so as to be able to enter and leave the site in forward gear.

14.35 Swept path analyses have been carried out and swept path drawings are included at Appendix D to this report that show how vehicles would enter and leave the site, utilising this gantry within the inner courtyard. Some modification of the existing island defining the cycleway on Tavistock Place, near to the access to the site, would be required to accommodate these manoeuvres. Details would be agreed with the highway authority prior to commencement of works.

14.36 At the site entrance on to Tavistock Place it would then be proposed to control vehicle access and egress across the existing footway and cycle facility with the use of temporary barriers deployed and removed by trained marshals (2 each side). This arrangement would operate in conjunction with the radio-controlled arrival and despatch protocol described above and which ensures that only a single vehicle is present at the site at any one time, and would allow the deployment of barriers on a ‘just in time’ basis thereby minimising disruption and delay to the travelling public, particularly pedestrians and cyclists.

14.37 The barrier-plus-marshal methodology described above is already in use by the developer at a nearby site on Torrington Place, where the access for construction vehicles crosses a footway and the same cycle facility that passes the Tavistock Place site. It is understood that that arrangement has now been in place for around six months and has operated without incident.

14.38 The careful scheduling of deliveries will be key to the efficient handling and storage of materials in order to avoid over-congestion on site. Wherever possible, materials will be brought to site for delivery straight to the work-face.

14.39 Selection and procurement procedures would require all sub-Contractors and suppliers who are required to deliver to the site to be members of Transport for London's Fleet Operator Recognition Scheme (FORS) or equivalent. This would help to promote lower vehicle emissions and high standards of efficiency and safety, in particular with respects to cyclists. In this last context, the School would also require all sub-Contractors and suppliers delivering to the site to adhere to the CLOCS Standard for Construction Logistics (Construction Logistics and Cyclist Safety) to help manage work-related road risk, especially to protect the safety of cyclists.

Protection of the Public Highway from Dirt and Dust

14.40 As far as is reasonably practical, adjacent carriageways and footways would be kept clear of mud, dust, or other deposits at all times. To achieve this, the wheels of any vehicles would be hosed clean prior to despatch from the site. Any mud, or other material, deposited on the highway would be cleaned without delay by appropriate manual or mechanical means.

Community Liaison

14.41 This is a constrained site, with neighbouring residential and commercial premises, an existing site occupier (the School) whose operations need to be maintained throughout the construction project and which adjoins a busy public highway. There is a critical need to ensure that there is the minimum possible disruption and disturbance to these stakeholders, in addition to the public, throughout the course of the project.

14.42 From the outset the intention will be to work closely with all stakeholders. In common with the arrangements for all construction-related stakeholder involvement, the developer/Principal Contractor would maintain an 'open door' policy with regards to highways/traffic matters, so that stakeholders have a means of bringing any concerns directly and quickly to senior personnel, so that any issues can be discussed, explained and, if appropriate, addressed.

14.43 Senior site personnel would be on hand throughout the operative hours of the project to deal with any complaints or comments from members of the public regarding such issues as highway safety, traffic management or street cleanliness. All such comments or complaints would be recorded and reviewed as part of regular progress/site meetings, with records made of any corrective action required or taken.

14.44 The Principal Contractor would be required to liase with other Contractors working in the vicinity of the site and to endeavour to co-ordinate activities with them in order to minimise any potential cumulative impacts arising from the combined activities.

Tower Crane

14.45 It is anticipated that one Luffing Jib tower crane, strategically sited to give 100% coverage of the project footprint, would be used. The crane would have a maximum radius of 45 metres, with a maximum height under hook of approximately 25 metres above ground level and a SWL of 3.0T at this point.

14.46 Erection and dismantling of the tower crane would be from Tavistock Place, which would require a temporary road closure of one day on each occasion. This would be pre-planned and agreed in advance with LBC. All necessary permits and temporary notices would be applied for, noting that there is a ten-week lead-in time.

Non-operational Travel To and From Site

14.47 There would be no car parking available on site for staff, operatives or visitors throughout the period of demolition/construction. Adequate on site cycle parking would be provided.

14.48 Induction procedures would ensure that sub-Contractors are aware of this restriction prior to first commencing work on site. They would be briefed on the parking and

waiting restrictions that are in force within the vicinity of the site. As described earlier in this report, the site is highly accessible by public transport, including Underground, main line rail and bus services. Sub-Contractors would be made aware of the services available and would be required to encourage their staff and operatives to travel to and from the site by public transport, on foot or by cycle.

15 Delivery and Servicing Plan

15.1 This section of the Transport Statement represents the **Delivery and Servicing Plan (DSP)** for the project.

What is a Delivery and Servicing Plan?

15.2 A Delivery and Servicing Plan (DSP) documents an organisation's strategy for managing and reducing the transport impacts associated with their servicing and delivery activities. The DSP for 15-17 Tavistock Place sets out a package of measures that are designed to encourage the efficient, safe and sustainable movement of goods and vehicles associated with deliveries to and servicing of the BRI/School site.

15.3 The effective implementation of a DSP will help to minimise the impact that transport associated with deliveries to and servicing of the site has on the environment, assisting the organisations to reduce their carbon footprint.

15.4 The DSP focuses on a range of activities including:

- Goods deliveries
- Dispatched goods
- Waste and recycling
- Servicing activities e.g. maintenance and repair of plant and equipment

15.5 The DSP is tailored to the specific needs of BRI, the School and the Tavistock Place site.

15.6 The DSP sits alongside the BRI Travel Plan, which accompanies the planning application and to which reference should also be made.

15.7 It also sits alongside the Construction Management Plan (CMP), which performs a similar function to the DSP but which relates specifically to the demolition/construction phase of the project. The CMP also accompanies the planning application and the transport aspects of the CMP are described in Section 14 above.

15.8 The DSP supports and is consistent with the various policy frameworks outlined in Section 3 of this report.

Benefits of a DSP

15.9 There are many benefits that can arise as a result of the successful implementation of a DSP. Benefits of a DSP include:

- reduction in Carbon Dioxide (CO_2) emissions generated by delivery and servicing activities;
- reduction in air pollution such as Nitrogen Dioxide (NO_2);
- helping to reduce traffic congestion;
- helping to reduce road traffic collisions;
- improved efficiency and associated cost savings;
- reduced risk of on-highway servicing which can cause an obstruction and a hazard and
- helping to ensure safety on the site and that health and safety requirements are complied with.

Aims and Objectives

15.10 The successful implementation of the DSP supports the principle of sustainable development.

15.11 The principal aim of the DSP is to:

Minimise the adverse effects on the environment, on traffic congestion, on highway safety and on our neighbours of delivery and servicing activities generated by the Tavistock Place development.

15.12 This DSP therefore seeks to achieve the following objectives:

- To implement procurement procedures that seek, proactively, to reduce the number of delivery and servicing trips to the site, especially during busy times, such as the morning and evening peak hours;
- To ensure that delivery and servicing activity, including where possible waste removal, takes place within the site, safely and efficiently;
- To ensure, partly through positive selection of delivery and servicing companies that follow best practice, that delivery and servicing activity is carried out in as environmentally-friendly a way as possible;
- To minimise the impact of freight activity on local residents, neighbours and the environment;
- To contribute to a reduction in traffic congestion;
- To seek to reduce operating costs including those of companies that deliver to and service the premises; and
- To ensure the robustness of the supply chain and its resilience to planned or foreseeable events and disruption.

Roles and Responsibilities

15.13 Responsibility for developing and implementing the DSP and for its subsequent monitoring and review will be assigned to a senior member of staff (e.g. Facilities Manager), to be identified following receipt of planning approval, supported by the BRI Management Team.

15.14 All staff shall be responsible for ensuring that delivery and service vehicle activity is carried out in accordance with the plan in a safe and efficient manner.

Delivery and Servicing Vehicle Activity Associated with the Site

15.15 As set out in paragraph 13.21 above, the applicants' assessment is that the number of delivery and servicing vehicles accessing the site following completion of the proposed development will remain at a low level, with a maximum of around 5 vehicles per day on average.

Delivery and Servicing Arrangements

15.16 Following completion of the construction phase of the project it is proposed that the temporary ramp installed at the existing vehicular access to the site from Tavistock Place (to gain additional headroom beneath the archway for construction vehicles – paragraph 14.15 above) would be removed, with the present floor levels below the archway reinstated, the headroom returning to the present 3.35m.

15.17 The size of vehicles gaining access to the site will continue, therefore, to be constrained by the physical headroom available at the access from Tavistock Place. As previously indicated, typically vehicles will be of Transit van size or equivalent.

15.18 As indicated on the site layout plan accompanying the application, it is proposed to provide a turntable within the internal courtyard area. This will allow all vehicles that access the site to enter and leave in forward gear. A swept path analysis has been carried out to demonstrate how vehicles would enter and leave the site. The swept paths, which take account of the proposed experimental traffic scheme described in paragraph 10.6 above, are presented at Appendix E to this report.

15.19 All delivery and service vehicle activity generated exclusively by BRI/LSHTM will involve smaller vehicles, accessing the site and entering and leaving in forward gear, with no such vehicles loading/unloading from the highway.

Action Plan – Delivery and Servicing Measures

15.20 The DSP aims to ensure that servicing of and deliveries to BRI will be carried out effectively and efficiently so that any negative impacts on the local highway network, surrounding premises and the environment are minimised.

15.21 The following sets out an Action Plan of measures designed to meet the objectives of the DSP.

15.22 The DSP Action Plan measures are grouped into the following headings:

- Design Features
- Management Measures
- Procurement Strategy
- Waste Management and
- Reducing the Number of Trips

Action Plan:		**By When:**
Design features		
1.	**Off-street servicing facilities:** Provide an on-site service yard with turntable to allow all vehicles to enter and leave the site in forward gear and provide a safe	**0**

	standing/loading area. As a result, no exclusively-generated loading or unloading activities will take place from the highway, thereby ensuring that traffic flows are not disrupted.	
2.	**Service Yard Risk Assessment:** Suitably trained site management staff will undertake a risk assessment of the servicing arrangements for BRI in conjunction with LSHTM site management staff prior to first occupation of BRI. This will examine the following areas and will be repeated periodically to ensure its continuing effectiveness • Adequacy of manoeuvring space for vehicles/maintenance and operation of the turntable • Interaction with pedestrians and cyclists • Adequacy of loading/unloading areas • Interaction between vehicles • Visibility of management staff	**0** **P**
3.	**Servicing Restrictions:** The servicing arrangements within the site have been designed to accommodate the largest vehicles that are likely to require access to the site, recognising the headroom constraints at the access – all third party delivery/service providers would be made aware of the access constraints in place at the site and such visits would be pre-arranged to ensure that only one such vehicle is present on site at any one time. Any pre-booked vehicles requiring access to the site that arrive at unscheduled times would not be permitted to enter the site without authorisation.	**0** **C**
4.	**Traffic Management Regulation Audit:** The parking, waiting and loading restrictions in place on the local highway network do not represent a constraint on access to and from the site.	**0**
5.	**London Low Emission Zone (LEZ):** The BRI site is located within the LEZ. This requires suppliers operating delivery vehicles that do not meet emission standards to pay a daily charge for journeys within the zone, thereby providing an automatic incentive for suppliers to operate greener vehicles when servicing or delivering to the site.	**0**
6.	**Facilities for 'out-of-hours' (overnight) deliveries:** The applicant has indicated that many deliveries take place outside the normal working day, early morning around 5.30am. This avoids peak traffic periods and minimises conflicts with other users of the building.	**0**
Management Measures:		
7.	**Responsibility for the DSP:** The Facilities Manager, or equivalent senior member of staff, will be responsible for implementing, overseeing, reviewing and developing the DSP. The role will entail: • increasing supplier and employee awareness of the DSP, of the environmental impacts that are associated with delivery and servicing activities and the cost benefits of keeping deliveries to a minimum; • arranging any necessary staff training; • ensuring that the service area is maintained for its intended	**0** **C**

	purpose at all times that it is required and that it is operated in a safe manner; • ensuring that the turntable is functioning properly and safely at all times; • reviewing procurement procedures to promote initiatives that reduce service and delivery vehicle trips; • monitoring and reviewing the DSP; and • taking any enforcement action that might be required.	
8.	**Delivery/Service Vehicle Survey:** Carry out a survey of delivery and service vehicle activity taking account of TfL guidance and analyse the results. This will provide a benchmark against which the effectiveness of the DSP can be evaluated.	**3**
9.	**Repeated Delivery/Service Vehicle Survey:** As part of Monitoring procedures (see below), the survey of delivery and service vehicle activity would be repeated in the third and fifth year following the initial survey, to enable progress to be quantified.	**Y3** **Y5**
10.	**Keep the DSP up-to-date:** Administration of the DSP involves the maintenance of necessary systems, data and paperwork, consultation and information. These duties are permanent and updating the DSP to reflect current good practice will be the responsibility of the Facilities Manager (or identified equivalent). Essentially, the DSP will merely reflect good cost-effective business practices and sound application of normal health and safety principles to the operation of the site.	**C**
11.	**Raise Awareness and Provide Training:** All staff associated with servicing of and deliveries to BRI will be made aware of the requirements of the DSP and will be required to undergo appropriate training to ensure safe practices in accordance with the DSP. Failures to implement the requirements of the DSP would be treated as a disciplinary matter.	**3** **C**
12.	**Security Measures:** Site management staff will marshal deliveries and ensure that the site is being used safely and securely and at appropriate times	**0** **C**
13.	**Make Arrangements for Accommodating Any Special Deliveries:** Irregular/unusual servicing/delivery vehicle activity (such as plant maintenance) will need to be pre-arranged. The delivery time and duration will be agreed with management to minimise the impact on the routine daily servicing activities. Off-peak visits will be encouraged and scheduled wherever possible.	**0** **C**
14.	**Schedule Delivery and Servicing Trips Outside Peak Hours:** Wherever possible, deliveries would be scheduled to take place outside the peak hours, especially those under the direct control of BRI/LSHTM. BRI will work with suppliers to achieve this objective wherever possible. It is considered likely that suppliers would want to schedule deliveries outside peak times to avoid congestion on the highway network in the vicinity of the site and that this is likely, therefore, to be largely self-regulating. Times of in-house (e.g. UCL) deliveries will be notified to site staff in advance, ensuring that staff are suitably prepared to receive each delivery, including those responsible for the management of the service area including	**0** **C**

	turntable and designated standing area.	
16.	**Promote the Freight Information Portal:** BRI will raise awareness of the London Freight Matters website (http://www.tfl.gov.uk/info-for/freight/?cid=freight) as a resource for those planning and making deliveries to the site and encourage the adoption of good practice servicing and delivery strategies. The benefits associated with using suppliers adopting sustainable freight and servicing practices will be promoted throughout the workplace.	**3** **C**
Procurement Strategy		
17.	**Review internal procedures:** BRI will review internal procurement procedures to ensure that they show an awareness of the vehicle activity generated by suppliers and its impacts and that they include appropriate measures that are designed to reduce those impacts.	**6**
18.	**Promote the Freight Operator Recognition Scheme:** BRI procedures will give preference, wherever practicable, to suppliers who are registered with a best practice scheme such as the Freight Operator Recognition Scheme (FORS), which recognises suppliers whose lorry and van fleets are operated safely, lawfully, efficiently and so as to reduce the impact of their activities on the environment.	**3** **C**
19.	**Reduce or Consolidate the number of suppliers:** BRI will review their suppliers and their requirements and ordering procedures to see if economies of scale can be achieved and/or consumption of supplied items reduced, thereby achieving efficiencies and reducing the number of supplier trips.	**6** **C**
20.	**Work with LSHTM:** BRI will work with LSHTM to pursue joint initiatives and schemes where possible. This might lead, for example, to opportunities for shared deliveries, thereby reducing the overall number of trips undertaken.	**3** **C**
Waste Management		
21.	BRI will ensure that as much as possible of the waste that is generated is recycled or re-used, rather than being sent to landfill, and BRI procedures will underpin this commitment.	**0** **C**
22.	In accordance with the London Freight Plan, BRI will provide sufficient on-site facilities for the storage and collection of segregated waste.	**0** **C**
23.	BRI will operate a policy of simple waste segregation at source to maximise recycling efficiency. Waste management therefore starts at the point that waste is created.	**0** **C**
24.	Dry recyclables will be stored and collected as a single stream. BRI will have a selection of clearly marked waste receivable bins for different waste streams, which will be collected by the site cleaners on a daily basis and emptied into the corresponding external waste bin.	**0** **C**
25.	Hazardous waste will also be segregated at source. Separate containers will be provided for all waste streams.	**0** **C**
26.	A collection schedule would be agreed with any private waste collection contractors, which would be designed to minimise the number of collections and, hence, the number of goods vehicle trips generated and ensure, wherever practicable, that such	**0** **C**

	collections take place outside peak hours.	
27.	Wherever practicable, waste collections will take place at pre-arranged times to ensure that the site is managed effectively and efficiently.	
Reducing the Number of Trips		
28.	**Reduce the Number of Service and Delivery Trips in the Peak Hours:** Wherever possible, service and delivery trips will be pre-booked and scheduled to take place outside the peak hours.	**3** **C**
29.	**Reduce the Number of Service and Delivery Trips Overall:** As part of a review of procurement procedures BRI will examine the potential for reducing the number of service and delivery trips overall, by such measures as rationalising the number of different suppliers, reviewing what is ordered and how frequently and working with neighbours.	

Key:
0 – By time of opening of the dealership
3 – Within 3 months of occupation
P – Periodic Review
Y3 – Year 3
Y5 – Year 5
C - Continuing requirement

Monitoring and Review

15.23 The DSP sets out the BRI's proposals for the efficient and effective management of servicing and delivery trips that would be generated by the development and demonstrates their commitment to the employment of best practice and to the reduction of the impacts of delivery and servicing activity on the environment. The requirements of the DSP will be complied with and it is acknowledged that any non-compliance may be enforced through the planning system. The philosophy and requirements of the DSP will be imbedded into BRI's internal procedures and will be enforced accordingly.

15.24 BRI will implement a programme of monitoring and review that would generate information that would be used to evaluate the success of the DSP relative to the objectives set out above.

15.25 Monitoring and review will be carried out by or under the auspices of the Facilities Manager or equivalent.

15.26 A delivery survey will be undertaken within three months of first occupation. The delivery survey would run alongside the Staff Travel Survey identified in the BRI

Travel Plan. The delivery survey would be repeated in the third and fifth year following the initial survey.

15.27 The data obtained from the Delivery Survey will be used to inform the process of reviewing and, if necessary, making changes to prevailing delivery and servicing operations and procedures in order to meet the objectives set out above. The analysis would focus on, for instance, the proportion of delivery and service vehicle trips taking place in the peak hours, the overall number of delivery and service vehicle trips generated and the proportion of suppliers that are FORS registered. Subsequent Delivery Surveys will allow a comparison with the benchmark figures to quantify and demonstrate the progress that has been made.

15.28 In the context of the above, it should be recognised that the volume of delivery and servicing vehicle trips generated by BRI would be small, and the size of vehicles undertaking such trips would be limited, typically, to Transit-sized vehicles. It is anticipated, therefore, that the emphasis of the DSP would be on safe working practices in relation to access and egress and materials handling rather than on measures to reduce the number of trips, although opportunities in respect of the latter would continue to be exploited as and when they arise.

16 Travel Plan

16.1 In February 2015 UCL published the latest version of its Green Travel Plan.

16.2 UCL recognises that its activities and operations can have an impact on society and the environment and is working to reduce the negative effects of these activities and operations whilst promoting and striving for positive outcomes where possible. Although travel is necessary to enable its work, study and research activities to function, UCL is seeking to reduce the amount and impact of the travel that is undertaken.

16.3 The overall aim of the Travel Plan is "…to enable efficient and optimal travel choices, which support UCL's business, minimise social and environmental impacts and respect and contribute to the local transport agenda and London's wider transport challenges amongst other things."

16.4 To achieve this, UCL is seeking to reduce the amount of travel which is undertaken, and encouraging a modal shift by promoting and increasing cycling, walking, and the use of 'sustainable' public transport.

16.5 Across its current development programme in the Bloomsbury area, UCL's strategy is to implement the UCL Green Travel Plan across its various sites, supported by brief site-specific daughter documents. The UCL Green Travel Plan therefore accompanies the present planning application and is supported by a Travel Plan for the BRI development that provides a site-specific interpretation and perspective on the plan.

Summary and Conclusion

17 Summary

17.1 This Transport Statement supports a joint planning application by University College London (UCL) and the London School of Hygiene & Tropical Medicine (the School) for a proposed development at 15-17 Tavistock Place, London Borough of Camden. UCL and the School seek permission to demolish a single storey structure to the rear of the existing School building and to develop this area to provide additional laboratory and office space. Once completed, the finished new building will become the Bloomsbury Research Institute (BRI), a global centre of excellence. Subject to receipt of planning approval, it is envisaged that building completion would be towards the end of 2018.

17.2 The Transport Statement has been prepared in accordance with national, regional and local development policies to demonstrate the impacts that the proposed development would be expected to have on the transport network.

17.3 The Transport Statement demonstrates that the proposed development would occupy a sustainable location. Indeed, the site of the proposed development lies within the defined Central London Area of Camden, an area recognised by the London Borough of Camden to be highly accessible by a range of means of transport. The Core Strategy recognises that this area is '…particularly suitable for uses that are likely to significantly increase the demand for travel.' The proposed development would therefore be sited in an area that LBC acknowledges is a sustainable location, highly accessible by a range of travel modes and that offers broad travel choice by sustainable modes in particular.

17.4 Planning permission was granted in May 2009 for a change of use and works of conversion of 15 – 17 Tavistock Place from offices (Use Class B1) to flexible business/non-residential institution floorspace (Use Class B1/D1). The purpose of the planning approval, since implemented, was to extend and adapt the building to enable its use by the London School of Hygiene and Tropical Medicine. The building currently accommodates a combination of educational facilities, research programmes and administrative offices.

17.5 The application site at 15 – 17 Tavistock Place benefits from a PTAL score of 6b, the highest score achievable, indicating an excellent level of accessibility to public transport services.

17.6 The application site is also readily accessible on foot and by bicycle. There are extensive shopping and leisure facilities within the immediate vicinity of the site (including The Brunswick, a purpose built pedestrianised district shopping centre that provides a broad range of retail outlets and service providers) allowing a number of trips for a variety of purposes (shopping, banking, fitness and leisure trips for example) to be undertaken on foot during break periods. An extensive residential area is accessible on foot or by bicycle from the application site, access by the latter mode facilitated by two cycle routes that pass the frontage of the site on Tavistock Place.

17.7 The Tavistock Place site lies within a Controlled Parking Zone and a 20mph speed limit zone. There are turning restrictions in evidence at various nearby junctions and an experimental one-way traffic order is to be implemented on Tavistock Place in the summer of 2015. On-street parking for non-residents' vehicles is closely controlled and largely restricted in the vicinity of the application site. These restrictions serve to provide a disincentive to travel to and from the application site by private motorcar and encourage sustainable travel. Whilst there are controlled crossing facilities for pedestrians at nearby traffic signal-controlled junctions, an analysis of road collisions resulting in personal injury in the three-year period 2011-13 reveals that pedestrians were involved in 11 (84.6%) of the thirteen collisions recorded at or in the vicinity of the Tavistock Place/Marchmont Street junction, including two collisions resulting in serious casualties. Eight of the eleven collisions were described as not occurring at the controlled pedestrian crossing, with three described as occurring at the pedestrian crossing.

17.8 In order to determine the existing pattern of trips to and from the application site, a multi-modal survey was commissioned for this present study and was undertaken on Tuesday, 21 April 2015, representing a 'typical' day during term time. The survey consisted of two elements; firstly, a count of all arrivals and departures at the site entrance between the hours of 0800 and 1800 and secondly a direct interview survey

with people arriving at the building to determine mode of travel (including main secondary mode by distance travelled).

17.9 Over the ten-hour survey period a total of 464 people arrived at the site and a total of 396 departed from the site. No-one arrived during the surveyed hours by private car, and only 0.4% by motorcycle, with 1.8% arriving by taxi. Overall during the survey period, 44.7% travelled wholly by non-motorised means, with almost a third travelling on foot for the whole of the journey (32.5%) and 12.2% travelling all the way by bicycle. Over half of journeys (53.1%) involved a trip by public transport, with 51.6% completing their journey on foot having travelling by tube (28.4%), train (15.5%) and bus (7.7%), and with 1.5% completing their rail journey by bicycle. In total, 97.8% of trips were made by sustainable modes of transport.

17.10 If the morning peak period (0800 – 1000) is considered, there were 106 arrivals and 19 departures, a total of 125 trips. Of the 106 arrivals, 30% travelled wholly by non-motorised means (12% walking and 18% cycling), whilst 69% of trips involved public transport (59% by rail and 10% by bus). Over half of arrivals (56%) travelled by rail, completing their journeys on foot, (38% by tube and 18% by train) with a further 3% travelling by rail and completing the journey by cycle. In total 99% of trips were made by sustainable modes of transport. No journeys were made by private car and only 1% of trips were made by motorcycle.

17.11 It is considered that the number of trips recorded by mode would not represent a significant impact on the relative transport networks.

17.12 To complement the above survey information, the School recorded details of delivery and service vehicle activity at the site, each day for the working week 20th – 24th April 2015. This demonstrated that the number and size of service and delivery vehicles accessing the site are small; there were no service/delivery vehicles recorded on Monday or Thursday and only two vehicle movements on each of the other three days. This level of activity is considered by the School to be typical.

17.13 In accordance with current and emerging development plan policies, the completed BRI development at Tavistock Place would be car-free. The only car parking that would be permitted on site would be for the use of disabled drivers; two parking

spaces, designed to appropriate mobility standards, would be provided within the courtyard.

17.14 Cycle parking would be provided for both the proposed BRI and for the retained existing School building in line with LBC's published parking standards. For the retained School building, a total of 12 staff and 12 visitor spaces are required. Therefore, a total of 12 Sheffield hooped cycle stands are proposed. These would be located within the existing building, towards its easterly end, with access both directly from the street and internally. Lockers would also be provided within this area. This would therefore provide secure, covered cycle parking for the retained School building. For the proposed BRI, a total of 20 staff and 20 visitor spaces are required. It is proposed to provide a total of 36 Sheffield hooped cycle stands, four providing standard, double sided access and the remaining 32 providing single sided access, resulting in a total of 40 cycle parking spaces. Lockers and showers would be provided on all occupied floors.

17.15 Given the co-location of the School and BRI and the similarity of the end uses, it is considered reasonable to assume that the modal split of trips to and from the site would, in the absence of a Travel Plan, remain as surveyed. Similarly, it is considered reasonable to assume that the pattern of arrivals and departures over the course of the working day would remain consistent with the survey data. The main change in travel characteristics arising from the proposed development is therefore the quantum of trips that is likely to be generated.

17.16 The Transport Statement provides an assessment of that aspect of trip generation, reasoning that in determining the likely trip generation associated with the proposed BRI building, it is most appropriate to consider the relative populations for which the two buildings are designed, the BRI development being designed for maximum occupancy of 220 people.

17.17 A realistic, robust assessment of the trip generation characteristics of the proposed development is therefore considered to be obtained by applying a reduction on the existing, recorded trips to take account of the proposed demolition of part of the existing LSHTM building and adding the trips associated with 220 new people. Taking a robust approach to the trip rates applied to existing, removed trips and to new trips, the projected total number of arrivals for the proposed development

(including the retained LSHTM) over the ten-hour period under consideration is 769, an increase of 305, equivalent to one additional arrival every two minutes on average. The projected total number of departures over the same period is 656, an increase of 260, equivalent to one additional departure every 2.3 minutes on average. These increases are therefore unlikely to have a significant impact on the transport system.

17.18 In the morning peak period, 0800-1000, the projected total number of arrivals for the proposed development (including the retained LSHTM) is 175, an increase of 69, equivalent to one additional arrival every 1.7 minutes on average. The projected total number of departures over the same period is 31, an increase of 12, equivalent to one additional departure every 10 minutes on average. These increases are, similarly, unlikely to have a significant impact on the transport system.

17.19 Over the ten-hour period between 0800 and 1800 the number of additional trips arising from the proposed development that are predicted to be undertaken entirely sustainably (on foot or by cycle) would be 253. It is predicted that 43 trips would be by bus and 257 trips would be by rail (the journey completed on foot or by cycle) with 161 by tube and 96 by other rail services, which is considered to be a modest increase across the public transport network as a whole. Only 2 trips are predicted to be by personal motorised transport (motorcycle), whilst ten trips are predicted to be by taxi, which would not represent a significant impact on the local highway network.

17.20 In the morning peak period (0800 – 1000) the number of additional trips arising from the proposed development that are predicted to be undertaken entirely sustainably (on foot or by cycle) would be 24. It is predicted that 8 trips would be by bus and 49 trips would be by rail (the journey completed on foot or by cycle) with 32 by tube and 17 by other rail services, which spread across the public transport network is considered to represent an insignificant impact. Only one arrival is predicted to be by personal motorised transport (motorcycle), which again would not be a significant impact on the local highway network.

17.21 It is the applicant's view that the number of service and delivery vehicle trips would increase as a result of the BRI project. The assessment is that vehicle trips could increase to a maximum of around 5 per day and would be largely laboratory related. This remains a low number of trips. Access to the site for service and delivery

vehicles would continue to be accommodated via the existing vehicular access from Tavistock Place and would thus continue to impose a constraint on the size of vehicles. It is clear that the number of vehicles accessing the site following completion of the project would be significantly lower than the number generated during the demolition and construction phases of development. There is a natural emphasis, therefore, on ensuring that there are robust protocols and measures in place to adequately manage and control the potential adverse impacts of construction traffic generated by the project, and consequently a need for an effective Construction Management Plan (CMP). A draft CMP has been prepared and accompanies the planning application. The Transport Statement presents a summary of the highways and traffic management aspects of the CMP.

17.22 It is proposed that access to the site for construction vehicles during the 104-week demolition and construction phase of the project would be from Tavistock Place. Following a detailed appraisal of construction access options, this has been agreed by London Borough of Camden, subject to appropriate control measures. Accommodation works would be required to temporarily increase headroom to allow access by all vehicles likely to require access to the site. As a result, no loading, unloading or standing of these construction vehicles on the highway would be required. Two one-day closures of Tavistock Place would be required to enable erection and dismantling of a tower crane within the site, which it is anticipated would be at weekends. Additionally, a small number of abnormal load deliveries are anticipated, in respect of which the timing and any special traffic management measures would be agreed in advance with the local authority.

17.23 Use would be made of a Local Logistics Zone, already established by UCL to service its other development sites in Bloomsbury, to marshal vehicles before despatch, by radio, to the relevant construction site. This holding area would ensure not only that vehicles of the requisite size are despatched to the Tavistock Place site, but also that only one vehicle at a time is so despatched. This would prevent a build up of vehicles at the site that might otherwise lead to construction vehicles standing on the highway.

17.24 An assessment has been made of the anticipated movements of vehicles to and from the site as the works progress. It is anticipated that construction vehicles that would access the site during construction would include concrete lorries, 8.7m long and 3.75m high and small tipper lorries, 8m in length and 3.5m high. The anticipated peak

number of vehicle movements (noting that 'movement' equates to either a vehicle arrival at or a dispatch from the site) is 180 lorry movements per week, between weeks 17-26 of the 104-week demolition and construction phase of the project, equal to an average of 36 per day based on a five day week and 4.5 per hour based on an 8-hour working day. The number of lorry movements per week on average across the full demolition/construction phase is 103, equivalent to 21 per day based on a five day week and 2.6 per hour based on an 8-hour working day.

17.25 It is proposed that a gantry is constructed within the site at ground level, above the basement construction, to provide somewhere to stand vehicles during delivery and removal of material from the site. Given the size of vehicles that would be able to gain entry to this area, it is envisaged that there would be sufficient space to allow vehicles to turn within the site so as to be able to enter and leave the site in forward gear.

17.26 At the site entrance on to Tavistock Place it would be proposed to control vehicle access and egress across the existing footway and cycle facility with the use of temporary barriers deployed and removed by trained marshals (2 each side). This arrangement would operate in conjunction with the radio-controlled arrival and despatch protocol described above and which ensures that only a single vehicle is present at the site at any one time, and would allow the deployment of barriers on a 'just in time' basis thereby minimising disruption and delay to the travelling public, particularly pedestrians and cyclists.

17.27 All sub-Contractors and suppliers who deliver to the site would be required to be members of Transport for London's Fleet Operator Recognition Scheme (FORS) or equivalent. This would help to promote lower vehicle emissions and high standards of efficiency and safety, in particular with respects to cyclists. In this last context, UCL/LSHTM would also require all sub-Contractors and suppliers delivering to the site to adhere to the CLOCS Standard for Construction Logistics (Construction Logistics and Cyclist Safety) to help manage work-related road risk, especially to protect the safety of cyclists.

17.28 As far as is reasonably practical, adjacent carriageways and footways would be kept clear of mud, dust, or other deposits at all times. The wheels of any vehicles would be hosed clean prior to despatch from the site. Any mud, or other material, deposited

on the highway would be cleaned without delay by appropriate manual or mechanical means.

17.29 Community liaison would be a key element of effective site management. In addition to regular liaison with all stakeholders, senior site personnel would be on hand throughout the operative hours of the project to deal with any complaints or comments from members of the public regarding such issues as highway safety, traffic management or street cleanliness. The Principal Contractor would be required to liase with other Contractors working in the vicinity of the site and to endeavour to co-ordinate activities with them in order to minimise any potential cumulative impacts arising from the combined activities.

17.30 There would be no car parking available on site for staff, operatives or visitors throughout the period of demolition/construction. All site staff and visitors would be made aware of this restriction and would be briefed on the parking and waiting restrictions that are in force within the vicinity of the site. Sub-Contractors would be made aware of the public transport services available and would be required to encourage their staff and operatives to travel to and from the site by public transport, on foot or by cycle. Adequate on-site cycle parking would be provided.

17.31 The Transport Statement incorporates the Delivery and Servicing Plan (DSP) for the project, which sets out the proposed strategy for managing and reducing the transport impacts associated with servicing and delivery activities. The DSP for 15-17 Tavistock Place sets out a package of measures that are designed to encourage the efficient, safe and sustainable movement of goods and vehicles associated with deliveries to and servicing of the BRI/LSHTM site. As such it complements the Construction Management Plan and the Travel Plan for the site.

17.32 Following completion of the construction phase of the project it is proposed that the temporary ramp installed at the existing vehicular access to the site from Tavistock Place would be removed, with the present floor levels below the archway reinstated, the headroom returning to the present 3.35m. The size of vehicles gaining access to the site will continue, therefore, to be constrained by the physical headroom available at the access from Tavistock Place. Typically vehicles will continue to be of Transit van size or equivalent. It is proposed to provide a turntable within the internal

courtyard area. This would allow all vehicles that access the site to enter and leave in forward gear.

17.33 The Delivery and Service Plan contains an action plan setting out the design features, management measures, procurement strategies, waste management arrangements and trip reduction measures that would be introduced in order to ensure, as far as possible, that delivery and service vehicle activity generated by the proposed development is conducted safely, efficiently and in an environmentally-friendly way; minimises its impact on the highway network by seeking an overall reduction in delivery/servicing trips, by scheduling trips to take place outside the peak hours and ensuring that delivery and servicing activity, including where possible waste removal, takes place within the site; minimises impact on local residents, neighbours and the public; contributes to a reduction in traffic congestion; reduces operating costs including those of companies that deliver to and service the premises; and promotes the robustness of the supply chain and its resilience to planned or foreseeable events and disruption.

17.34 In February 2015 UCL published the latest version of its Green Travel Plan. Across its current development programme in the Bloomsbury area, UCL's strategy is to implement the UCL Green Travel Plan across its various sites, supported by brief site-specific daughter documents. The UCL Green Travel Plan therefore accompanies the present planning application and is supported by a Travel Plan for the BRI development that provides a site-specific interpretation and perspective on the plan.

18 Conclusion

18.1 It is concluded, based on the assessments described in this report, that the proposed development can be constructed and operated in a sustainable manner, with suitable mitigation measures in place (including an effective Construction Management Plan, Travel Plan and appropriate Delivery and servicing Plan), in accordance with national, regional and local policies, and can be accommodated within the existing transport system without undue impact. As such, it is concluded that the development should be acceptable to the local planning and highway authorities.

Appendices

Appendix A

PTAL Assessment Result

PTAI Study Report File Details

Date	13/04/2015 07:41
Day of week	M-F
Time period	AM peak
Walk speed	4.8 kph
Walk file	PLSQLTest

POI Name: 530097, 182412

Bus Services

Reliability factor for this mode is 2
Maximum walk time for this mode is 8 minutes
Maximum walk distance for this mode is 640.0 metres

Stop UPPER WOBURN PLACE
Walk time to stop from POI is 5.83 minutes
Walk distance to stop from POI is 466.03 metres
- Route 59 Direction BACK Frequency 9.0 giving AWT of 3.33 minutes
- Route 59 Direction OUT Frequency 9.0 giving AWT of 3.33 minutes
- Route 68 Direction OUT Frequency 9.0 giving AWT of 3.33 minutes
- Route 68 Direction BACK Frequency 9.0 giving AWT of 3.33 minutes
- Route 91 Direction BACK Frequency 8.0 giving AWT of 3.75 minutes
- Route 91 Direction BACK Frequency 8.0 giving AWT of 3.75 minutes
- Route 91 Direction OUT Frequency 9.0 giving AWT of 3.33 minutes
- Route 91 Direction OUT Frequency 9.0 giving AWT of 3.33 minutes
- Route 168 Direction OUT Frequency 9.0 giving AWT of 3.33 minutes
- Route 168 Direction BACK Frequency 9.0 giving AWT of 3.33 minutes

Stop EUSTON STATION EUSTON RD
Walk time to stop from POI is 7.99 minutes
Walk distance to stop from POI is 639.48 metres
- Route 73 Direction BACK Frequency 18.0 giving AWT of 1.67 minutes
- Route 73 Direction OUT Frequency 18.0 giving AWT of 1.67 minutes
- Route 10 Direction BACK Frequency 10.0 giving AWT of 3.0 minutes
- Route 18 Direction BACK Frequency 20.0 giving AWT of 1.5 minutes
- Route 30 Direction BACK Frequency 7.5 giving AWT of 4.0 minutes
- Route 390 Direction OUT Frequency 8.0 giving AWT of 3.75 minutes
- Route 205 Direction BACK Frequency 8.0 giving AWT of 3.75 minutes

Stop TAVISTOCK SQUARE
Walk time to stop from POI is 2.65 minutes
Walk distance to stop from POI is 211.63 metres
- Route 59 Direction BACK Frequency 9.0 giving AWT of 3.33 minutes
- Route 59 Direction OUT Frequency 9.0 giving AWT of 3.33 minutes
- Route 68 Direction OUT Frequency 9.0 giving AWT of 3.33 minutes
- Route 68 Direction BACK Frequency 9.0 giving AWT of 3.33 minutes
- Route 91 Direction BACK Frequency 8.0 giving AWT of 3.75 minutes
- Route 91 Direction BACK Frequency 8.0 giving AWT of 3.75 minutes
- Route 91 Direction OUT Frequency 9.0 giving AWT of 3.33 minutes
- Route 91 Direction OUT Frequency 9.0 giving AWT of 3.33 minutes
- Route 168 Direction OUT Frequency 9.0 giving AWT of 3.33 minutes
- Route 168 Direction BACK Frequency 9.0 giving AWT of 3.33 minutes

Stop EUSTON R BRITISH LIBRARY
Walk time to stop from POI is 4.78 minutes
Walk distance to stop from POI is 382.22 metres
- Route 73 Direction BACK Frequency 18.0 giving AWT of 1.67 minutes
- Route 73 Direction OUT Frequency 18.0 giving AWT of 1.67 minutes
- Route 476 Direction OUT Frequency 7.5 giving AWT of 4.0 minutes
- Route 476 Direction BACK Frequency 7.5 giving AWT of 4.0 minutes
- Route 59 Direction BACK Frequency 9.0 giving AWT of 3.33 minutes
- Route 59 Direction OUT Frequency 9.0 giving AWT of 3.33 minutes
- Route 10 Direction OUT Frequency 10.0 giving AWT of 3.0 minutes
- Route 10 Direction BACK Frequency 10.0 giving AWT of 3.0 minutes
- Route 30 Direction OUT Frequency 7.5 giving AWT of 4.0 minutes
- Route 30 Direction BACK Frequency 7.5 giving AWT of 4.0 minutes
- Route 91 Direction OUT Frequency 9.0 giving AWT of 3.33 minutes
- Route 91 Direction BACK Frequency 8.0 giving AWT of 3.75 minutes
- Route 91 Direction BACK Frequency 8.0 giving AWT of 3.75 minutes
- Route 91 Direction OUT Frequency 9.0 giving AWT of 3.33 minutes
- Route 390 Direction BACK Frequency 8.0 giving AWT of 3.75 minutes
- Route 390 Direction OUT Frequency 8.0 giving AWT of 3.75 minutes
- Route 205 Direction OUT Frequency 8.0 giving AWT of 3.75 minutes
- Route 205 Direction BACK Frequency 8.0 giving AWT of 3.75 minutes

Stop RUSSELL SQUARE STH SIDE
Walk time to stop from POI is 7.87 minutes
Walk distance to stop from POI is 629.52 metres
- Route X68 Direction OUT Frequency 4.0 giving AWT of 7.5 minutes
- Route 7 Direction BACK Frequency 9.0 giving AWT of 3.33 minutes
- Route 188 Direction OUT Frequency 8.0 giving AWT of 3.75 minutes

Stop RUSSELL SQ NTH/WOBURN PL
Walk time to stop from POI is 4.93 minutes
Walk distance to stop from POI is 394.27 metres
- Route 59 Direction BACK Frequency 9.0 giving AWT of 3.33 minutes
- Route 59 Direction OUT Frequency 9.0 giving AWT of 3.33 minutes
- Route 7 Direction BACK Frequency 9.0 giving AWT of 3.33 minutes
- Route 7 Direction OUT Frequency 9.0 giving AWT of 3.33 minutes
- Route 68 Direction OUT Frequency 9.0 giving AWT of 3.33 minutes
- Route 68 Direction BACK Frequency 9.0 giving AWT of 3.33 minutes

Route 91 Direction BACK Frequency 8.0 giving AWT of 3.75 minutes
Route 91 Direction BACK Frequency 8.0 giving AWT of 3.75 minutes
Route 91 Direction OUT Frequency 9.0 giving AWT of 3.33 minutes
Route 91 Direction OUT Frequency 9.0 giving AWT of 3.33 minutes
Route 168 Direction BACK Frequency 9.0 giving AWT of 3.33 minutes
Route 168 Direction OUT Frequency 9.0 giving AWT of 3.33 minutes
Route 188 Direction OUT Frequency 8.0 giving AWT of 3.75 minutes
Route 188 Direction BACK Frequency 8.0 giving AWT of 3.75 minutes
Stop WOBURN PLACE CORAM ST
Walk time to stop from POI is 3.26 minutes
Walk distance to stop from POI is 260.78 metres
Route 59 Direction OUT Frequency 9.0 giving AWT of 3.33 minutes
Route 68 Direction OUT Frequency 9.0 giving AWT of 3.33 minutes
Route 91 Direction BACK Frequency 8.0 giving AWT of 3.75 minutes
Route 91 Direction BACK Frequency 8.0 giving AWT of 3.75 minutes
Route 168 Direction BACK Frequency 9.0 giving AWT of 3.33 minutes
Stop GRAYS INN RD ACTON ST
Walk time to stop from POI is 7.61 minutes
Walk distance to stop from POI is 609.14 metres
Route 46 Direction BACK Frequency 6.0 giving AWT of 5.0 minutes
Route 45 Direction BACK Frequency 7.5 giving AWT of 4.0 minutes
Route 17 Direction BACK Frequency 7.5 giving AWT of 4.0 minutes

TATs for this mode
Route 59 Stop TAVISTOCK SQUARE TAT 7.98 minutes EDF 3.76
Route 68 Stop TAVISTOCK SQUARE TAT 7.98 minutes EDF 3.76
Route 91 Stop TAVISTOCK SQUARE TAT 7.98 minutes EDF 3.76
Route 168 Stop TAVISTOCK SQUARE TAT 7.98 minutes EDF 3.76
Route 73 Stop EUSTON R BRITISH LIBRARY TAT 8.44 minutes EDF 3.55
Route 10 Stop EUSTON R BRITISH LIBRARY TAT 9.78 minutes EDF 3.07
Route 18 Stop EUSTON STATION EUSTON RD TAT 11.49 minutes EDF 2.61
Route 30 Stop EUSTON R BRITISH LIBRARY TAT 10.78 minutes EDF 2.78
Route 390 Stop EUSTON R BRITISH LIBRARY TAT 10.53 minutes EDF 2.85
Route 205 Stop EUSTON R BRITISH LIBRARY TAT 10.53 minutes EDF 2.85
Route 476 Stop EUSTON R BRITISH LIBRARY TAT 10.78 minutes EDF 2.78
Route X68 Stop RUSSELL SQUARE STH SIDE TAT 17.37 minutes EDF 1.73
Route 7 Stop RUSSELL SQ NTH/WOBURN PL TAT 10.26 minutes EDF 2.92
Route 188 Stop RUSSELL SQ NTH/WOBURN PL TAT 10.68 minutes EDF 2.81
Route 46 Stop GRAYS INN RD ACTON ST TAT 14.61 minutes EDF 2.05
Route 45 Stop GRAYS INN RD ACTON ST TAT 13.61 minutes EDF 2.2
Route 17 Stop GRAYS INN RD ACTON ST TAT 13.61 minutes EDF 2.2

Best EDF is 3.76
Half of all other EDFs is 22.85

AI for this mode is 26.61

Underground Services

Reliability factor for this mode is .75
Maximum walk time for this mode is 12 minutes
Maximum walk distance for this mode is 960.0 metres

Stop Euston
Walk time to stop from POI is 8.65 minutes
Walk distance to stop from POI is 691.81 metres
- Route Northern Line Kennington to Edgware Direction N/B Frequency 5.0 giving AWT of 6.0 minutes
- Route Northern Line Morden to High Barnet Direction N/B Frequency 6.3 giving AWT of 4.76 minutes
- Route Northern Line Edgware to Kennington Direction S/B Frequency 1.3 giving AWT of 23.08 minutes
- Route Victoria Line Seven Sisters to Brixton Direction S/B Frequency 11.7 giving AWT of 2.56 minutes
- Route Victoria Line Brixton to Walthamstow Central Direction N/B Frequency 15.7 giving AWT of 1.91 minutes
- Route Northern Line Kennington to Mill Hill East Direction N/B Frequency 0.3 giving AWT of 100.0 minutes
- Route Northern Line Morden to Mill Hill East Direction N/B Frequency 1.0 giving AWT of 30.0 minutes
- Route Northern Line Edgware to Morden Direction S/B Frequency 9.7 giving AWT of 3.09 minutes
- Route Victoria Line Brixton to Seven Sisters Direction N/B Frequency 10.0 giving AWT of 3.0 minutes
- Route Northern Line Morden to Edgware Direction N/B Frequency 9.7 giving AWT of 3.09 minutes
- Route Northern Line High Barnet to Morden Direction S/B Frequency 9.0 giving AWT of 3.33 minutes
- Route Northern Line Edgware to Morden Direction S/B Frequency 8.3 giving AWT of 3.61 minutes
- Route Northern Line Kennington to High Barnet Direction N/B Frequency 4.7 giving AWT of 6.38 minutes
- Route Northern Line High Barnet to Kennington Direction S/B Frequency 5.4 giving AWT of 5.56 minutes
- Route Victoria Line Walthamstow Central to Brixton Direction S/B Frequency 15.0 giving AWT of 2.0 minutes
- Route Northern Line Morden to High Barnet Direction N/B Frequency 3.7 giving AWT of 8.11 minutes
- Route Northern Line Morden to Edgware Direction N/B Frequency 4.3 giving AWT of 6.98 minutes
- Route Northern Line Mill Hill East to Morden Direction S/B Frequency 0.3 giving AWT of 100.0 minutes
- Route Northern Line Morden to Mill Hill East Direction N/B Frequency 2.7 giving AWT of 11.11 minutes
- Route Northern Line Mill Hill East to Kennington Direction S/B Frequency 4.3 giving AWT of 6.98 minutes

Stop Euston Square
Walk time to stop from POI is 11.33 minutes
Walk distance to stop from POI is 906.61 metres
- Route Metropolitan Line Croxley to Aldgate Direction S/B Frequency 0.3 giving AWT of 100.0 minutes
- Route Metropolitan Line Aldgate to Wembley Park Direction N/B Frequency 1.0 giving AWT of 30.0 minutes
- Route Metropolitan Line Uxbridge to Aldgate Direction S/B Frequency 6.3 giving AWT of 4.76 minutes
- Route Circle Line Hammersmith (H&C Line) to Edgware Road (Circle Line) Direction OUT Frequency 6.0 giving AWT of 5.0 minutes
- Route Metropolitan Line Watford to Aldgate Direction S/B Frequency 0.7 giving AWT of 42.86 minutes
- Route Metropolitan Line Amersham to Aldgate Direction S/B Frequency 3.0 giving AWT of 10.0 minutes
- Route Hammersmith and City Barking to Hammersmith (H&C Line) Direction IN Frequency 6.0 giving AWT of 5.0 minutes
- Route Metropolitan Line Aldgate to Amersham Direction N/B Frequency 1.3 giving AWT of 23.08 minutes
- Route Metropolitan Line Aldgate to Uxbridge Direction N/B Frequency 4.0 giving AWT of 7.5 minutes
- Route Metropolitan Line Aldgate to Watford Direction N/B Frequency 4.0 giving AWT of 7.5 minutes
- Route Metropolitan Line Watford to Aldgate Direction S/B Frequency 2.3 giving AWT of 13.04 minutes
- Route Metropolitan Line Aldgate to Watford Direction N/B Frequency 0.3 giving AWT of 100.0 minutes
- Route Metropolitan Line Chesham to Aldgate Direction S/B Frequency 0.7 giving AWT of 42.86 minutes

Route Hammersmith and City Hammersmith (H&C Line) to Barking Direction OUT Frequency 6.0 giving AWT of 5.0 minutes
Route Circle Line Edgware Road (Circle Line) to Hammersmith (H&C Line) Direction IN Frequency 6.0 giving AWT of 5.0 minutes
Route Metropolitan Line Aldgate to Harrow-on-the-Hill Direction N/B Frequency 2.3 giving AWT of 13.04 minutes
Stop Goodge Street
Walk time to stop from POI is 11.36 minutes
Walk distance to stop from POI is 909.01 metres
Route Northern Line Edgware to Morden Direction S/B Frequency 8.3 giving AWT of 3.61 minutes
Route Northern Line Kennington to High Barnet Direction N/B Frequency 4.7 giving AWT of 6.38 minutes
Route Northern Line Kennington to Edgware Direction N/B Frequency 5.0 giving AWT of 6.0 minutes
Route Northern Line Morden to Mill Hill East Direction N/B Frequency 1.0 giving AWT of 30.0 minutes
Route Northern Line Edgware to Kennington Direction S/B Frequency 1.3 giving AWT of 23.08 minutes
Route Northern Line Morden to Edgware Direction N/B Frequency 4.3 giving AWT of 6.98 minutes
Route Northern Line Mill Hill East to Kennington Direction S/B Frequency 4.3 giving AWT of 6.98 minutes
Route Northern Line Kennington to Mill Hill East Direction N/B Frequency 0.3 giving AWT of 100.0 minutes
Route Northern Line Morden to High Barnet Direction N/B Frequency 3.7 giving AWT of 8.11 minutes
Route Northern Line High Barnet to Kennington Direction S/B Frequency 5.4 giving AWT of 5.56 minutes
Stop Kings Cross St.Pancras
Walk time to stop from POI is 9.58 minutes
Walk distance to stop from POI is 766.56 metres
Route Piccadilly Line Arnos Grove to Ruislip Direction W/B Frequency 1.0 giving AWT of 30.0 minutes
Route Metropolitan Line Aldgate to Watford Direction N/B Frequency 0.3 giving AWT of 100.0 minutes
Route Hammersmith and City Hammersmith (H&C Line) to Barking Direction OUT Frequency 6.0 giving AWT of 5.0 minutes
Route Hammersmith and City Barking to Hammersmith (H&C Line) Direction IN Frequency 6.0 giving AWT of 5.0 minutes
Route Piccadilly Line Oakwood to Rayners Lane Direction W/B Frequency 0.7 giving AWT of 42.86 minutes
Route Metropolitan Line Aldgate to Uxbridge Direction N/B Frequency 4.0 giving AWT of 7.5 minutes
Route Metropolitan Line Aldgate to Wembley Park Direction N/B Frequency 1.0 giving AWT of 30.0 minutes
Route Metropolitan Line Aldgate to Amersham Direction N/B Frequency 1.3 giving AWT of 23.08 minutes
Route Piccadilly Line Heathrow Terminal 4 to Cockfosters Direction E/B Frequency 4.0 giving AWT of 7.5 minutes
Route Piccadilly Line Ruislip to Cockfosters Direction E/B Frequency 1.3 giving AWT of 23.08 minutes
Route Piccadilly Line Rayners Lane to Cockfosters Direction E/B Frequency 2.7 giving AWT of 11.11 minutes
Route Piccadilly Line Uxbridge to Oakwood Direction E/B Frequency 0.3 giving AWT of 100.0 minutes
Route Piccadilly Line Cockfosters to Rayners Lane Direction W/B Frequency 1.3 giving AWT of 23.08 minutes
Route Metropolitan Line Croxley to Aldgate Direction S/B Frequency 0.3 giving AWT of 100.0 minutes
Route Metropolitan Line Amersham to Aldgate Direction S/B Frequency 3.0 giving AWT of 10.0 minutes
Route Metropolitan Line Watford to Aldgate Direction S/B Frequency 0.7 giving AWT of 42.86 minutes
Route Piccadilly Line Ruislip to Arnos Grove Direction E/B Frequency 1.3 giving AWT of 23.08 minutes
Route Piccadilly Line Rayners Lane to Arnos Grove Direction E/B Frequency 1.3 giving AWT of 23.08 minutes
Route Piccadilly Line Northfields to Arnos Grove Direction E/B Frequency 0.7 giving AWT of 42.86 minutes
Route Victoria Line Walthamstow Central to Brixton Direction S/B Frequency 15.0 giving AWT of 2.0 minutes
Route Circle Line Hammersmith (H&C Line) to Edgware Road (Circle Line) Direction OUT Frequency 6.0 giving AWT of 5.0 minutes
Route Northern Line Morden to Mill Hill East Direction N/B Frequency 2.7 giving AWT of 11.11 minutes
Route Northern Line Edgware to Morden Direction S/B Frequency 9.7 giving AWT of 3.09 minutes
Route Circle Line Edgware Road (Circle Line) to Hammersmith (H&C Line) Direction IN Frequency 6.0 giving AWT of 5.0 minutes
Route Piccadilly Line Oakwood to Uxbridge Direction W/B Frequency 0.7 giving AWT of 42.86 minutes
Route Metropolitan Line Chesham to Aldgate Direction S/B Frequency 0.7 giving AWT of 42.86 minutes
Route Northern Line Mill Hill East to Morden Direction S/B Frequency 0.3 giving AWT of 100.0 minutes
Route Piccadilly Line Cockfosters to Heathrow Terminal 4 Direction W/B Frequency 6.0 giving AWT of 5.0 minutes
Route Victoria Line Brixton to Seven Sisters Direction N/B Frequency 10.0 giving AWT of 3.0 minutes
Route Piccadilly Line Heathrow Terminal 4 to Arnos Grove Direction E/B Frequency 2.0 giving AWT of 15.0 minutes

Route Victoria Line Seven Sisters to Brixton Direction S/B Frequency 11.7 giving AWT of 2.56 minutes
Route Piccadilly Line Uxbridge to Cockfosters Direction E/B Frequency 2.7 giving AWT of 11.11 minutes
Route Northern Line Morden to Edgware Direction N/B Frequency 9.7 giving AWT of 3.09 minutes
Route Piccadilly Line Cockfosters to Heathrow T5 Direction W/B Frequency 6.0 giving AWT of 5.0 minutes
Route Northern Line Morden to High Barnet Direction N/B Frequency 6.3 giving AWT of 4.76 minutes
Route Piccadilly Line Rayners Lane to Oakwood Direction E/B Frequency 0.3 giving AWT of 100.0 minutes
Route Piccadilly Line Arnos Grove to Rayners Lane Direction W/B Frequency 1.3 giving AWT of 23.08 minutes
Route Piccadilly Line Cockfosters to Uxbridge Direction W/B Frequency 2.0 giving AWT of 15.0 minutes
Route Piccadilly Line Arnos Grove to Uxbridge Direction W/B Frequency 1.3 giving AWT of 23.08 minutes
Route Metropolitan Line Aldgate to Watford Direction N/B Frequency 4.0 giving AWT of 7.5 minutes
Route Metropolitan Line Watford to Aldgate Direction S/B Frequency 2.3 giving AWT of 13.04 minutes
Route Metropolitan Line Uxbridge to Aldgate Direction S/B Frequency 6.3 giving AWT of 4.76 minutes
Route Piccadilly Line Uxbridge to Arnos Grove Direction E/B Frequency 0.7 giving AWT of 42.86 minutes
Route Piccadilly Line Heathrow T5 to Cockfosters Direction E/B Frequency 6.0 giving AWT of 5.0 minutes
Route Metropolitan Line Aldgate to Harrow-on-the-Hill Direction N/B Frequency 2.3 giving AWT of 13.04 minutes
Route Piccadilly Line Arnos Grove to Northfields Direction W/B Frequency 2.3 giving AWT of 13.04 minutes
Route Piccadilly Line Cockfosters to Ruislip Direction W/B Frequency 0.7 giving AWT of 42.86 minutes
Route Piccadilly Line Oakwood to Ruislip Direction W/B Frequency 0.7 giving AWT of 42.86 minutes
Route Victoria Line Brixton to Walthamstow Central Direction N/B Frequency 15.7 giving AWT of 1.91 minutes
Route Northern Line High Barnet to Morden Direction S/B Frequency 9.0 giving AWT of 3.33 minutes

Stop Russell Square
Walk time to stop from POI is 4.12 minutes
Walk distance to stop from POI is 329.4 metres

Route Piccadilly Line Cockfosters to Rayners Lane Direction W/B Frequency 1.3 giving AWT of 23.08 minutes
Route Piccadilly Line Cockfosters to Ruislip Direction W/B Frequency 0.7 giving AWT of 42.86 minutes
Route Piccadilly Line Cockfosters to Uxbridge Direction W/B Frequency 2.0 giving AWT of 15.0 minutes
Route Piccadilly Line Cockfosters to Heathrow T5 Direction W/B Frequency 6.0 giving AWT of 5.0 minutes
Route Piccadilly Line Arnos Grove to Northfields Direction W/B Frequency 2.3 giving AWT of 13.04 minutes
Route Piccadilly Line Arnos Grove to Uxbridge Direction W/B Frequency 1.3 giving AWT of 23.08 minutes
Route Piccadilly Line Oakwood to Uxbridge Direction W/B Frequency 0.7 giving AWT of 42.86 minutes
Route Piccadilly Line Arnos Grove to Rayners Lane Direction W/B Frequency 1.3 giving AWT of 23.08 minutes
Route Piccadilly Line Oakwood to Ruislip Direction W/B Frequency 0.7 giving AWT of 42.86 minutes
Route Piccadilly Line Ruislip to Arnos Grove Direction E/B Frequency 1.3 giving AWT of 23.08 minutes
Route Piccadilly Line Oakwood to Rayners Lane Direction W/B Frequency 0.7 giving AWT of 42.86 minutes
Route Piccadilly Line Rayners Lane to Arnos Grove Direction E/B Frequency 1.3 giving AWT of 23.08 minutes
Route Piccadilly Line Cockfosters to Heathrow Terminal 4 Direction W/B Frequency 6.0 giving AWT of 5.0 minutes
Route Piccadilly Line Uxbridge to Oakwood Direction E/B Frequency 0.3 giving AWT of 100.0 minutes
Route Piccadilly Line Heathrow Terminal 4 to Arnos Grove Direction E/B Frequency 2.0 giving AWT of 15.0 minutes
Route Piccadilly Line Uxbridge to Arnos Grove Direction E/B Frequency 0.7 giving AWT of 42.86 minutes
Route Piccadilly Line Heathrow T5 to Cockfosters Direction E/B Frequency 6.0 giving AWT of 5.0 minutes
Route Piccadilly Line Uxbridge to Cockfosters Direction E/B Frequency 2.7 giving AWT of 11.11 minutes
Route Piccadilly Line Rayners Lane to Oakwood Direction E/B Frequency 0.3 giving AWT of 100.0 minutes
Route Piccadilly Line Arnos Grove to Ruislip Direction W/B Frequency 1.0 giving AWT of 30.0 minutes
Route Piccadilly Line Northfields to Arnos Grove Direction E/B Frequency 0.7 giving AWT of 42.86 minutes
Route Piccadilly Line Heathrow Terminal 4 to Cockfosters Direction E/B Frequency 4.0 giving AWT of 7.5 minutes
Route Piccadilly Line Ruislip to Cockfosters Direction E/B Frequency 1.3 giving AWT of 23.08 minutes
Route Piccadilly Line Rayners Lane to Cockfosters Direction E/B Frequency 2.7 giving AWT of 11.11 minutes

TATs for this mode

Route Northern Line Kennington to Edgware Stop Euston TAT 15.4 minutes EDF 1.95
Route Northern Line High Barnet to Morden Stop Euston TAT 12.73 minutes EDF 2.36
Route Victoria Line Seven Sisters to Brixton Stop Euston TAT 11.96 minutes EDF 2.51
Route Victoria Line Brixton to Walthamstow Central Stop Euston TAT 11.31 minutes EDF 2.65
Route Northern Line Mill Hill East to Kennington Stop Euston TAT 16.37 minutes EDF 1.83
Route Northern Line Morden to Mill Hill East Stop Euston TAT 39.4 minutes EDF 0.76
Route Northern Line Edgware to Morden Stop Euston TAT 12.49 minutes EDF 2.4
Route Northern Line Edgware to Morden Stop Euston TAT 13.01 minutes EDF 2.31
Route Northern Line High Barnet to Kennington Stop Euston TAT 14.95 minutes EDF 2.01
Route Northern Line Morden to High Barnet Stop Euston TAT 17.51 minutes EDF 1.71
Route Northern Line Morden to Mill Hill East Stop Euston TAT 20.51 minutes EDF 1.46
Route Metropolitan Line Croxley to Aldgate Stop Kings Cross St.Pancras TAT 110.33 minutes EDF 0.27
Route Metropolitan Line Aldgate to Wembley Park Stop Kings Cross St.Pancras TAT 40.33 minutes EDF 0.74
Route Metropolitan Line Uxbridge to Aldgate Stop Kings Cross St.Pancras TAT 15.09 minutes EDF 1.99
Route Circle Line Hammersmith (H&C Line) to Edgware Road (Circle Line) Stop Kings Cross St.Pancras TAT 15.33 minutes EDF 1.96
Route Metropolitan Line Aldgate to Watford Stop Kings Cross St.Pancras TAT 17.83 minutes EDF 1.68
Route Metropolitan Line Amersham to Aldgate Stop Kings Cross St.Pancras TAT 20.33 minutes EDF 1.48
Route Hammersmith and City Hammersmith (H&C Line) to Barking Stop Kings Cross St.Pancras TAT 15.33 minutes EDF 1.96
Route Metropolitan Line Watford to Aldgate Stop Kings Cross St.Pancras TAT 23.38 minutes EDF 1.28
Route Metropolitan Line Chesham to Aldgate Stop Kings Cross St.Pancras TAT 53.19 minutes EDF 0.56
Route Metropolitan Line Aldgate to Harrow-on-the-Hill Stop Kings Cross St.Pancras TAT 23.38 minutes EDF 1.28
Route Piccadilly Line Ruislip to Arnos Grove Stop Russell Square TAT 27.94 minutes EDF 1.07
Route Piccadilly Line Oakwood to Rayners Lane Stop Russell Square TAT 47.72 minutes EDF 0.63
Route Piccadilly Line Cockfosters to Heathrow Terminal 4 Stop Russell Square TAT 9.87 minutes EDF 3.04
Route Piccadilly Line Ruislip to Cockfosters Stop Russell Square TAT 27.94 minutes EDF 1.07
Route Piccadilly Line Rayners Lane to Cockfosters Stop Russell Square TAT 15.98 minutes EDF 1.88
Route Piccadilly Line Oakwood to Uxbridge Stop Russell Square TAT 47.72 minutes EDF 0.63
Route Piccadilly Line Arnos Grove to Rayners Lane Stop Russell Square TAT 27.94 minutes EDF 1.07
Route Piccadilly Line Arnos Grove to Northfields Stop Russell Square TAT 17.91 minutes EDF 1.67
Route Piccadilly Line Heathrow Terminal 4 to Arnos Grove Stop Russell Square TAT 19.87 minutes EDF 1.51
Route Piccadilly Line Uxbridge to Cockfosters Stop Russell Square TAT 15.98 minutes EDF 1.88
Route Piccadilly Line Cockfosters to Heathrow T5 Stop Russell Square TAT 9.87 minutes EDF 3.04
Route Piccadilly Line Arnos Grove to Uxbridge Stop Russell Square TAT 27.94 minutes EDF 1.07
Route Piccadilly Line Oakwood to Ruislip Stop Russell Square TAT 47.72 minutes EDF 0.63

Best EDF is 3.04
Half of all other EDFs is 25.66

AI for this mode is 28.7

Rail Services

Reliability factor for this mode is .75
Maximum walk time for this mode is 12 minutes

Maximum walk distance for this mode is 960.0 metres

Stop St Pancras Domestic
Walk time to stop from POI is 10.04 minutes
Walk distance to stop from POI is 803.18 metres
Route MOORGATE to LUTON Direction T621-T82 Frequency 0.33 giving AWT of 90.91 minutes
Route BEDFORD MIDLAND to MOORGATE Direction T72-T621 Frequency 2.6 giving AWT of 11.54 minutes
Route ST ALBANS BR to SUTTON (SURREY) Direction T86-T390 Frequency 0.67 giving AWT of 44.78 minutes
Route ST ALBANS BR to WEST NORWOOD BR Direction T86-T437 Frequency 0.33 giving AWT of 90.91 minutes
Route BEDFORD MIDLAND to LONDON BLACKFRIARS Direction T72-T217 Frequency 0.33 giving AWT of 90.91 minutes
Route DOVER PRIORY to St Pancras Domestic Direction T155-T40 Frequency 1.33 giving AWT of 22.56 minutes
Route LUTON to MOORGATE Direction T82-T621 Frequency 0.33 giving AWT of 90.91 minutes
Route St Pancras Domestic to MARGATE Direction T40-T145 Frequency 1.0 giving AWT of 30.0 minutes
Route WIMBLEDON BR to ST ALBANS BR Direction T512-T86 Frequency 1.33 giving AWT of 22.56 minutes
Route SELHURST to ST ALBANS BR Direction T433-T86 Frequency 0.33 giving AWT of 90.91 minutes
Route SUTTON (SURREY) to ST ALBANS BR Direction T390-T86 Frequency 0.33 giving AWT of 90.91 minutes
Route St Pancras Domestic to FAVERSHAM Direction T40-T262 Frequency 2.0 giving AWT of 15.0 minutes
Route Ebbsfleet to St Pancras Domestic Direction T808-T40 Frequency 1.33 giving AWT of 22.56 minutes
Route MOORGATE to LUTON Direction T621-T82 Frequency 0.67 giving AWT of 44.78 minutes
Route WIMBLEDON BR to LUTON Direction T512-T82 Frequency 0.33 giving AWT of 90.91 minutes
Route MOORGATE to BEDFORD MIDLAND Direction T621-T72 Frequency 0.6 giving AWT of 50.0 minutes
Route WIMBLEDON BR to BEDFORD MIDLAND Direction T512-T72 Frequency 0.33 giving AWT of 90.91 minutes
Route BEDFORD MIDLAND to MOORGATE Direction T72-T621 Frequency 1.0 giving AWT of 30.0 minutes
Route BEDFORD MIDLAND to BRIGHTON Direction T72-T329 Frequency 2.0 giving AWT of 15.0 minutes
Route BEDFORD MIDLAND to SUTTON (SURREY) Direction T72-T390 Frequency 0.33 giving AWT of 90.91 minutes
Route BROADSTAIRS to St Pancras Domestic Direction T140-T40 Frequency 1.0 giving AWT of 30.0 minutes
Route MOORGATE to ST ALBANS BR Direction T621-T86 Frequency 1.0 giving AWT of 30.0 minutes
Route ST ALBANS BR to MOORGATE Direction T86-T621 Frequency 0.67 giving AWT of 44.78 minutes
Route WIMBLEDON BR to BEDFORD MIDLAND Direction T512-T72 Frequency 0.33 giving AWT of 90.91 minutes
Route LUTON to MOORGATE Direction T82-T621 Frequency 0.67 giving AWT of 44.78 minutes
Stop LONDON EUSTON BR
Walk time to stop from POI is 8.65 minutes
Walk distance to stop from POI is 691.81 metres
Route BLETCHLEY to LONDON EUSTON BR Direction T19-T50 Frequency 1.0 giving AWT of 30.0 minutes
Route Rugby to LONDON EUSTON BR Direction T18-T50 Frequency 0.33 giving AWT of 90.91 minutes
Route LONDON EUSTON BR to TRING Direction T50-T26 Frequency 2.0 giving AWT of 15.0 minutes
Route MILTON KEYNES CENTRAL to LONDON EUSTON BR Direction T22-T50 Frequency 1.3 giving AWT of 23.08 minutes
Route LONDON EUSTON BR to WATFORD JUNCTION Direction T50-T31 Frequency 3.0 giving AWT of 10.0 minutes
Route WATFORD JUNCTION to LONDON EUSTON BR Direction T31-T50 Frequency 0.33 giving AWT of 90.91 minutes
Stop LONDON KINGS CROSS BR
Walk time to stop from POI is 9.58 minutes
Walk distance to stop from POI is 766.56 metres
Route WELWYN GARDEN CITY to LONDON KINGS CROSS BR Direction T661-T656 Frequency 0.33 giving AWT of 90.91 minutes
Route LETCHWORTH to LONDON KINGS CROSS BR Direction T648-T656 Frequency 0.67 giving AWT of 44.78 minutes
Route Cambridge to LONDON KINGS CROSS BR Direction T759-T656 Frequency 2.3 giving AWT of 13.04 minutes
Route WELWYN GARDEN CITY to LONDON KINGS CROSS BR Direction T661-T656 Frequency 0.33 giving AWT of 90.91 minutes
Route ROYSTON HERTS to LONDON KINGS CROSS BR Direction T649-T656 Frequency 0.33 giving AWT of 90.91 minutes
Route WELWYN GARDEN CITY to LONDON KINGS CROSS BR Direction T661-T656 Frequency 0.33 giving AWT of 90.91 minutes

Route LETCHWORTH to LONDON KINGS CROSS BR Direction T648-T656 Frequency 0.33 giving AWT of 90.91 minutes
Route LONDON KINGS CROSS BR to Peterborough Direction T656-T657 Frequency 2.0 giving AWT of 15.0 minutes
Stop LONDON ST PANCRAS
Walk time to stop from POI is 9.44 minutes
Walk distance to stop from POI is 755.1 metres

TATs for this mode
Route MOORGATE to LUTON Stop St Pancras Domestic TAT 101.7 minutes EDF 0.29
Route BEDFORD MIDLAND to MOORGATE Stop St Pancras Domestic TAT 22.33 minutes EDF 1.34
Route ST ALBANS BR to SUTTON (SURREY) Stop St Pancras Domestic TAT 55.57 minutes EDF 0.54
Route ST ALBANS BR to WEST NORWOOD BR Stop St Pancras Domestic TAT 101.7 minutes EDF 0.29
Route BEDFORD MIDLAND to LONDON BLACKFRIARS Stop St Pancras Domestic TAT 101.7 minutes EDF 0.29
Route DOVER PRIORY to St Pancras Domestic Stop St Pancras Domestic TAT 33.35 minutes EDF 0.9
Route LUTON to MOORGATE Stop St Pancras Domestic TAT 101.7 minutes EDF 0.29
Route St Pancras Domestic to MARGATE Stop St Pancras Domestic TAT 40.79 minutes EDF 0.74
Route WIMBLEDON BR to ST ALBANS BR Stop St Pancras Domestic TAT 33.35 minutes EDF 0.9
Route SELHURST to ST ALBANS BR Stop St Pancras Domestic TAT 101.7 minutes EDF 0.29
Route SUTTON (SURREY) to ST ALBANS BR Stop St Pancras Domestic TAT 101.7 minutes EDF 0.29
Route St Pancras Domestic to FAVERSHAM Stop St Pancras Domestic TAT 25.79 minutes EDF 1.16
Route Ebbsfleet to St Pancras Domestic Stop St Pancras Domestic TAT 33.35 minutes EDF 0.9
Route MOORGATE to LUTON Stop St Pancras Domestic TAT 55.57 minutes EDF 0.54
Route WIMBLEDON BR to LUTON Stop St Pancras Domestic TAT 101.7 minutes EDF 0.29
Route MOORGATE to BEDFORD MIDLAND Stop St Pancras Domestic TAT 60.79 minutes EDF 0.49
Route WIMBLEDON BR to BEDFORD MIDLAND Stop St Pancras Domestic TAT 101.7 minutes EDF 0.29
Route BEDFORD MIDLAND to MOORGATE Stop St Pancras Domestic TAT 40.79 minutes EDF 0.74
Route BEDFORD MIDLAND to BRIGHTON Stop St Pancras Domestic TAT 25.79 minutes EDF 1.16
Route BEDFORD MIDLAND to SUTTON (SURREY) Stop St Pancras Domestic TAT 101.7 minutes EDF 0.29
Route BROADSTAIRS to St Pancras Domestic Stop St Pancras Domestic TAT 40.79 minutes EDF 0.74
Route MOORGATE to ST ALBANS BR Stop St Pancras Domestic TAT 40.79 minutes EDF 0.74
Route ST ALBANS BR to MOORGATE Stop St Pancras Domestic TAT 55.57 minutes EDF 0.54
Route WIMBLEDON BR to BEDFORD MIDLAND Stop St Pancras Domestic TAT 101.7 minutes EDF 0.29
Route LUTON to MOORGATE Stop St Pancras Domestic TAT 55.57 minutes EDF 0.54
Route BLETCHLEY to LONDON EUSTON BR Stop LONDON EUSTON BR TAT 39.4 minutes EDF 0.76
Route Rugby to LONDON EUSTON BR Stop LONDON EUSTON BR TAT 100.31 minutes EDF 0.3
Route LONDON EUSTON BR to TRING Stop LONDON EUSTON BR TAT 24.4 minutes EDF 1.23
Route MILTON KEYNES CENTRAL to LONDON EUSTON BR Stop LONDON EUSTON BR TAT 32.47 minutes EDF 0.92
Route LONDON EUSTON BR to WATFORD JUNCTION Stop LONDON EUSTON BR TAT 19.4 minutes EDF 1.55
Route WATFORD JUNCTION to LONDON EUSTON BR Stop LONDON EUSTON BR TAT 100.31 minutes EDF 0.3
Route WELWYN GARDEN CITY to LONDON KINGS CROSS BR Stop LONDON KINGS CROSS BR TAT 101.24 minutes EDF 0.3
Route LETCHWORTH to LONDON KINGS CROSS BR Stop LONDON KINGS CROSS BR TAT 55.11 minutes EDF 0.54
Route Cambridge to LONDON KINGS CROSS BR Stop LONDON KINGS CROSS BR TAT 23.38 minutes EDF 1.28
Route WELWYN GARDEN CITY to LONDON KINGS CROSS BR Stop LONDON KINGS CROSS BR TAT 101.24 minutes EDF 0.3
Route ROYSTON HERTS to LONDON KINGS CROSS BR Stop LONDON KINGS CROSS BR TAT 101.24 minutes EDF 0.3
Route WELWYN GARDEN CITY to LONDON KINGS CROSS BR Stop LONDON KINGS CROSS BR TAT 101.24 minutes EDF 0.3
Route LETCHWORTH to LONDON KINGS CROSS BR Stop LONDON KINGS CROSS BR TAT 101.24 minutes EDF 0.3
Route LONDON KINGS CROSS BR to Peterborough Stop LONDON KINGS CROSS BR TAT 25.33 minutes EDF 1.18

Best EDF is 1.55

Half of all other EDFs is 11.46

AI for this mode is 13.01

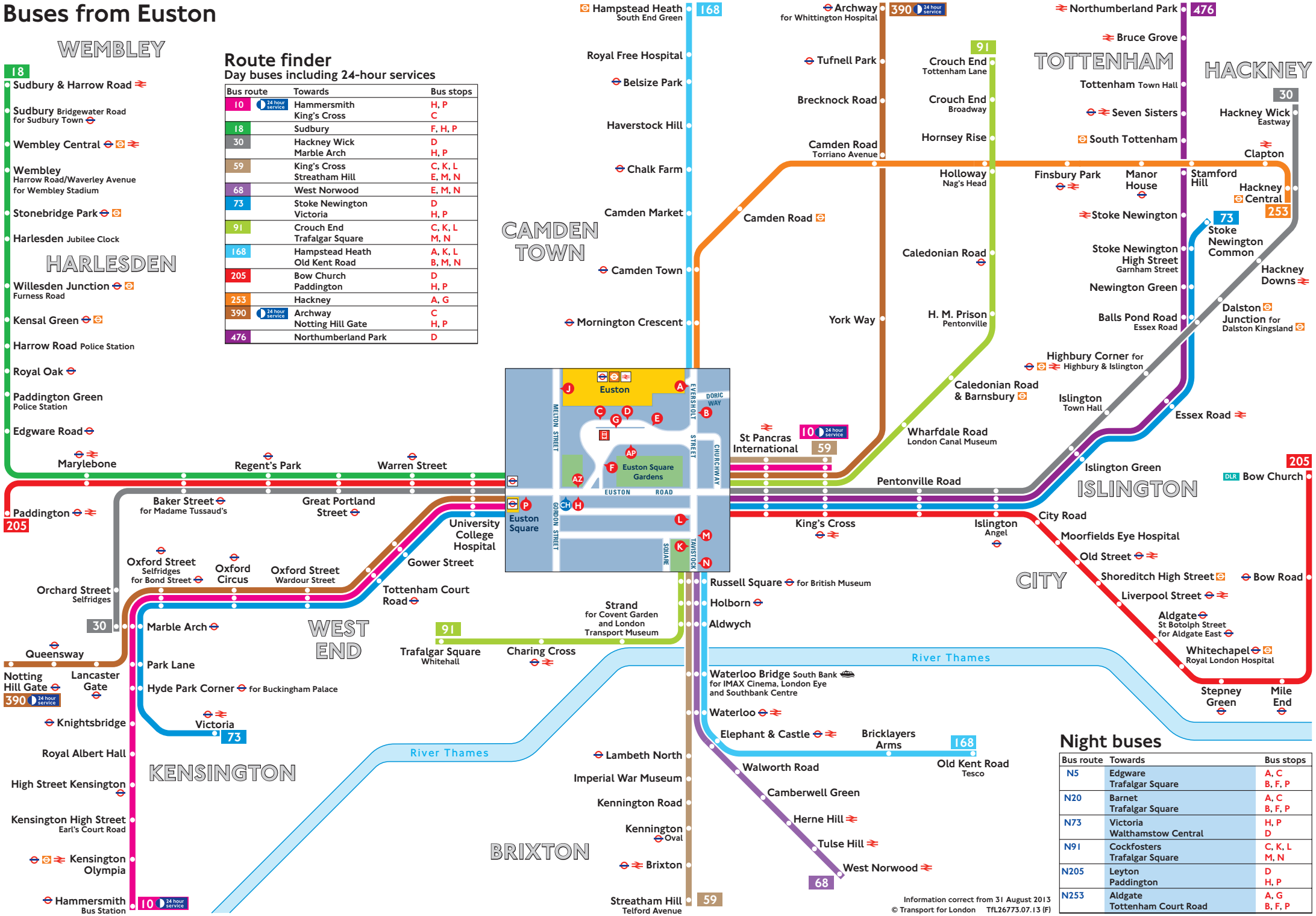
Total AI for this POI is 68.31. X: 530097, Y: 182412.

PTAL Rating is 6b.

Appendix B

Euston Station Bus Station Route Map

Buses from Euston



Night buses

Bus route	Towards	Bus stops
N5	Edgware Trafalgar Square	A, C B, F, P
N20	Barnet Trafalgar Square	A, C B, F, P
N73	Victoria Walthamstow Central	H, P D
N91	Cockfosters Trafalgar Square	C, K, L M, N
N205	Leyton Paddington	D H, P
N253	Aldgate Tottenham Court Road	A, G B, F, P

Information correct from 31 August 2013
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Appendix C

Construction Access Options Appraisal

University College London: London School of Hygiene and Tropical Medicine: Tavistock Place, London

Construction Access Options Appraisal

1. Background

1.1 The subject site, known as 15 – 17 Tavistock Place, is located in the King's Cross Ward of the London Borough of Camden.

1.2 The site is owned and occupied by the London School of Hygiene and Tropical Medicine (LSHTM).

1.3 University College London (UCL) and LSHTM proposes to redevelop part of the site to provide additional laboratory and office space, which would involve the demolition of the existing steel structure in the rear courtyard of the building and the construction on the area to the rear of the site of an extension comprising two basement levels, ground floor and two upper storeys plus accommodation for roof-level plant. It is currently proposed to seek planning approval for the development in June 2015.

1.4 As part of the process of preparing a comprehensive planning application, consideration is currently being given to construction logistics relating to the proposed development. Discussions with officers of London Borough of Camden (LBC) are on-going, as part of which the highways officer has raised concerns about the access to the site for vehicles during construction.

1.5 In response, available access options have been examined, in conjunction with LBC's highways officer, and the following represents an appraisal of the options available. In this context, there are three possible access options to be considered:

- Burton Street, to the north west of the site;
- Marchmont Street, to the east of the site; and
- Tavistock Place, to the southerly frontage of the site.

1.6 A site visit with representatives of UCL, the project design team and LBC's highways engineer in attendance took place on Tuesday, 31 March 2015.

2. The Site

2.1 The subject site is located in the Bloomsbury area of Central London, within postcode area WC1.

2.2 The site is located on the northerly side of Tavistock Place, approximately 150m to the north east of Tavistock Square (the easterly side of which, Woburn Place, is designated as part of the A4200) and approximately 300m south of the Euston Road, A501.

2.3 Having an area of some 0.28 hectares, the site is broadly rectangular in shape, with a single highway frontage, to Tavistock Place, which runs along its southerly boundary. The main building on the site, having four-storeys plus basement, is located on this southerly boundary, for all practical purposes contiguous with the highway. The proposals envisage a development towards the rear of the site and do not affect the principal existing building.

2.4 The existing main vehicular and pedestrian access to the site is from Tavistock Place. This is located towards the westerly end of the site frontage. Given the developed form of the site, the vehicular access passes through the principal building via a gated passageway that provides access to the internal courtyard. The main pedestrian entrance to the building is accessed from the covered passageway.

2.5 A short distance to the east of the site and separated from it by a largely retail frontage, is Marchmont Street, which runs in a generally north-south direction leading to the Euston Road to the north and to the B502 Bernard Street to the south.

2.6 Leading from the westerly side of Marchmont Street, South Crescent Mews passes through the developed frontage, to the side of the Lord John Russell public house. The cul-de-sac end of the mews provides a gated access to the UCL site.

3. Burton Street

3.1 Burton Street is a single carriageway residential road that lies to the north west of the site of the proposed development. It is fronted on both sides by terraced residential property. It can be accessed from Cartwright Gardens via Burton Place and Flaxman Terrace, whilst Duke's Road provides a one-way connection from Euston Road to the northerly end of Burton Street (in that direction).

3.2 The length of Burton Street that would, potentially, provide access for construction traffic to the site is that to the south of Burton Place. This length of road is largely provided with parking bays to both sides of the road, leaving space for single file traffic along its centre. The parking bays provide for resident permit holders during the weekday daytime and on Saturday mornings.

3.3 This length of road is a cul-de-sac with no turning facility. Lengths of working day waiting restrictions have been introduced towards the cul-de-sac end to afford some turning space for smaller vehicles. It appears, from the location of the yellow line restrictions that there is a length of carriageway at the end of the cul-de-sac that is not public highway. (This can be seen in Figure 1).

3.4 At the southerly end of the cul-de-sac a passageway through the easterly terraced building provides access to a rear car park for residents. This car park shares a boundary with the proposed development site. Potentially, therefore, this has been identified as a possible access route to the site for construction vehicles during the building phase of the project.

3.5 The passageway is orientated at ninety degrees to the carriageway of Burton Street and measures 3.59m wide by 3.65m high. Entrance to the passageway is restricted (Figure 2) with footways creating a pinch point and with one pedestrian entrance to the building projecting into the accessway. This, stepped entrance, shown on the right in Figure 2, serves 17 apartments. A similar pedestrian entrance is evident to the left of the access.

Figure 1 **Burton Street looking southwards towards the cul-de-sac end showing the area beyond the transverse yellow line that is not public highway and the covered passageway to the left at ninety degrees to the road**

Figure 2 **Covered passageway from Burton Street leading to rear car park, showing narrow access, proximity of pedestrian entrances and orientation relative to the road**

3.6 The orientation of the passageway relative to the carriageway of Burton Street makes manoeuvring of large construction vehicles extremely difficult and establishes unacceptable conflicts with pedestrians gaining access to and egress from the adjoining residential premises.

3.7 It is anticipated that construction vehicles that would access the site during construction would include concrete lorries, 8.7m long and 3.75m high and small tipper lorries, 8m in length. The height of the existing passageway would therefore not permit access by the anticipated size of concrete lorry and the orientation of the access to the road would preclude access by all such vehicles. Damage to the footways would be likely to arise as a result of construction vehicles attempting to enter the site. It was noted that during a site visit on 31 March 2015 the local authority refuse vehicle manoeuvred at the junction of Burton Street and Burton Place and reversed along this length of Burton Street.

3.8 Consideration of the construction logistics suggests that, at peak, there would be 36 lorry movements per day (1 movement equates to either an arrival at or despatch from the site), which is considered likely to cause disturbance and inconvenience to residents. During a site visit on 31 March 2015 it was noted that several vehicles were parked in the area between the limit of the public highway and the cul-de-sac end and these vehicles would need to be removed in order to facilitate access via this route.

3.9 In addition to the practicalities of securing access via the Burton Street route and passageway, there are also legal issues to be overcome. The site is not contiguous with the public highway but would need to be accessed across private land and rights of access would therefore need to be secured. As indicated above, access to the covered passageway is across an area of carriageway that is not public highway. It would therefore be necessary to secure a legal right of access over this land with the owners and, as indicated above, to ensure that current parking within this area is suspended for the duration of the work. Further, the site is only accessible via the covered passageway across a private car park. Again, a legal right of access would need to be secured and this may impact significantly on residents' parking.

3.10 In this context, there have been negotiations with the owners of the car park regarding rights of access and boundary construction issues. Extensive negotiations have failed to secure the purchase of the car park or to secure any agreement with the owners beyond the lease, for the duration of the works only, of two car parking spaces. It is UCL's opinion, based on the outcome of these negotiations, that it would not prove possible to secure the necessary agreements to access the site for construction traffic via this route. A copy of an e-mail outlining the outcome of negotiations to date is attached to this report by way of substantiation of UCL's conclusion in this matter.

3.11 It is concluded that there are a number of significant obstacles to the use of Burton Street as an access to the site for construction traffic during the building of the project. These can be summarised as:

- It is unlikely to be possible to secure the necessary agreements to allow access for construction traffic across the private car park
- Access to the covered passageway from the public highway is across an area of carriageway that is not part of the highway, requiring a right of access with the owners to be secured
- Parking in this area would need to be suspended for the duration of the works, which would need to be negotiated with the owners

of the land and would have an impact on those parking in this area

- The covered accessway is narrow and low, too low to accommodate the concrete lorries likely to access the site
- Vehicles would be likely to overrun the footways, potentially causing damage
- Significant conflicts would arise between construction vehicles and residents entering and leaving via the pedestrian entrance that projects into the access
- The covered passageway is orientated at ninety degrees to the carriageway of Burton Street that precludes access to larger vehicles.
- Construction traffic would be likely to cause disturbance and inconvenience for residents
- Access via the car park would be likely to lead to a loss of parking for residents during the works.

3.12 It is therefore concluded that access for construction vehicles via Burton Street is not a practicable option.

4. Marchmont Street (South Crescent Mews)

4.1 There is access to the site from Marchmont Street via South Crescent Mews, an alleyway that runs between the Lord John Russell public house and the adjacent retail premises (Figure 3).

4.2 The Marchmont Street frontages within the vicinity of the subject site are largely retail and commercial in character and are likely, therefore, to generate a requirement for on-street loading and servicing activity. Single yellow waiting restriction lines are evident to these frontages. Footways are present on each side of the street.

4.3 The alleyway does lead into the site, where there is a gated access, but in common with the Burton Street and Tavistock Place accesses would require vehicles to pass between and beneath buildings. In the case of South Crescent Mews, the width of the passageway is 3.3m and the minimum height available is 3.64m. The available headroom is, therefore, insufficient to afford access to the concrete lorries anticipated to deliver to the site (paragraph 3.7 above). This would preclude the use of this access for a significant proportion of the construction vehicles likely to service the site during the building phase. As none of the frontage buildings and associated forecourt areas are in the ownership of the developer it is considered unlikely that it would be possible to carry out works in these areas to improve the headroom.

4.4 The alleyway is also relatively narrow, and there are air conditioning units that project into the alleyway. These would represent a significant impediment to the passage of construction vehicles.

Figure 3 View of access from Marchmont Street via South Crescent Mews showing restricted width and height

4.5 The legal status of South Crescent Mews is not immediately apparent. Although a named 'street' it is understood that it has never been a through route, and has only ever been a cul-de-sac serving private premises. Under these circumstances it is not clear that there are public rights of way over the Mews. It is understood that UCL enjoys a private right of way over the Mews but only for the purposes of emergency evacuation from the site. UCL does not own the land over which the Mews runs.

4.6 It is evident that, whether or not legal rights of way and access exist, there has been some encroachment on the enjoyment of the use of the Mews as a means of access by adjoining property occupiers. Recent observations have revealed the presence of benches within the Mews that prevent access and that, in addition to the air conditioning units from the pub that protrude into the Mews, hanging baskets, shelves etc have been fixed to the outside wall of the public house. The area clearly provides an important extension to the activities of the public house that is, potentially, economically beneficial to the business, and it is considered likely therefore that negotiation of the suspension of this activity during the course of the building works would be difficult to achieve. There is also a door to the public house premises on the corner of the alleyway that could lead to unacceptable conflicts between pedestrians and construction traffic.

4.7 It is concluded that there are a number of significant barriers to the use of South Crescent Mews as an access to the site for construction traffic during the building of the project. These can be summarised as:

- Access from Marchmont Street via South Crescent Mews is via a passageway with restricted width and headroom; the present headroom is insufficient to allow access to concrete lorries and there appears little if any prospect of carrying out physical works to increase the headroom sufficiently.
- The width of the alleyway is restricted further by the projection of air conditioning units into the passageway from adjoining buildings.
- There would be potential conflict between construction traffic accessing and egressing via this route and delivery and other vehicles servicing the adjoining commercial premises.
- The status of rights of way over South Crescent Mews is unclear but it is understood that UCL only have a right of way for the purposes of emergency evacuation from their site; additional rights would thus have to be negotiated with adjoining third party landowners/tenants.
- Irrespective of rights of way, the public house has established use of the alleyway as an extension to the commercial activity of the premises; use of the access would require this activity to be suspended for the duration of the works, which would need to be the subject of negotiation.

4.8 During a site visit on 31 March 2015 the LBC highways officer acknowledged that South Crescent Mews would be unlikely to represent a satisfactory access to the site of the proposed development for construction vehicles. It is therefore concluded that access for construction vehicles from Marchmont Street via South Crescent Mews is not practicable.

5. Tavistock Place

5.1 The existing access to the site, for pedestrians and vehicles, is from Tavistock Place.

5.2 As with the other access points under consideration, access from Tavistock Place requires vehicles to pass under and through an existing building via a covered passageway. In the case of this access, the width of the existing access is 3.87m and the headroom is 3.35m.

5.3 The headroom is currently, therefore, insufficient to afford access to the concrete lorries that it is anticipated would deliver to the site (paragraph 3.7 above). However, as the building and its forecourt area are within the ownership of UCL there is greater scope than elsewhere to make alterations in order to accommodate the anticipated construction vehicles. Preliminary examinations have been carried out and it is considered that the opportunity exists to amend the levels of the private forecourt area and passageway in order to achieve an increase in headroom of 0.5m, sufficient to enable access to the inner courtyard for all anticipated construction vehicles. Suitable protection measures for any underground services could be provided.

5.4 The major advantage of this proposal relative to the other two options is that negotiations over access rights with third parties would not be required. Works required to facilitate access for construction vehicles, and provision of measures to protect the public, would therefore be entirely within the control of UCL.

5.5 It is recognised that Tavistock Place is the busier road from which to take access and that, other things being equal, there would be a preference for taking access from less busy roads. However, in this case, it is considered that the obstacles to the provision of access from alternative less busy highways, as described above, are such that access from Tavistock Place is the only realistic, practical and achievable access during the construction phase of the works and that, providing satisfactory measures are put in place to manage the arrival and departure of construction vehicles, access from Tavistock Place should be acceptable to the highway authority.

5.6 Tavistock Place in the vicinity of the subject site is a single carriageway, two-way urban street with footways to both sides. At this location the development within the street is predominantly residential in character, some premises providing hotel accommodation. It is accepted therefore that access arrangements for construction vehicles to the UCL site cannot have an unacceptable impact on neighbouring properties, including their servicing and access needs.

5.7 Currently, the carriageway of Tavistock Place at this point provides a single traffic lane in each direction. Waiting restriction lines are evident along both sides of the road. On the northerly side of Tavistock Place, adjacent to the frontage of the subject site (and extending from beyond its junction with Tavistock Square to the west to its junction with Judd Street to the east) is a two-way cycle lane segregated from the main carriageway by raised, kerbed and paved islands. These latter provide a largely continuous division of the cycle lanes from the main carriageway, interrupted only to provide level crossing points for pedestrians and to afford vehicular access to off-street parking and loading areas. There is a break in the island at the vehicular access point to the subject site from Tavistock Place. In discussions with the LBC highways officer it is apparent that, in the Summer of 2015, LBC intends to introduce an experimental traffic scheme on Tavistock Place. This will involve no physical works (during the experimental period) but will mean that general traffic flow will become one-way (eastwards from Gower Street to Judd Street) and a new westbound cycle lane will be provided along the southerly side of the carriageway. Again, the arrangements for access to the proposed development site need to take this experimental arrangement into account. UCL believes that this can readily be accommodated.

5.8 The junction of Tavistock Place with Marchmont Street is controlled by traffic signals. Both the left turn and right turn for general traffic from Tavistock Place into the northerly arm of Marchmont Street are prohibited at this junction, whilst Marchmont Street to the south of the Tavistock Place junction is one-way in a southwards direction, leading away from the junction.

5.9 The existing access, and the preferred access for construction vehicles, is located well away from the traffic signal controlled junction with Marchmont Street and is ‘set back’ relative to the pedestrian footway desire line, thereby affording the opportunity of amending levels to generate the additional headroom required.

5.10 Even so, it is recognised that the access places constraints on the size of construction vehicle that will be able to enter the site and UCL would implement a logistics operation that ensures that only vehicles of that size would travel to the site and that no loading or unloading would take place from the highway of Tavistock Place (except temporary one day closures of

Tavistock Place that would be required for the placing and decommissioning of the necessary cranes required).

5.11 UCL is currently carrying out a major building programme at a number of sites within its estate and has established a logistics centre at Silvertown in Docklands for the receipt of large, indivisible loads. For sites in the Bloomsbury area, a Local Logistics Zone has been established at Gordon Square by the temporary closure of part of Endsleigh Place, adjacent to the UCL Department of Anthropology. This provides an area where vehicles can be marshalled before being despatched, by radio, to the relevant construction site. This holding area would ensure not only that vehicles of the requisite size are despatched to the Tavistock Place site but that only one vehicle at a time is so despatched. This prevents a build up of vehicles at the site that might lead to construction vehicles standing on the highway.

5.12 Conscious that the site is physically constrained, UCL has taken advice from a leading contractor with experience of working within constrained, inner-London sites, about the 'buildability' of the scheme. Within the site it is their advice that a gantry could be constructed at ground level, above the basement construction, to provide somewhere to stand vehicles during delivery and removal of material from the site. Given the size of vehicles that would be able to gain entry to this area, it is envisaged that there would be sufficient space to allow vehicles to turn within the site so as to be able to enter and leave the site in forward gear – a major advantage.

5.13 At the site entrance on to Tavistock Place it would then be proposed to control vehicle access and egress across the existing footway and cycle facility with the use of temporary barriers deployed and removed as necessary by marshals. This arrangement would operate in conjunction with the radio-controlled arrival and despatch protocol described above and which ensures that only a single vehicle is present at the site at any one time, and would allow the deployment of barriers on a 'just in time' basis thereby minimising disruption and delay to the travelling public, particularly pedestrians and cyclists.

5.14 The barrier-plus-marshal methodology described above is already in use by the developer at a nearby site on Torrington Place, where the access for construction vehicles crosses a footway and the same cycle facility that passes the Tavistock Place site. It is understood that that arrangement has now been in place for around six months and has operated without incident.

5.15 Suitable access routes to and from the site via Tavistock Place would be agreed with LBC as part of the Construction Logistics Plan and would ensure that impact on neighbouring residents and businesses would be minimised,

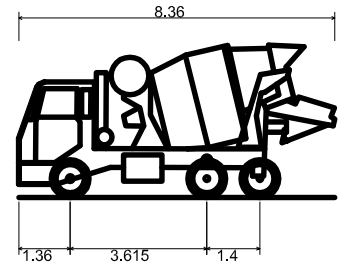
6. Conclusions

6.1 From the above it can be concluded that the most practicable access to the site of the proposed development during the construction phase of the project is that from Tavistock Place.

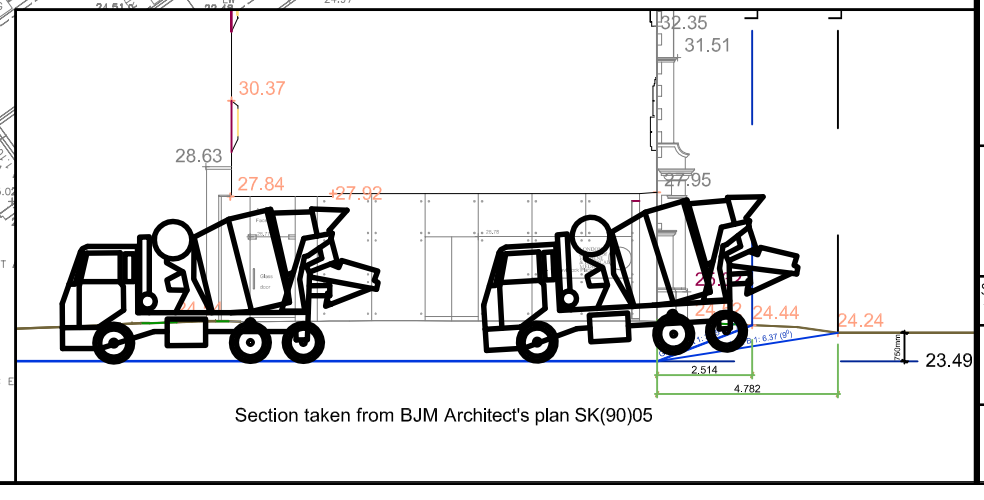
Wilde Carter Clack Consulting Engineers
April 2015
AG

Appendix D

Swept Path Analyses – Construction Vehicle Access



Concrete Mixer	
Overall Length	8.360m
Overall Width	2.390m
Overall Body Height	4.027m
Min Body Ground Clearance	0.358m
Max Track Width	2.413m
Lock to Lock Time	6.00s
Kerb to Kerb Turning Radius	8.210m



Section taken from BJM Architect's plan SK(90)05

REV	DRN	CHK	APP	DATE	DESCRIPTION
B	TB	BB	TF	02/06/15	Access profile added
A	TB	TB	TF	29/05/15	Issued for information

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Title
CONSTRUCTION TRAFFIC
CONCRETE MIXER
SWEPTH PATH ANALYSIS

Scale	Drawn	Date	Chkd	Approved
1:200	TB	May 2014	TB	TF

Drawing No.
683_013_ATR01

Revision
B

Status
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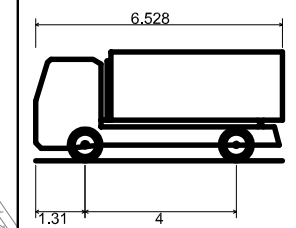

Small Tipper	
Overall Length	6.528m
Overall Width	2.500m
Overall Body Height	2.877m
Min Body Ground Clearance	0.327m
Track Width	2.393m
Lock to Lock Time	6.00s
Kerb to Kerb Turning Radius	7.850m

REV	DRN	CHK	APP	DATE	DESCRIPTION
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Title
CONSTRUCTION TRAFFIC
SMALL TIPPER
SWEPTH PATH ANALYSIS

Scale	Drawn	Date	Chkd	Approved
1:200	TB	May 2014	TB	TF

Drawing No.
683_013_ATR02

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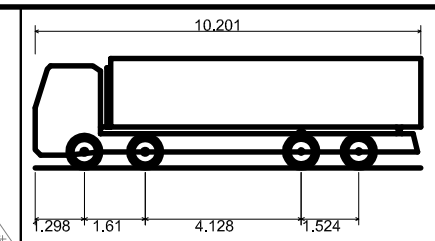

Large Tipper	
Overall Length	10.201m
Overall Width	2.500m
Overall Body Height	2.893m
Min Body Ground Clearance	0.343m
Max Track Width	2.500m
Lock to Lock Time	6.00s
Kerb to Kerb Turning Radius	11.550m

REV	DRN	CHK	APP	DATE	DESCRIPTION
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Title
CONSTRUCTION TRAFFIC
LARGE TIPPER
SWEPTH PATH ANALYSIS

Scale	Drawn	Date	Chkd	Approved
1:200	TB	May 2014	TB	TF

Drawing No.
683_013_ATR03

Revision
A

Status
FOR INFORMATION

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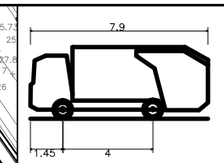
A3

Appendix E

Swept Path Analyses – Delivery and Servicing Vehicle Access

TURNTABLE REQUIRED
AS 3-POINT
NOT ACHIEVABLE



DB32 Refuse Vehicle

Overall Length	7.900m
Overall Width	2.400m
Overall Body Height	3.183m
Min Body Ground Clearance	0.388m
Max Track Width	2.400m
Lock to Lock Time	6.00s
Kerb to Kerb Turning Radius	9.625m

REV	DRN	CHK	APP	DATE	DESCRIPTION
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Title
CONSTRUCTION TRAFFIC
REFUSE VEHICLE
SWEPT PATH ANALYSIS

Scale	Drawn	Date	Chkd	Approved
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683_013_ATR06

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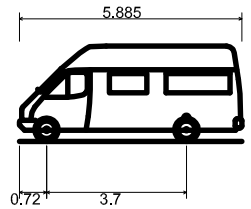

4.6t Light Van	
Overall Length	5.885m
Overall Width	2.000m
Overall Body Height	2.526m
Min Body Ground Clearance	0.299m
Track Width	1.765m
Lock to Lock Time	4.00s
Kerb to Kerb Turning Radius	6.000m

REV	DRN	CHK	APP	DATE	DESCRIPTION
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Title
POST CONSTRUCTION TRAFFIC
TRANSIT VAN
SWEPTH PATH ANALYSIS

Scale	Drawn	Date	Chkd	Approved
1:200	TB	May 2014	TB	TF

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