

CBRE Global Investors

The Joint, 1-6 Field Street & 14-16 Leeke Street, London Borough of Camden

Transport Statement

July 2021

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1 INTRODUCTION

- 1.1 TTP Consulting has been appointed to provide traffic and transport advice in relation to the proposed development at The Joint (the site), located at 1-6 Field Street and 14-16 Leeke Street, within the London Borough of Camden (LBC).
- 1.2 The Joint building has frontage onto Field Street to the north and Leeke Street to the south. It is situated within a highly accessible location in close proximity to King's Cross Station and a number of bus stops along King's Cross Road and Pentonville Road. In addition, it is close to existing pedestrian and cycle networks and is therefore considered to be positioned within a sustainable location. A site location plan is provided in **Figure 1.1**.

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Figure 1.1: Site Location Plan

1.3 The existing building provides circa 905 square metres (sqm) of commercial studio space and 7 residential units. Access for pedestrians is via Leeke Street for the residential use and Field Street for the commercial use. An on-site loading area is available for the commercial studios via Leeke Street however access is constrained, and no turning area is provided. As such, vehicles currently stop on-street. There is no associated parking.



- 1.4 The proposals seek to provide an additional 83 sqm of commercial space in the form of office use and 2 additional residential units, with primary access served from Leeke Street. The existing redundant on-site loading bay will be removed. Any associated vehicle activity would continue to take place on-street. No car parking facilities will be provided, however, cycle facilities will be available for both uses.
- 1.5 This report considers the effects of the proposed changes and uplift in floorspace in terms of accessibility, parking, trip generation and servicing matters.
- 1.6 The remainder of the report is set out as follows:
 - Section 2 describes the existing situation;
 - Section 3 presents relevant policy guidance;
 - Section 4 sets out the proposals and considers the effect of development; and,
 - Section 5 provides a summary and conclusion.



2 EXISTING SITUATION

Site and Surrounding Area

- 2.1 The existing building provides circa 905 sqm of commercial floorspace. In addition, an on-site loading area for the commercial studios is provided at ground floor level which is accessible from Leeke Street via an existing dropped kerb. The building also accommodates 7 residential units on the upper floors including 5 x 1-beds and 2 x 2-bed units.
- 2.2 The main access for the commercial space is provided via Field Street. The main pedestrian access for the residential use is provided from Leeke Street with a secondary entrance to the commercial space provided adjacent to the loading area entrance. Whilst there is existing onsite loading area for the commercial studios, vehicle activity is undertaken on-street. All vehicle activity associated with the residential units is undertaken on-street on Leeke Street utilising existing yellow line opportunities.
- 2.3 The surrounding area provides a mix of uses including commercial and residential buildings and is located within a highly accessible Central London location. There are also numerous shops, restaurants and local amenities in the vicinity of the site.

Local Highway Network

- 2.4 The site has frontage onto Field Street to the north and Leeke Street to the south, both of which are no through roads that connect with the A201 King's Cross Road to the east. They are both within a controlled zone which operates restrictions Monday to Friday between 8.30am and 6.30pm, and on Saturday between 8.30am and 1.30pm.
- 2.5 Field Street and Leeke Street are subject to 20mph speed limits and single yellow lines on both sides of the carriageway. Sign plates are present on both streets indicating no waiting restrictions for vehicles over 5t or buses between 6.30pm and 8.00am. Loading or unloading can however take place on the single yellow lines for an unlimited time before 11am and after 6.30pm. After 11am and until 6.30pm, heavy goods vehicles (3.5 tonnes and above) can load or unload for up to 40 minutes, whilst cars and light goods vehicles can do so for up to 20 minutes.
- 2.6 The A201 King's Cross Road operates broadly northwest to southeast, operating a one-way system from the A501 Pentonville Road to Farringdon Road. The road is part of the TLRN, with a mix of single and double red lines in operation in the vicinity of Field Street and Leeke Street.

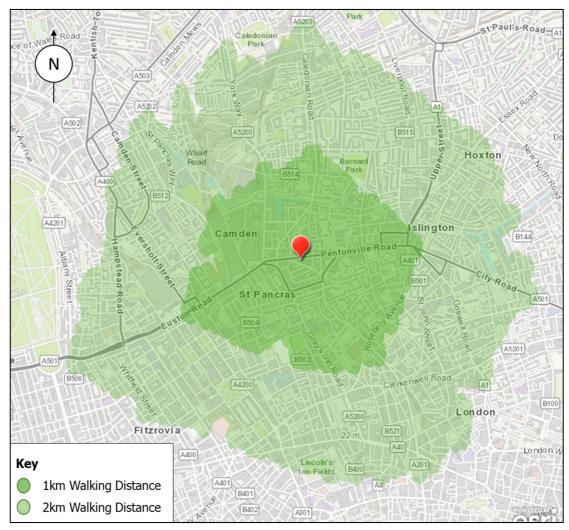


Accessibility

Walking

- 2.7 Like much of Inner London the site benefits from being within an acceptable walking distance of public transport opportunities, local facilities and amenities as well as residential areas.
- 2.8 Roughly half of all walking journeys in London are part of longer public transport journeys, for example walking to or from the bus stop or tube / train station, whilst a third of car journeys are within a 25-minute (2km) walk, suggesting there are opportunities for travel by active modes. **Figure 2.1** provides details of a 1km and 2km catchment zone surrounding the site.

Figure 2.1 – Walking Isochrone Map





- 2.9 The map shows that King's Cross St Pancras, parts of Islington and parts of Camden are all within a 1km walking distance whilst Hoxton, Bloomsbury, Clerkenwell and Farringdon are all accessible within a 2km walking distance from the site.
- 2.10 The site is well connected to the main pedestrian routes that serve public transport facilities and local amenities found on Pentonville Road and Euston Road, with footways present on both sides of these roads. The majority of crossings in the area are provided with dropped kerbs and tactile paving whilst the controlled crossing at the junctions between Pentonville Road and King's Cross Road offers push-button/green-man facilities.
- 2.11 **Figure 2.2** and **Table 2.1** sets out the location and approximate distances between the site and public transport opportunities. This illustrates that there are several public transport facilities within a 'convenient' walking distance with an average walking speed assumed to be 80m per minute.

Ring's Cross St.
Pancras Station

St. Pancras
Remainded

Caledonis Street

ASSOO Reprint Part Contract Contract

Figure 2.2 – Local Public Transport Opportunities



Table 2.1 – Approximate Distance	s to Local Public 1	ransport Op	portunities
Stop / Station	Location	Distance	Approximate Walking Time
Bus Stop 'K' (eastbound)	Pentonville Road	165m	2 minutes'
Bus Stop 'X' (westbound)	Pentonville Road	150m	2 minutes'
Bus Stop 'L' (southbound)	King's Cross Road	50m	1 minute
Bus Stop 'R'	Grays Inn Road	340m	4 minutes'
Bus Stop 'E'	Euston Road	350m	5 minutes'
Bus Stop 'D'	Euston Road	350m	5 minutes'
Bus Stop 'M'	Euston Road	500m	7 minutes'
King's Cross Station	Euston Road	400m	5 minutes'
St. Pancras International Station	Euston Road	540m	7 minutes'

Cycling

- 2.12 It is generally accepted that cycling is a sustainable mode of travel for journeys up to 8km in length, although in London, longer journeys are commonplace.
- 2.13 A summary of cycle infrastructure in the vicinity of the site is provided below:
 - There are advanced cycle stop line road markings on the Pentonville Road arm of the junction with King's Cross Road;
 - The site is located 500m to the west of Transport for London's Quietway network and 600m to the north of Cycle Superhighway 6 and hence is located within an environment suitable for cyclists to travel to / from;
 - The closest public cycle parking to the site is located along Pentonville Road; and
 - Access westbound onto Euston Road restricted to bus and cycles only.
- 2.14 Santander docking stations are a convenient and cost-effective alternative to owning a bike.

 The closest docking station to the site is located on Northdown Street, adjacent to the junction with Pentonville Road to the north of the site, where there are 21 docking opportunities.
- 2.15 A further docking station is located on Calshot Street, where 23 docks are provided. Moreover, there are numerous docking stations close to King's Cross Station.
- 2.16 **Figure 2.3** shows a 5km and 8km cycling catchment from the site. This demonstrates that much of Central London is within an 8km cycle of the site, including Marylebone, Covent Garden, Shoreditch, Waterloo, Holloway, Kennington, Chelsea, Hampstead and Tower Hamlets.



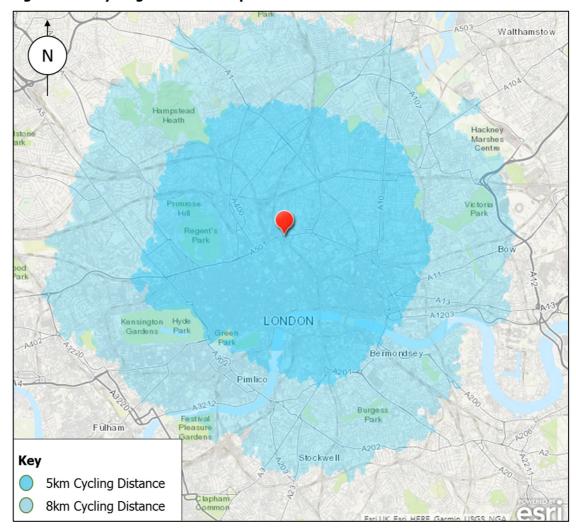


Figure 2.3 - Cycling Isochrone Map

Public Transport

Bus Services

- 2.17 The site is accessible by local bus services at a number of stops along Pentonville Road, Euston Road and King's Cross Road. The closest bus stop (Stop L) is located on the King's Cross Road whilst additional services are available from bus stops 'X' and 'K' on Pentonville Road.
- 2.18 The relevant TfL bus route maps are provided at **Appendix A** and the services available from these bus stops are summarised in **Table 2.2.**



Table 2.2 –	Sumn	nary of Local Bus Ro	utes and Frequ	encies	
Bus Stops		Route	Weekday Frequency	Saturday Frequency	Sunday Frequency
Location	No.	Destination	(every X minutes)	(every X minutes)	(every X minutes)
	17	Archway Station to London Bridge Station	6 - 10	8 - 11	15
`L' King's Cross Road	46	Lancaster Gate Station to St Bartholomew's Hospital	8 - 12	9 - 10	15
	63	Forest Hill Tavern to King's Cross Station	4 - 8	6 - 10	9 - 13
	259	Edmonton Green to King's Cross	7-11	8-12	9-13
	73	Victoria Bus Station to Stoke Newington Common	3 - 6	4 - 8	7 - 10
'X' and 'K' Pentonville	205	Cleveland Terrace to Bow Church Station	6 – 10	7 - 11	11 – 13
Road	214	Highgate School to Finsbury Square	6 – 10	6 - 10	11 - 12
	476	Northumberland Park to Euston Bus Station	6 – 10	6 - 8	10 - 14

<u>Underground Services</u>

- 2.19 The closest London Underground station is King's Cross Station which is located approximately 400m to the west. It is served by 6 underground lines including:
 - The Piccadilly Line which operates between Cockfosters and Heathrow Terminal 4 / Heathrow Terminal 5 / Uxbridge and offers interchange opportunities at King's Cross St Pancras and Finsbury Park;
 - The Circle Line provides frequent services in both eastbound and westbound directions and offers interchange opportunities at Paddington, Baker Street, Tower Hill and Liverpool Street;
 - The Northern Line operates between Edgware, High Barnet and Morden, with interchange to Northern Line services via Charing Cross available from Euston Underground Station;
 - The Victoria Line operates between Brixton and Walthamstow Central and offers interchanges at Highbury and Islington, Green Park and Victoria;
 - The Metropolitan Line operates between Aldgate and Uxbridge/ Watford/ Amersham/
 Chesham. Interchanges are available at Baker Street and Liverpool Street; and



• The Hammersmith & City Line operates between Hammersmith and Barking, interchanges are available at West Ham, Liverpool Street and Paddington.

Rail Services

- 2.20 National Rail services from King's Cross Station are operated by Grand Central, Great Northern and Virgin Trains. King's Cross offers regular services to destinations throughout the country. The National Rail website advises that there are 204 secure and sheltered cycle parking spaces at King's Cross Station on platforms 1, 8 and 9.
- 2.21 St Pancras Station is served by a variety of regional, national and international destinations. The National Rail website advises that there is secure, sheltered cycle parking within the car park for up to 180 bicycles in a combination of compound stands and wheel racks.

Public Transport Accessibility Level

2.22 Public Transport Accessibility Levels (PTALs) are a theoretical measure of the accessibility of a given point to the public transport network, taking into account walk access time and service availability. The PTAL rating from the centre of the site is 6b, meaning the site has an excellent level of accessibility to public transport. **Appendix B** contains the TfL PTAL summary.

Method of Journey to Work

2.23 The 2011 Census has been examined to establish the method of journey to work for employees and residents in the area (associated with the longest part of their journey). **Table 2.3** indicates that, in the Middle Layer Super Output Area Camden 024, 49% of residents and 77% of employees use public transport, whilst 41% of residents and 13% of employee's movements are undertaken by active modes of travel.

Mode	Resident Population (%)	Workplace Population (%)
Underground	23%	37%
Train	7%	24%
Bus	19%	16%
Taxi	1%	0%
Motorcycle	1%	2%
Car Driver	7%	7%
Car Passenger	1%	1%
Bicycle	8%	6%
On foot	33%	7%
Total	100%	100%



3 POLICY

National

National Planning Policy Framework

- 3.1 The National Planning Policy Framework (NPPF) was updated in June 2019 setting out the Government's planning policies for England and how these are expected to be applied.
- 3.2 When considering the transport effects of a development, NPPF states that:
 - "All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed."
- 3.3 Plans or applications for development should take account of whether:
 - "a) appropriate opportunities to promote sustainable transport modes can be or have been taken up, given the type of development and its location;
 - b) safe and suitable access to the site can be achieved for all users; and
 - c) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree."
- 3.4 Paragraph 109 advises that:
 - "Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe."
- 3.5 Paragraph 110 states that:
 - "Within this context, applications for development should:
 - a) give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second so far as possible to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;
 - b) address the needs of people with disabilities and reduced mobility in relation to all modes of transport;
 - c) create places that are safe, secure and attractive which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;



- d) allow for the efficient delivery of goods, and access by service and emergency vehicles; and
- e) be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations."
- 3.6 In the context of the NPPF the proposed development is not considered to have a significant travel demand and a Transport Statement is a suitable means of assessment.

Regional

London Plan

- 3.7 The London Plan (March 2021) strives to promote a healthier and more active London with improving air quality and reducing car parking provision at the forefront of the plan.
- 3.8 Policy T1 seeks a strategic approach to transport and states at paragraph 10.1.1. that:

"The integration of land use and transport, and the provision of a robust and resilient public transport network, are essential in realising and maximising growth and ensuring that different parts of the city are connected in a sustainable and efficient way. In order to help facilitate this, an integrated strategic approach to transport is needed, with an ambitious aim to reduce Londoners' dependency on cars in favour of increased walking, cycling and public transport use. Without this shift away from car use, which the policies in the Plan and the Mayor's Transport Strategy seek to deliver, London cannot continue to grow sustainably."

- 3.9 Furthermore, Policy T2 sets out the Healthy Streets Approach which states that development Plans should:
 - "Promote and demonstrate the application of the Mayor's Healthy Streets Approach to: improve health and reduce health inequalities; reduce car dominance, ownership and use, road danger, severance, vehicle emissions and noise; increase walking, cycling and public transport use; improve street safety, comfort, convenience and amenity; and support these outcomes through sensitively designed freight facilities;
 - Identify opportunities to improve the balance of space given to people to dwell, walk, cycle, and travel on public transport and in essential vehicles, so space is used more efficiently and streets are greener and more pleasant; and,
 - In Opportunity Areas and other growth areas, new and improved walking, cycling and public transport networks should be planned at an early stage, with delivery phased appropriately to support mode shift towards active travel and public transport. Designs for new or enhanced streets must demonstrate how they deliver against the ten Healthy Streets Indicators."



Policy T5, 'cycling', suggests that barriers to cycling can be removed and that a healthy environment in which people choose to cycle can be created through appropriate levels of cycle parking which are fit for purpose, secure and well-located. The cycle parking standards for the most appropriate uses are set out in Table 10.2 of the London Plan and summarised in **Table 3.1**.

Table 3.1 – Cycle Pa	rking London Plan Minimum Standa	ards (GEA)
Use Class	Long-stay	Short-stay
B1 (Business Office)	1 space per 75 sqm	First 5,000 sqm: 1 space per 500 sqm. Thereafter: 1 space per 5,000 sqm (GEA)
	1 space per studio or 1 bedroom dwelling	5 to 40 dwellings: 2 spaces
C3-C4 (Dwellings)	1.5 spaces per 2 person 1 bedroom dwelling 2 spaces per all other dwellings	Thereafter: 1 space per 40 dwellings

3.11 In respect of car parking, Policy T6 states that car parking should be restricted in line with levels of existing and future public transport accessibility and connectivity. Car-free development should be the starting point for all development proposals in places that are (or are planned to be) well-connected by public transport.

Local

Camden Local Plan

- 3.12 The Local Plan was adopted by the Council on the 3rd July 2017 and has replaced the Core Strategy and Camden Development Policies documents as the basis for planning decisions and future development in the borough.
- 3.13 Chapter 10 provides details on the transport policy objectives for the borough including:
 - Policy T1 Prioritising walking, cycling and public transport;
 - Policy T2 Parking and car-free development;
 - Policy T3 Transport infrastructure; and
 - Policy T4 Sustainable movement of goods and materials.
- 3.14 With regards to cycle parking the document states that developments should provide for accessible, secure cycle parking facilities exceeding minimum standards outlined within the London Plan.
- 3.15 For car parking, the document states that the Council will limit the availability of parking and require all new developments in the borough to be car-free.



- 3.16 For servicing, only developments over 2,500sqm which are likely to generate significant movements of goods or material are expected to provide on-site loading facilities.
- 3.17 Further guidance on transport matters is set out within Camden's Supplementary Guidance.



4 ASSESSMENT OF THE PROPOSALS

The Proposal

- 4.1 The proposals include an increase in 83sqm of commercial space and 2 additional residential units. In total the development will provide 988 sqm of commercial floorspace and 9 residential flats (5 \times 1-beds and 4 \times 2-beds).
- 4.2 A copy of the ground floor plan is included at **Appendix C**.

Trip Generation

- 4.3 The site has a PTAL rating of 6b, will not be providing on-site parking and is located within a Controlled Parking Zone. On this basis, vehicle activity associated with the proposed uses will be limited and therefore the impact on the local highway network is expected to be negligible, especially when considered in context with the existing uses.
- The uplift in commercial floorspace is negligible, however, it is expected to accommodate approximately 8 additional employees based on British Council of Offices (BCO) 2013 publication "Occupier Density Study", which suggests a mean density of one employee/worker per 10.9sqm NIA. The vast majority of employees would typically arrive between 7am and 10am and depart between 4pm and 7pm.
- 4.5 The Census data set out in **Table 2.4** suggests that 37% of employees (3 people) would travel by underground for the longest part of their journey to work, 24% (2 people) by rail and 16% (2 people) by bus. From this, it is reasonable to assume that the increase to employees would be distributed across the peak periods and absorbed into the local transport network without a material impact. As aforementioned, the site achieves the highest PTAL rating possible with King's Cross and St Pancras Stations both within walking distance.
- 4.6 The increase in 2 residential units is not envisaged to result in a material change on the highway network. The number of potential occupants would increase by 8 people however this is unlikely to have an impact in transport terms with circa 3 people travelling on foot or by bike and the remainder on public transport.
- 4.7 Based on the above there is expected to be no impact on the local road and public transport networks.

Access

4.8 The main commercial access will be relocated to Leeke Street with a back entrance, and access to the cycle store, provided via Field Street. The residential accesses will also be via Leeke Street. There will be no vehicular access for the development.



Parking

4.9 The development will not be provided with any car parking, in a similar manner to the existing development. This is considered appropriate given the site has an excellent PTAL rating and is in close proximity to public transport opportunities as well as walking and cycling routes. The existing CPZ restrictions that are in operation within the local area will also deter any parking on-street.

Cycle Parking

- 4.10 A cycle store for the office unit is proposed and would be located on the ground floor. This is an improvement to the existing building which currently is not supplied with a cycle store. The store will provide access to 15 spaces in total, including 1 accessible space for larger /adapted bikes.
- 4.11 There will be 4 cycle spaces for the two additional residential units at ground floor level including 1 accessible space. These will be in the form of Sheffield stands.
- 4.12 There are no dedicated visitor cycle parking facilities proposed however there are easily accessible facilities available on King's Cross Road, within easy walking distance, to the south of the site.

Deliveries and Servicing

- 4.13 Deliveries and servicing will take place on-street as existing on the yellow lines on Field Street or Leeke Street.
- 4.14 Office developments typically generate approximately 0.25 deliveries per 100sqm. As such, the increase in office space is likely to result in no more than 1 additional delivery per day.
- 4.15 The development will provide 2 additional residential units. As such, it is reasonable to assume that deliveries associated with this use are unlikely to materially change from the existing development.
- 4.16 The majority of deliveries to commercial and residential units are typically associated with post, online orders, supplies, etc., which typically take place by light goods vehicles such as from Luton or Transit style vans. Many vehicles making deliveries are also already travelling in the area in any event as part of their schedule of multiple drop-offs and therefore they have little or no impact on the surrounding area.
- 4.17 The waste collection strategy will continue with all collections undertaken on-street and waste operatives transferring waste between the bin store or roadside to the collection vehicle. A total



of 2 Eurobins are proposed within the residential bin store and 2 Eurobins within the commercial bin store, both located off Field Street. Bins would be returned to the store once emptied.

4.18 On this basis, the delivery and servicing arrangements associated with the proposals are not expected to have an impact on the local road network with there being little change from the existing situation in terms of activity.

Healthy Streets

- 4.19 The Healthy Streets Approach has been adopted to improve air quality, reduce congestion and help make London's diverse communities greener, healthier and more attractive places to live, work, play and do business. Various documents set out how TfL will put people and their health at the centre of our decision making, helping everyone to use cars less and to walk, cycle and use public transport more.
- 4.20 The development is considered to contribute to the Healthy Streets agenda and help to achieve the Mayor's strategic target of 80 per cent of all trips in London to be made by foot, cycle or public transport by 2041. This is achieved by providing a development in an extremely accessible environment with no car parking. In addition, the development provides cycle parking facilities which encourages future occupiers to use modes other than the private car.



5 SUMMARY AND CONCLUSION

Summary

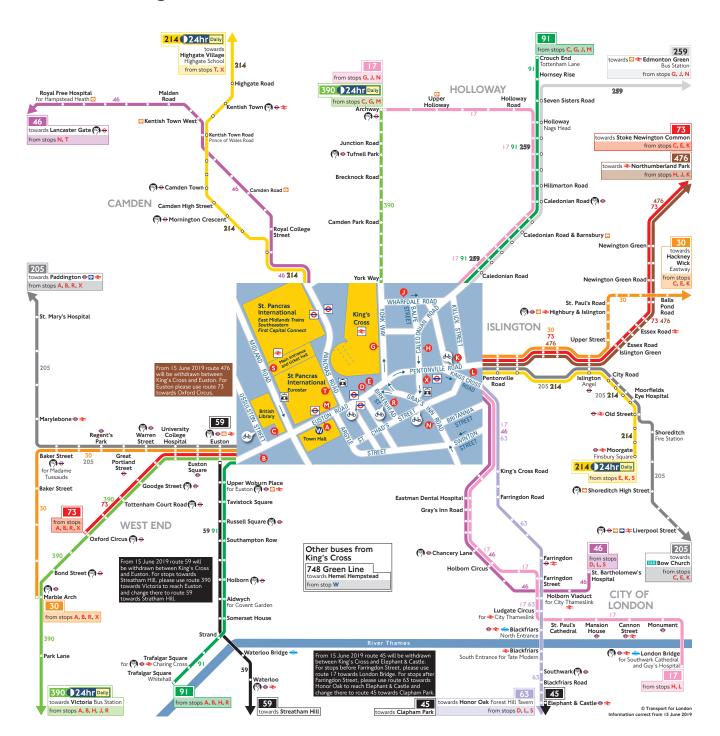
- 5.1 TTP Consulting has been appointed to provide traffic and transport advice in relation to the proposed development at The Joint, located at 1-6 Field Street and 14-16 Leeke Street, within the London Borough of Camden.
- 5.2 In summary:
 - The development will not provide any car parking. This is appropriate given the excellent accessibility of the site;
 - Cycle parking will be provided in accordance with standards for the commercial space at ground floor level. This is an improvement from the current arrangement where there is no dedicated cycle storage. In addition, cycle spaces will be provided for the two additional residential units;
 - Pedestrian access for both the residential and commercial uses will be via Leeke Street;
 - The increase in floorspace and residential units will not result in a material increase in total person trips. As such, there is not expected to be a harmful impact on the local road and public transport networks;
 - The increase in floorspace and residential units is not expected to result in a noticeable change in servicing and deliveries. All activity would continue to take place on-street similar to the existing situation; and
 - Refuse will be collected in a similar manner to the existing arrangement with vehicles stopping on-street and refuse operatives removing waste from the bin store or roadside.

Conclusion

- 5.3 The proposed development is not expected to result in any material transport related impacts. It therefore meets the test of the NPPF and paragraph 109, which states:
 - "Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or residual cumulative impacts on the road network would be severe."
- 5.4 In light of the above, we conclude that the proposals are acceptable in traffic and transport terms.

Appendix A

Buses from King's Cross



How to use this map

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



Key

0	Connections with London Underground
0	Connections with London Overground
0	Connections with TfL Rail
₹	Connections with National Rail
DLR	Connections with DLR
-	Connections with river boats
₫-6	Cycle hire docking station
- A	Taxi rank
	Tube/London Overground station with 24-hour
(A) 01	service Friday and Saturday nights

Ways to pay



Use contactless (card or device). It's the same fare as Oyster pay as you go and you don't need to top up



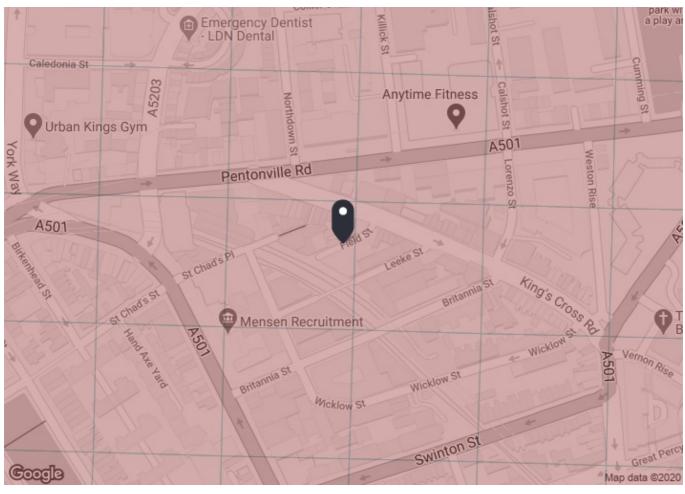
Download the free TfL app to top up or buy a ticket anytime, anywhere, or visit tfl.gov.uk/oyster.
Alternatively, find your nearest Oyster Ticket Stop at tfl.gov.uk/ticketstopfinder or visit your nearest TfL station

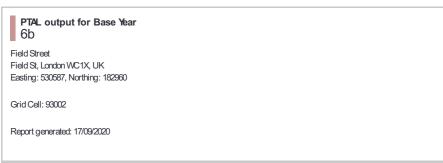
The Hopper fare offers you unlimited pay as you go Bus and Tram journeys within one hour for £1.50. Always use the same card or device to touch in

If you fail to show on demand a ticket, validated smartcard or other travel authority valid for the whole of your journey you may be liable for a penalty fare or prosecuted.

Appendix B







0 (Worst) 1b 3	2	
5		
	6a	
6b (Best)		
lap layers		

Calculation Parameters	
Dayof Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	20
LU Station Max. Walk Access Time (mins)	12
LU ReliabilityFactor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail ReliabilityFactor	0.75

us us us us us	G INN RD ROYAL ENT HOSP G INN RD ROYAL ENT HOSP G INN RD ROYAL ENT HOSP	259 46	220.74	8	2.76	5.75	8.51	3.53	0.5	
us us us us		46							0.0	
us us us	G INN RD ROYAL ENT HOSP	40	220.74	6	2.76	7	9.76	3.07	0.5	
us us us		17	220.74	7.5	2.76	6	8.76	3.42	0.5	
us us	G INN RD ROYAL ENT HOSP	45	220.74	7	2.76	6.29	9.04	3.32	0.5	
us	G INN RD ROYAL ENT HOSP	63	220.74	12	2.76	4.5	7.26	4.13	0.5	
	KINGS CROSS STATION	10	247.55	4.5	3.09	8.67	11.76	2.55	0.5	
JS	KINGS CROSS STATION	59	247.55	10	3.09	5	8.09	3.71	0.5	
	KINGS CROSS STATION	91	247.55	9	3.09	5.33	8.43	3.56	0.5	
US	KINGS CROSS STATION	390	247.55	8	3.09	5.75	8.84	3.39	0.5	
us	KINGS CROSS STATION	30	247.55	7.5	3.09	6	9.09	3.3	0.5	
US	KINGS CROSS STATION	73	247.55	18	3.09	3.67	6.76	4.44	1	
US	KINGS CROSS STATION	476	247.55	7.5	3.09	6	9.09	3.3	0.5	
us	KINGS CROSS STATION	205	247.55	8	3.09	5.75	8.84	3.39	0.5	
us	KINGS CROSS STATION	214	247.55	8	3.09	5.75	8.84	3.39	0.5	
ail	St Pancras	'BEDFDM-SVNOAKS 1E62'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
ail	St Pancras	'BEDFDM-BROMLYS 1E83'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
ail	St Pancras	'BEDFDM-ORPNGTN 1L60'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
ail	St Pancras	'BEDFDM-SUTTON 1013'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
ail	St Pancras	'BEDFDM-KENTHOS 1S85'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
ail	St Pancras	'BEDFDM-BRGHTN 1T11'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
ail	St Pancras	'BEDFDM-BRGHTN 1T15'	540.07	0.67	6.75	45.53	52.28	0.57	0.5	
ail	St Pancras	'BRGHTN-BEDFDM 1T83'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
ail	St Pancras	'BEDFDM-SUTTON 1V23'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
	St Pancras	'BEDFDM-SUTTON 1V82'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
	St Pancras	'BRGHTN-BEDFDM 1W06'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
	St Pancras	'BRGHTN-BEDFDM 1W81'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
	St Pancras	'BEDFDM-BRGHTN 1W84'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
	St Pancras	'BEDFDM-BRGHTN 1W86'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
	St Pancras	'STALBCY-SVNOAKS 2E11'	540.07	1	6.75	30.75	37.5	0.8	0.5	
	St Pancras	'BEDFDM-SVNOAKS 2E19'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
	St Pancras	'LUTON-SVNOAKS 2E21'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
	St Pancras	'STALBCY-SVNOAKS 2E95'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
	St Pancras	'SUTTON-LUTON 2000'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
	St Pancras	'SUTTON-BEDFDM 2004'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
	St Pancras	'SUTTON-STALBCY 2006'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
	St Pancras	'SUTTON-LUTON 2010'	540.07	1	6.75		37.5	0.8	0.5	
	St Pancras		540.07	0.67		30.75	52.28			
	St Pancras	'LUTON-SUTTON 2017' 'STALBCY-SUTTON 2021'			6.75	45.53 91.66		0.57	0.5	
			540.07	0.33	6.75		98.41			
	St Pancras	'STALBCY-SUTTON 2029'	540.07	0.67	6.75	45.53	52.28	0.57		
	St Pancras	'LUTON-BCKNHMJ 2S91'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
	St Pancras	'STALBCY-BROMLYS 2S93'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
	St Pancras	'BRGHTN-BEDFDM 2T02'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
	St Pancras	'BRGHTN-BEDFDM 2T04'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
	St Pancras	'BEDFDM-BRGHTN 2T15'	540.07	1	6.75	30.75	37.5	0.8	0.5	
	St Pancras	'BEDFDM-BRGHTN 2T25'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
	St Pancras	'BRGHTN-LUTON 2T99'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
	St Pancras	'SUTTON-STALBCY 2V02'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
	St Pancras	'SUTTON-STALBCY 2V08'	540.07	0.67	6.75	45.53	52.28	0.57		
	St Pancras	'BEDFDM-SUTTON 2V15'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
	St Pancras	'SUTTON-BEDFDM 2V16'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
	St Pancras	'LUTON-SUTTON 2V19'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
ail	St Pancras	'SUTTON-KNTSHTN 2V20'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
ail	St Pancras	'STALBCY-SUTTON 2V27'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
ail	St Pancras	'LUTON-SUTTON 2V31'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
ail	St Pancras	'BRGHTN-BEDFDM 2W08'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
ail	St Pancras	'BRGHTN-BEDFDM 2W12'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	
ail	St Pancras	'BRGHTN-BEDFDM 2W16'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	

Mode		Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	Al
Rail	St Pancras	'ASHFKY-BEDFDM 1E63'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	0.15
Rail	St Pancras	'RCHT-BEDFDM 1E67'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	0.15
Rail	St Pancras	'SVNOAKS-BEDFDM 1E69'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	0.15
Rail	St Pancras	'BROMLYS-BEDFDM 1E82'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	0.15
Rail	St Pancras	'BCKNHMJ-BEDFDM 1G65'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	0.15
Rail	St Pancras	'KENTHOS-BEDFDM 1G71'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	0.15
Rail	St Pancras	'ORPNGTN-STALBCY 2D93'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	0.15
Rail	St Pancras	'ORPNGTN-LUTON 2D95'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	0.15
Rail	St Pancras	'SVNOAKS-STALBCY 2E59'	540.07	0.67	6.75	45.53	52.28	0.57	0.5	0.29
Rail	St Pancras	'SVNOAKS-LUTON 2E61'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	0.15
Rail	St Pancras	'SVNOAKS-WHMPSTM 2E63'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	0.15
Rail	St Pancras	'SVNOAKS-KNTSHTN 2E65'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	0.15
Rail	St Pancras	'SVNOAKS-KNTSHTN 2E67'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	0.15
Rail	St Pancras	'BROMLYS-LUTON 2E93'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	0.15
Rail	St Pancras	'ORPNGTN-LUTON 2L59'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	0.15
Rail	St Pancras	'ORPNGTN-KNTSHTN 2L65'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	0.15
Rail	St Pancras	'BEDFDM-ELPHNAC 1J87'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	0.15
Rail	St Pancras	'BEDFDM-ELPHNAC 1J88'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	0.15
Rail	St Pancras	'STPANCI-FAVRSHM 1F08'	540.07	2	6.75	15.75	22.5	1.33	1	1.33
Rail	St Pancras	'BRSR-STPANCI 1F13'	540.07	0.67	6.75	45.53	52.28	0.57	0.5	0.29
Rail	St Pancras	'FAVRSHM-STPANCI 1F17'	540.07	1	6.75	30.75	37.5	0.8	0.5	0.4
Rail	St Pancras	'EBSFLTI-STPANCI 1F85'	540.07	1.33	6.75	23.31	30.06	1	0.5	0.5
Rail	St Pancras	'STPANCI-MARGATE 1J08'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	0.15
Rail	St Pancras	'STPANCI-DOVERP 1J10'	540.07	1	6.75	30.75	37.5	0.8	0.5	0.4
Rail	St Pancras	'RAMSGTE-STPANCI 1J11'	540.07	0.67	6.75	45.53	52.28	0.57	0.5	0.29
Rail	St Pancras	'STPANCI-MARGATE 1J12'	540.07	0.67	6.75	45.53	52.28	0.57	0.5	0.29
Rail	St Pancras	'MARGATE-STPANCI 1J13'	540.07	0.33	6.75	91.66	98.41	0.3		0.15
Rail Rail	St Pancras St Pancras	'MARGATE-STPANCI 1J17' 'DOVERP-STPANCI 1J19'	540.07 540.07	0.33	6.75 6.75	91.66 91.66	98.41 98.41	0.3	0.5	0.15 0.15
Rail	St Pancras	'MARGATE-STPANCI 1J21'	540.07	0.33	6.75	91.66	98.41	0.3	0.5	0.15
Rail	St Pancras	'MSTONEW-STPANCI 1T91'	540.07	1	6.75	30.75	37.5	0.8	0.5	0.13
Rail	King's Cross	'CAMBDGE-KNGX 2C92'	470.36	0.67	5.88	45.53	51.41	0.58	0.5	0.29
Rail	King's Cross	'KNGX-CAMBDGE 1C33'	328.18	0.67	4.1	45.53	49.63	0.6	0.5	0.23
Rail	King's Cross	'KNGX-CAMBDGE 1C35'	328.18	0.33	4.1	91.66	95.76	0.31	0.5	0.16
Rail	King's Cross	'CAMBDGE-KNGX 1C82'	328.18	0.33	4.1	91.66	95.76	0.31	0.5	0.16
Rail	King's Cross	'KNGX-PBRO 1P11'	328.18	1	4.1	30.75	34.85	0.86	0.5	0.43
Rail	King's Cross	'PBRO-KNGX 1P62'	328.18	1.33	4.1	23.31	27.41	1.09	0.5	0.55
Rail	King's Cross	'ROYSTON-KNGX 1R50'	328.18	0.33	4.1	91.66	95.76	0.31	0.5	0.16
Rail	King's Cross	'ROYSTON-KNGX 1R51'	328.18	0.67	4.1	45.53	49.63	0.6	0.5	0.3
Rail	King's Cross	'KNGX-CAMBDGE 2C03'	328.18	1	4.1	30.75	34.85	0.86	0.5	0.43
Rail	King's Cross	'CAMBDGE-KNGX 2C54'	328.18	0.67	4.1	45.53	49.63	0.6	0.5	0.3
Rail	King's Cross	'CAMBDGE-KNGX 2C91'	328.18	0.33	4.1	91.66	95.76	0.31	0.5	0.16
Rail	King's Cross	'KNGX-PBRO 2P04'	328.18	1	4.1	30.75	34.85	0.86	0.5	0.43
Rail	King's Cross	'LTCE-KNGX 2R07'	328.18	0.67	4.1	45.53	49.63	0.6	0.5	0.3
Rail	King's Cross	'HITCHIN-KNGX 2R94'	328.18	0.33	4.1	91.66	95.76	0.31	0.5	0.16
Rail	King's Cross	'WLWYNGC-KNGX 2Y04'	328.18	0.33	4.1	91.66	95.76	0.31	0.5	0.16
Rail	King's Cross	'WLWYNGC-KNGX 2Y13'	328.18	0.67	4.1	45.53	49.63	0.6	0.5	0.3
LUL	King's Cross	'Hammersmith-Edgware'	328.18	6	4.1	5.75	9.85	3.04	0.5	1.52
LUL	King's Cross	'Barking-Hammersmith'	328.18	6.34	4.1	5.48	9.58	3.13	0.5	1.57
LUL	King's Cross	'Hammersmith-Plaistow'	328.18	1	4.1	30.75	34.85	0.86	0.5	0.43
LUL	King's Cross	'Aldgate-AmerFast'	328.18	1	4.1	30.75	34.85	0.86	0.5	0.43
LUL	King's Cross	'Ches-AldgateFast'	328.18	2	4.1	15.75	19.85	1.51	0.5	0.76
LUL	King's Cross	'Uxbridge-AldSlow'	328.18	5.33	4.1	6.38	10.48	2.86	0.5	1.43
LUL	King's Cross	'Watford-AldSfast'	328.18	3.67	4.1	8.92	13.03	2.3	0.5	1.15
LUL	King's Cross	'Aldg-WatfordSlow'	328.18	3.67	4.1	8.92	13.03	2.3	0.5	1.15
LUL	King's Cross	'Ald-HarrowHill'	328.18	1.33	4.1	23.31	27.41	1.09	0.5	0.55
LUL	King's Cross	'Edgware-Morden'	328.18	9	4.1	4.08	8.19	3.66	0.5	1.83
			328.18	14.67	4.1	2.79	6.9	4.35	0.5	2.17

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	A
LUL	King's Cross	'Morden-MillHillE'	328.18	4	4.1	8.25	12.35	2.43	0.5	1.21
LUL	King's Cross	'Cockfosters-LHRT4LT'	328.18	4.67	4.1	7.17	11.28	2.66	0.5	1.33
LUL	King's Cross	'RayLane-Cockfosters'	328.18	3.67	4.1	8.92	13.03	2.3	0.5	1.15
LUL	King's Cross	'LHRT4LT-ArnosGrove'	328.18	4.67	4.1	7.17	11.28	2.66	0.5	1.33
LUL	King's Cross	'ArnosGrove-RayLane'	328.18	0.33	4.1	91.66	95.76	0.31	0.5	0.16
LUL	King's Cross	'ArnosGrove-Nthfields'	328.18	3	4.1	10.75	14.85	2.02	0.5	1.01
LUL	King's Cross	'Oakwood-RayLane'	328.18	0.33	4.1	91.66	95.76	0.31	0.5	0.16
LUL	King's Cross	'Nthfields-Cockfoster'	328.18	1	4.1	30.75	34.85	0.86	0.5	0.43
LUL	King's Cross	'LHRT5-Cockfosters'	328.18	6	4.1	5.75	9.85	3.04	0.5	1.52
LUL	King's Cross	'Uxbridge-Cockfosters'	328.18	3.67	4.1	8.92	13.03	2.3	0.5	1.15
LUL	King's Cross	'Ruislip-Cockfosters'	328.18	2.33	4.1	13.63	17.73	1.69	0.5	0.85
LUL	King's Cross	'ArnosGrove-Uxbridge'	328.18	1	4.1	30.75	34.85	0.86	0.5	0.43
LUL	King's Cross	'Oakwood-Uxbridge'	328.18	0.33	4.1	91.66	95.76	0.31	0.5	0.16
LUL	King's Cross	'Oakwood-Ruislip'	328.18	0.33	4.1	91.66	95.76	0.31	0.5	0.16
LUL	King's Cross	'Brixton-WalthamstowC'	328.18	15.67	4.1	2.66	6.77	4.43	1	4.43
LUL	King's Cross	'SevenSisters-Brixton'	328.18	11.67	4.1	3.32	7.42	4.04	0.5	2.02
Rail	Kings Cross St Pancras	'PBRO-KNGX 2P90'	414.54	0.33	5.18	91.66	96.84	0.31	0.5	0.15
									Total Grid Cell Al:	77.1

Appendix C

