

NORTHUMBERLAND DEVELOPMENT PROJECT Non-Major Event Day Transport Assessment and Travel Planning 2015

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Prepared by



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1 INTRODUCTION

- 1.1 Tottenham Hotspur Football Club (THFC) has embarked on a major re-development programme, to construct a new stadium on the site currently occupied by its existing stadium known as White Hart Lane, and other land surrounding it. The project is known as the Northumberland Development Project (NDP).
- 1.2 The project site is located in the London Borough of Haringey, northeast of Tottenham town centre and is bounded by the A1010 High Road to the west, Northumberland Park to the north, Worcester Avenue to the east and Park Lane to the south. The location of the site can be seen in Figures TA/1-TA/3.
- 1.3 The project site is split into three areas:
 - The Northern area – located south of Northumberland Park has recently been developed and now comprises a Sainsbury's superstore, offices, education uses and car parking.
 - The Central area – located to the north of Paxton Road is currently under development to provide a 61,000 seater stadium for Tottenham Hotspur Football Club.
 - The Southern area – is located to the south of Paxton Road. The new stadium will incorporate Paxton Road and the southern stand is to the south. It is proposed that a hotel, residential uses, the Tottenham Experience, flexible community/office space and an extreme sports facility are provided on this site.
- 1.4 A planning application covering all three areas was submitted in 2010 and a Transport Assessment prepared to accompany the submission. Since the original submission the proposals for the northern area have been implemented. In addition, revised development proposals for the central and southern areas have come forward and a revised planning application for them has been submitted. The central and southern areas combined comprise approximately 9 hectares.
- 1.5 Currently the southern area is broadly made up of the existing 36,300 all-seater THFC stadium and associated facilities, for example, offices, the ticket office, Spurs shop and conference/meeting facilities. The High Road accommodates a mix of uses including, office, retail and residential uses many of which are currently boarded up. Further information on the type of current land uses is contained within the Buro Happold 'Northumberland Development Project, Transport Assessment Volume 2 – Existing Conditions' Report dated May 2010.
- 1.6 This document concentrates on the non-major event day transport impacts associated with the southern area. A further document Northumberland Development Project - Major Event Day Transport Assessment and Travel Planning 2015 has been prepared to consider event days which are expected to attract more than 10,000 spectators.

Central and Southern Development Proposals

- 1.7 The new proposals for the Central and Southern Areas are shown in Figures TA/4 and TA/5.

The Stadium

- 1.8 A new 61,000 seater stadium will be constructed to replace the current stadium which has been located on the site since 1899. As well as holding c.25 – 30 football matches during the season (depending on the team's success in the various cup competitions) it is proposed that a total of 16 non-THFC events per annum are held, comprising up to six concerts and ten non-THFC sporting events, of which at least two will be NFL matches.
- 1.9 There will be 822 car parking spaces at the stadium consisting of:
- 732 standard spaces, including 60 designated blue badge spaces; and
 - 90 fully accessible spaces.
- 1.10 Day-to-day access to these spaces will be from the southern end of Worcester Avenue. Cycle facilities for the stadium staff are already provided in Lilywhite House which forms part of the completed Northern Development.

The Tottenham Experience

- 1.11 The Tottenham Experience will comprise a range of uses as follows. The proposed floor space in square metres is shown in parenthesis:
- Megastore (1,955)
 - Museum (728)
 - Café (260)
 - Cinema (400)
 - Ticket Office (242)
 - Skywalk Change and Reception (100)
- 1.12 The total floorspace is 4,311 square metres. There is no car parking associated with the Tottenham Experience and staff cycle parking is provided within the completed Lilywhite House Development.

The Hotel

- 1.13 The hotel will consist of 180 hotel bedrooms and 49 serviced apartments. It will be serviced by 76 car parking spaces of which 68 will be standard spaces and 8 will be fully accessible spaces. There will also be racks for 12 cycles in the basement.

Extreme Sports

- 1.14 The extreme sports centre will have a maximum floor space of 2,100 square metres. There will be no car parking spaces associated with the centre. However it is proposed that there will be 16 cycle parking spaces along Park Lane to be shared with visitors to the residential units.

Residential Towers

- 1.15 The residential towers will comprise four blocks accommodating a total of 580 units, and five townhouses fronting Park Lane:

- Residential Tower A will have 24 residential storeys and 167 units. It will include 261 bicycle spaces;
 - Residential Tower B will have 16 residential storeys and 91 units. It will include 127 bicycle spaces;
 - Residential Tower C will have 32 residential storeys and 231 units. It will include 357 bicycle spaces;
 - Residential Tower D will have 16 residential storeys and 91 units. It will include 127 bicycle spaces; and
 - Townhouses – five houses with no car parking spaces.
- 1.16 The residential towers will be accompanied by 270 car parking spaces, 243 standard spaces and 27 spaces for blue badge holders.
- 1.17 There would be active provision for electric vehicle charging points for 20% of the spaces with passive provision for a further 20%.
- 1.18 In addition the residential towers will accommodate nearly 4,000 square metres of flexible community/office use floor space.

Community Health Centre

- 1.19 A health centre of up to 2,000 square metres will have visitor car parking provided on Worcester Avenue and cycle parking for 12 cycles will be located nearby at the north end of Worcester Avenue.
- 1.20 The car parking provision along Worcester Avenue comprises 56 spaces of which 8 are fully accessible.

2 TRANSPORT POLICY BACKGROUND

2.1 Relevant transport planning policy is set out in a variety of documents as follows:

- The London Plan;
- The Mayor's Transport Strategy; and
- The Haringey Local plan.

2.2 These documents have been examined and the policies relevant to the project are shown in Appendix A. The policies range from the strategic level to the detailed. They have informed many aspects of the Transport Assessment, and transport proposals for the site. For example, the transport strategy is founded on the principle of encouraging travel by non-car modes as much as possible. The enhancements to public transport, walking and cycling facilities provide the 'carrots' and car parking standards form the major part of the 'stick' side of the equation. The policies give guidance on matters such as how many car parking spaces should be provided and of those how many spaces should be reserved for disabled drivers and how many electric charging points need to be provided.

2.3 The policies also give guidance on how transport impacts should be assessed and what local authorities should be looking for within development proposals to determine whether they will be acceptable.

2.4 A considerable amount of care has been taken to ensure that the proposals are compliant with current transport policy. Where relevant, in the sections that follow, policies are quoted and drawn into the assessment.

3 **EXISTING CONDITIONS**

Surveys

3.1 A comprehensive series of transport surveys was undertaken in 2003, 2007, 2008 and 2009 which details how people travel to and within the local area. The surveys were undertaken on match days and non-match days and they provide a clear picture of how travel patterns have changed over the last decade. The traffic surveys were repeated in July 2015 and the findings incorporated into this updated assessment. Full details of the 2003 – 2009 surveys can be found in the Buro Happold 'Northumberland Development Project, Transport Assessment Volume 2 – Existing Conditions' Report dated May 2010. In summary they comprised:

- 2003, 2007 and 2008 Matchday Questionnaires – collecting data about how fans travelled to and from matches, the facilities they use at the stadium and in the local area before and after matches, and what would encourage them to arrive earlier and stay longer in the area. Collected on the following dates:
 - 16 March and 5 April 2003;
 - 14 August and 18 August 2007; and
 - 9 March, 19 March and 22 March 2008.
- 2008 Crowd Movement Surveys – These surveys were designed to gain an understanding of the movement of match day crowds to and from local stations and bus stops. They also collected data on on-street parking and one off-street parking facility. An away-supporters survey was also carried out. These surveys were carried out on 19 March and 22 March 2008.
- 2008 Rail Surveys – Pedestrian surveys were carried out on 4 June 2008 during evening peak hours to assess capacity at Seven Sisters, Bruce Grove, White Hart Lane, Tottenham Hale and Northumberland Park Stations and the routes to them.
- 2008 Traffic Surveys – Manual Classified Counts were undertaken Saturday 29 March and Thursday 3 April 2008.
- 2009 Pedestrian Surveys – A series of surveys was carried out in March 2009 to understand the trips generated and the modes of travel used from various land uses in the local area.
- 2009 Match Day and Non-Match Day Rail Surveys – Rail surveys were carried in April 2009 at Seven Sisters, White Hart Lane and Tottenham Hale. This data gives an indication of the background demand for a non-matchday as well borders and alighters on a matchday.
- 2009 Match Day and Non-Match Day Underground Surveys – These surveys were undertaken in April 2009 at Seven Sisters and Tottenham Hale Stations.
- 2009 Non-Match Day Bus Surveys – Bus surveys to determine background demand were carried out in April 2009 on routes, W3, 149, 259, 279 and 349. The number of borders and alighters were recorded at local bus stops.
- 2009 Traffic Surveys – Manual Classified Traffic Surveys were carried out on a couple of weekends in March and April 2009 at the following junctions:
 - Northumberland Park/High Road Junction;
 - White Hart Lane/High Road Junction;
 - Park Lane/High Road Junction; and
 - Lansdowne Road/High Road Junction.

Further MCCs were undertaken in November 2009 to gather queue lengths and saturation flows at junctions.

- 2009 Matchday and Non-Matchday Car Park Surveys – Aerial photographs were taken in April 2009 to compare the parking patterns and volumes on a match day and a non-matchday.
- 2010 Matchday Station Surveys – In March 2010 station entry and exit counts were recorded at Seven Sisters Station for the pre- and post-match periods.
- 2010 PERS Audit – A PERS audit was carried out in April 2010, which considered the key routes from the Stadium to White Hart Lane, Northumberland Park, Tottenham Hale and Seven Sisters Stations. It also included the route from the stadium along the High Road to the North Circular. The PERS Audit was re-run and the report updated in 2015.

Highway Network

Description

- 3.2 The highway network is dominated by the A1010 High Road which runs in a north/south direction and links to the A406 North Circular Road in the north and the A10 in the south. The A10 runs from Bishopsgate in the City of London, north to the M11 south of Cambridge. The A10 and A406 are part of the Transport for London Road Network (TLRN) managed by TfL. The A1010 is a borough road maintained by the London Borough of Haringey and forms part of the London Strategic Road Network (SRN). The carriageway is approximately 12.5m wide and consists of a single traffic lane and a bus lane in each direction. There are double yellow lines with the bus lane restricting on-street parking. The road is subject to a 30 mph limit. Opposite the site the junctions with the High Road are all priority junctions, with the exception of White Hart Lane which is a signalised junction and includes pedestrian crossing facilities on all arms.
- 3.3 Park Lane is closed to through traffic (except emergency vehicles) just prior to the junction with St. Paul's Road. There is one lane of traffic in each direction and on-street parking restrictions apply on non-major event days. The road is subject to 20 mph limit and traffic calming measures have been implemented along it. The junction of High Road and Park Lane is signalised and it includes pedestrian crossing facilities on all arms. All other junctions along Park Lane are priority junctions. The staggered junction of Park Lane, Worcester Avenue and Vicarage Road is characterised by a raised table and different surface materials.
- 3.4 Paxton Road formerly provided a link between High Road and Worcester Avenue. The road consisted of a single lane of traffic in each direction with no parking restrictions on non-major event days. The road had a 20 mph speed restriction with priority junctions at each end. However, in June 2015 a section of Paxton Road between the High Road and the existing stadium was hoarded and included in the project site, therefore making it no longer viable as a public thoroughfare.
- 3.5 Worcester Avenue runs parallel to High Road. The carriageway has one lane of traffic in each direction. It is closed to through traffic from Northumberland Park. Traffic calming measures have been introduced and the speed limit is 20 mph. The junctions at each end are priority junctions.

2015 Traffic Surveys

- 3.6 The traffic surveys for the surrounding network which were carried out in 2008 and 2009 provide a substantial volume of data on traffic flows in the local area. The results are detailed in Appendices O-S of the Buro Happold 'Northumberland Development Project, Transport Assessment Volume 2 – Existing Conditions' Report dated May 2010. A series of 20 traffic surveys was carried out in 2015 to update the baseline. The surveys were undertaken at the following locations:
1. White Hart Lane, Just West of A1010 High Road (BH Site 4)
 2. White Hart Lane, Just West of Fenton Road (BH Site 9)
 3. A1010 High Road, Just South of White Hart Lane (BH Site 4)
 4. A10 High Road, Just South of Bruce Grove (BH Site 12)
 5. Park Lane, Just East of A1010 High Road (BH Site 5)
 6. A1010 High Road, Just South of Park Lane (BH Site 5)
 7. Northumberland Park, Between Worcester Avenue & Bennet's Close - east of JS (BH site 7)
 8. Worcester Avenue, Just North of Park Lane (BH Site 7)
 9. Worcester Avenue, Just South of Northumberland Park (BH Site 6)
 10. A1010 High Road, Just South of Brantwood Road (BH Site 1)
 11. A1010 Fore Street, Just South of A406 (BH Site 14)
 12. Lordship Lane, Just West of A1010 High Road (BH site 13)
 13. Lansdowne Road, Just East of A1010 High Road (BH site 5)
 14. A1010 High Road, Just South of Lansdowne Road (BH Site 1)
 15. White Hart Lane, Just East of the A10 Great Cambridge Road (BH –Site 9)
 16. Leaside Road, Just East of Willoughby Lane (BH site 19)
 17. Brantwood Road, Just West of Willoughby Lane (BH site 15)
 18. Willoughby Lane, Just South of Brantwood Road (BH site 16)
 19. Park Lane, Just West of Willoughby Lane (BH site 17)
 20. Park Lane, Just East of Worcester Avenue (BH site 8)
- 3.7 Figure TA/6 illustrates the locations of the 2015 traffic counts, and the results of the surveys are given in Appendix B. The notes in parenthesis show the corresponding sites undertaken by Buro Happold previously.
- 3.8 The peak hours for the network are 0800 – 0900, 1700 – 1800 on a weekday and 1300 – 1400 at the weekend.

Brook House Traffic Forecasts

- 3.9 Also of interest, for comparison purposes, are the 2016 traffic forecasts produced for the Brook House Development just north of the former Sainsbury's superstore. The Brook House traffic forecasts were prepared by Buro Happold and are consistent with the 2012 S73 applications for the North and South Developments and the associated pre-implementation traffic engineering demand/capacity analysis. Therefore they are the most up-to-date traffic forecasts prepared by them, using the 2008/09 traffic surveys as a base. The Buro Happold traffic forecasts of 2012 (as presented in the Brook House Transport Assessment) are shown in Appendix C.

- 3.10 Table 3.1 below summarises a sample of the flows forecast flows on the A1010 High Road in the AM, PM and Saturday peak hours. These forecasts included the NDP northern development but excluded the new stadium, the southern development and the Brook House development.

Table 3.1 Summary of Brook House Traffic Forecasts (2016) for A1010 High Road

Location	AM Peak	PM Peak	Saturday Peak
A1010 High Road, north of Brantwood Road (southbound)	602	583	584
A1010 High Road, south of Brantwood Road (northbound)	600	801	679
Brantwood Road, east of High Road (westbound)	202	159	188
A1010 High Road, north of Northumberland Park, (southbound)	753	718	728
Northumberland Park, j/w A1010, (westbound)	338	622	616
White Hart Lane, j/w A1010 (eastbound)	562	705	440
A1010 High Road, south of White Hart Lane (northbound)	870	784	887
A1010 High Road, north of Park Lane (southbound)	758	857	795
Park Lane, (westbound)	74	140	70
A1010 High Road, south of Park Lane (north bound)	794	744	817
Church Lane, (eastbound)	36	34	37

- 3.11 The two way traffic flow for the A1010 High Road between Park Lane and White Hart Lane was predicted to be c. 1,500, c. 1,600 and c. 1650 for the AM, PM and Saturday peaks respectively. Taking the information from the 2015 surveys, the actual two way flow is c. 1,200 in the AM peak and c. 1,100 in the PM peak.
- 3.12 At another location the two way traffic flow for the A1010 High Road just south of Brantwood Road was predicted to be c. 1,300, 1,500 and 1,300 for the AM, PM and Saturday peak respectively. Taking the information from the 2015 surveys, the actual two-way flow is c. 1,050 in the AM peak and c. 1,100 in the PM peak.
- 3.13 These changes represent a significant difference (decrease) between the 2016 predicted flows and the 2015 actual flows. It is also assumed that there is a similar difference for the Saturday peak. This decrease is entirely consistent with the DfT count data for the High Road monitoring site which indicates that traffic flows have dropped by 18%, as measured in annual average daily flow.

- 3.14 When comparing these figures to the 2015 traffic surveys, it is important to note that the traffic generated by the previous uses on the whole of the THFC project site has reduced significantly and that the 2015 surveys will include the new trips generated by the completed elements in the northern development.

Observed Trips from Southern Area

- 3.15 The information gathered during the 2008 and 2009 surveys indicates the number of trips that were generated by the southern development at that time. Table 3.2 below summarises that information and has been extracted from the Buro Happold 2010 Transport Assessment.

Table 3.2 Observed Trips Generated by the Southern Development

Mode	Period	In	Out	Total
Cars	AM	154	11	165
	PM	72	172	244
	Saturday	140	131	271
Pedestrians	AM	43	12	55
	PM	24	59	83
	Saturday	27	14	41
Cycles	AM	7	1	8
	PM	2	7	9
	Saturday	2	2	4
Motorcycles	AM	0	0	0
	PM	1	0	1
	Saturday	0	0	0
Public Transport	AM	94	14	108
	PM	166	172	338
	Saturday	128	49	177
Goods Vehicles	AM	2	0	2
	PM	1	0	1
	Saturday	0	0	0
Total	AM	300	38	338
	PM	266	410	676
	Saturday	297	196	493

- 3.16 On a non-Major Event Day the busiest hour was the evening peak when a total of 676 vehicles were forecast to enter or leave the site. Since 2009 the northern development has been completed and some of the uses formerly on the southern area site have transferred to Lilywhite House, in particular the THFC administration offices. This means that the trip generation shown in the table is likely to be on the high side for the current situation as it reflects the 2009 situation.

Vehicle Access to the site

- 3.17 Vehicle access is currently provided to the existing stadium, car park and club facilities via Bill Nicholson Way which leads off the High Road. Servicing access to the stadium is also provided off Worcester Avenue and Park Lane. Service access to the retail units fronting the High Road in the southern area is provided from the High Road.

Parking and parking controls

- 3.18 The car parking audit revealed that there are currently 130 car park spaces in the southern area on non-event days. Prior to 2014 there were some 850 spaces available on a football matchday, to the west, north and east of the existing stadium.
- 3.19 An analysis of on-street parking provision was undertaken to understand the levels of parking on match days and non-matchdays. Further details of this survey are given in Appendix R of the Buro Happold 'Northumberland Development Project, Transport Assessment Volume 2 – Existing Conditions' Report dated May 2010.
- 3.20 The results of the survey show the areas that saw changes in parking on a match day and has been used to help develop the extent of the revised CPZ introduced in 2014. This change was also informed by a comprehensive residents' consultation exercise carried out by London Borough of Haringey. Changes to parking have been made for both event days and non-event days.

'All-week' Controlled Parking Zones

- 3.21 Three new 'all-week' CPZs have been introduced across Tottenham. The three new controlled parking zones are the Tottenham North CPZ, which is located around the stadium and will operate from Monday to Saturday 8.00am to 6.30pm, the Tottenham Hale North CPZ and the Tower Gardens CPZ, which will operate Monday to Sunday 8.00am to 6.30pm.

Event Day CPZ

- 3.22 The new zones are in operation on all Major Event Days with the new zones at Tottenham Hale and Tower Gardens covering a larger area than previously. In addition to the new zones, the current Event Day CPZ has been revised and now extends eastwards to include Garman Road and Marsh Lane up to Watermead Way.

CPZ Timings

- 3.23 There has also been a revision to the timings of the event day CPZ with it being in operation from 8am to 8pm Monday to Saturday, and from 12 noon to 8pm on Sundays and Public Holidays within the core all week CPZ area. The outer area is in operation from 12 noon to 8pm on Saturday, Sunday and Bank Holidays.
- 3.24 Therefore the new operational hours for the CPZs on event days will be:
- Tottenham North all week CPZ - 8am to 8pm Monday to Saturday, on Sundays and Public holidays from 12 noon to 8pm

- Outer area Event Day CPZ - 5pm to 8.30pm, Monday to Friday, and Saturday, Sunday and Public holidays from 12 noon to 8pm

Tottenham North CPZ Details

- 3.25 On non-Major Event Days, the new Tottenham North CPZ will operate throughout the week, from Monday to Saturday 8am to 6.30pm. The boundaries of the Tottenham North CPZ are Park Lane and Church Road to the south; the borough boundary with Enfield to the north; Tariff Road/Worcester Avenue and Park Lane Close to the east; and Tenterden Road/Beaufoy Road and the railway line to the west.

Accidents

- 3.26 Accident data for the A1010 High Road has been extracted from crashmap.co.uk. The statistics shown in Table 3.3 below are for the 550m stretch north of Northumberland Park to south of Park Lane for the period 2012-2014. There were 55 slight and 2 serious injuries. There were no fatalities locally.

Table 3.3 Road Traffic Accident Analysis for the High Road

Accident Severity	Period 2012-2014	Yearly Average
Slight	55	18
Serious	2	1
Fatal	0	0
Total	57	19
July weekday traffic flow	20,080	Vehicles per day
AADT	18,090	
Annual flow	6,602,883	
Section of road – metres	550	
Section of road – miles	0.344	
Vehicles miles per year	2,269,740	
Billion miles per year	0.0027	
Personal Injury Accidents per billion vehicle miles	8,371	
Serious PIA per billion vehicle miles	293.7	

- 3.27 The yearly average is 19 accidents which represents 0.05 accidents per day.
- 3.28 The serious injury rate along the A1010 is typical for Haringey as a whole, 293 accidents per billion vehicle miles compared to 310 accidents per billion vehicle miles for the whole Borough. The ratio of severe to slight injuries is only 29% of the national average for urban A roads, 0.036 compared with 0.126. The number of all types of severity accidents is 8,371 per billion vehicle km compared to the national average for urban A roads of 40,337.

- 3.29 It can therefore be concluded that the accident rate in the local area is very low and there are no significant issues which need to be addressed as part of the project proposals.

Public Transport

Stations serving the local area

- 3.30 White Hart Lane, Bruce Grove, Seven Sisters, Northumberland Park and Tottenham Hale are all rail stations (national rail and Overground) that can be accessed from the site. Seven Sisters and Tottenham Hale Stations are also served by the Underground Victoria Line. Tottenham Hale is the closest Underground station to the stadium.
- 3.31 White Hart Lane Station is the closest to the site and approximately 6 minutes walk away. Northumberland Park is 0.6 km to the east of the stadium. Bruce Grove Station is one stop south White Hart Lane Station and is 1.1 km south of the stadium. Seven Sisters is one stop south of Bruce Grove Station, and approximately 2.3 km south of the stadium. Tottenham Hale is approximately 2.2 km south of the station. The location of the stations is shown in Figure TA/7.

Rail Services

- 3.32 A range of national and Overground rail services can be accessed from the five stations in the local area. Table 3.4 below illustrates the stations and service frequencies on a non-Major Event Days.

Table 3.4 Service frequencies for a Non-Major Event Days - Rail services

Station	Lines	Direction	Trains per hour			
			Week day AM	Week day PM	Sat	Sun
White Hart Lane	Overground Enfield Town to Liverpool Street	South towards Liverpool Street	5	5	4	4
		North towards Cheshunt	3	2	2	2
		Enfield Town	4	4	2	2
Bruce Grove	Overground Enfield Town to Liverpool Street	South to Liverpool Street	4	4	2	2
		North towards Cheshunt	3	2	2	2
		Enfield Town	4	4	2	2
Seven Sisters	Overground Enfield Town to Liverpool Street	South to Liverpool Street	6	5	4	4
		North towards Cheshunt	3	2	2	2
		Enfield Town	4	4	4	4
Northumberland Park	Abellio Greater Anglia Tottenham Hale Branch	South towards Tottenham Hale (Stratford)	4	2	1	0
		North towards Stansted	2	2	1	0
Tottenham Hale	Abellio Greater Anglia Tottenham Hale Branch	South towards Liverpool Street	10	9	8	8
		North towards Cheshunt	6	6	6	4

Underground Services

- 3.33 The closest London Underground stations to the site are Seven Sisters and Tottenham Hale which are both located approximately 25 to 30 minutes walk to the south. Both stations are served by the Victoria Line with interchanges to the rail network and are located within Travel card Zone 3. Although Seven Sisters is geographically further from the site than Tottenham Hale, it provides better connections via a direct walking route and numerous bus links and therefore tends to be used more by those visiting the site. The locations of the stations are shown in Figure TA/8. The non-Major Event Days routes and frequencies are shown in Table 3.5 below.

Table 3.5 Service Frequencies for Non-Major Event Days – Underground Services

Station	Direction	Trains per peak hour			
		Weekday AM	Weekday PM	Saturday	Sunday
Seven Sisters	South towards Brixton	17 (12)	17 (12)	15 (12)	15 (12)
	North towards Walthamstow Central	15 (12)	15 (12)	15 (12)	13 (12)
Tottenham Hale	South towards Brixton	17 (12)	17 (12)	13 (12)	12 (12)
	North towards Walthamstow Central	15 (12)	15 (12)	13 (12)	13 (12)

- 3.34 It should be noted that the numbers shown in the table are the trains per hour in 2010. The figures in parenthesis are the trains that operated in the summer of 2015. There was a temporary, reduced timetable in operation whilst track works are undertaken to facilitate the new 36 trains per hour schedule – that is 1 train every 100 seconds in both directions from Walthamstow Central to Brixton. This new timetable will be fully operational in 2016.
- 3.35 TfL has the facility to run two extra services on event days. However, in practice this is generally not implemented.

2009 Underground Survey

- 3.36 The 2009 Underground surveys were carried out to collect data using the Underground on weekend non-event days. The surveys at Tottenham Hale and Seven Sisters in April 2009 showed that there was a very low level of patronage compared to the available capacity at both stations.

Bus

- 3.37 The project site is well served by bus routes from a wide range of neighbouring areas. Most routes can be accessed from bus stops on the High Road, although a few can also be accessed from Northumberland Park to the north, Lansdowne Road to the south and Shelbourne Road to the east. Most of the bus routes connect the site with Seven Sisters Station. Routes 149, 259, 279, 349, N279 and the W3 serve the site. Figure TA/9 illustrates the local bus network.
- 3.38 A bus stop audit was undertaken along surrounding roads and at stations to determine the quality of bus infrastructure and information provision. The results are given in Appendix K of the Buro Happold 'Northumberland Development Project, Transport Assessment Volume 2 – Existing Conditions' Report dated May 2010.
- 3.39 The different routes and frequencies are summarised in Table 3.6 below. They include the bus routes that serve White Hart Lane Stadium.

Table 3.6 Bus Services serving White Hart Lane Stadium

No	Bus Route	Bus Stop Location	Frequency during peak hour (mins)			
			Weekday AM	Weekday PM	Saturday	Sunday
149	Edmonton Green Bus Station – London Bridge Bus Station	High Road	3-8	4-8	6-9	6-10
259	Edmonton Green Bus Station – King's Cross Road		6-10	6-10	6-10	9-12
279	Waltham Cross Bus Station – Manor House Station		5-7	5-7	7-11	8-12
349	Glyn Road – Northwold Road		7-10	7-10	6-9	11-12
W3	Northumberland Park Station – Finsbury Park Station	White Hart Lane	3-6	3-6	6-10	9-12

- 3.40 On match days, buses run as normal up to the start of the match. After the match buses are diverted for around 1 hour. No routes run along the High Road outside the stadium during this period.

Public Transport Accessibility Level (PTAL)

- 3.41 An assessment was carried out to determine the public transport accessibility level (PTAL) for various points across the whole project site. The assessment used the approved TfL methodology. One of these included a location described as 'Off Bill Nicholson Way' and is in the middle of the southern area. Another is on Park Lane which forms the southern boundary of the southern area. Both these points were assessed as a level 4 which indicates an 'above average' level of accessibility.
- 3.42 Further details of the calculations can be found in Buro Happold 'Northumberland Development Project, Transport Assessment Volume 2 – Existing Conditions' Report dated May 2010.

- 3.43 In addition the updated TRL PERS Audit carried out in 2015 has re-assessed the PTAL ratings for a large number of locations. It shows that the PTAL ranges from 3-5 (3 is average and 6 is best) in the local area. Figure TA/10 illustrates the PTAL assessments.

Facilities for Cyclists

- 3.44 Cycle access to the southern area is currently via Bill Nicholson Way. All of the streets surrounding the site are generally accessible by bicycles.
- 3.45 The local cycle routes are shown in Figure TA/11. Of note are the three routes which run close to the site. The first runs east/west along Park Lane to the south of the southern area, connecting Watermead Way in the east and Green Lanes in the west. It is identified as part of a 'local cycle network'. The second runs north/south along Worcester Avenue towards Edmonton in the south and is described as a 'cyclists recommended route'. The third runs along Pretoria Road to the west of the High road and links Church Road to the south and the North Circular in the north and is also a 'cyclists recommended route'.
- 3.46 In addition, the National Cycle Route 1 is located to the east of the site and follows the Lea Valley. This route is a recreational route from Scotland to Dover along the east coast.
- 3.47 A cycle audit was undertaken in 2009. The details are contained within Appendix F of the Buro Happold 'Northumberland Development Project, Transport Assessment Volume 2 – Existing Conditions' Report dated May 2010. This identified that there are no dedicated direct cycle routes on the High Road from Seven Sisters Station to the site, although cyclists can make use of the bus lanes. However, there are a number of cycle routes following less busy roads from other stations to the site. Whilst Tottenham Hale station has the most direct access to cycle routes, there is no direct route to the site from this station. There is, however, a path, Chestnut Road, that is restricted to pedestrians and cyclists that covers a significant stretch of ground between Tottenham Hale station and High Road. The most direct cycle route from a station to the site is from Northumberland Park Station.
- 3.48 There is no formal cycle parking provision in the southern area. People tend to make use of railings and street furniture to secure their bicycle. There are some cycle parking facilities (a few Sheffield stands) located along the High Road.

Facilities for Pedestrians

- 3.49 A comprehensive description of the existing pedestrian facilities in the local area is given in Section 3 of the Buro Happold 'Northumberland Development Project, Transport Assessment Volume 2 – Existing Conditions' Report dated May 2010. This has been updated by the PERS Assessment 2015 carried out by TRL.
- 3.50 In summary pedestrian access to the existing stadium in the southern area is currently provided from Worcester Avenue, Park Lane and High Road (via Bill Nicholson Way). The primary pedestrian access is via Bill Nicholson Way. The roads surrounding the site have footpaths on both sides of the roads and provide a range of facilities which aid pedestrian circulation, for example, signalised crossings, central refuges, tactile paving and dropped curbs.
- 3.51 Table 3.7 below illustrates the walk times and distances to key transport interchanges.

Table 3.7 Walking times and distances from the southern area

Station	Approximate walking distance (m)	Approximate walking time (mins)
White Hart Lane	450	6
Northumberland Park (rail)	600	8
Bruce Grove (rail)	1150	14
Tottenham Hale (rail and underground)	2250	28
Seven Sisters (rail and underground)	2350	29

PERS Audit

- 3.52 The PERS Audit (Pedestrian Environment Review System) undertaken in 2010 was fully updated during May and June 2015. Since that time there have been various improvements completed in the local area. These include:
- Highway / junction works locally;
 - The Tottenham Hale gyratory has been removed by TfL along with a new bus / rail / pedestrian interchange;
 - White Hart Lane has recently become a London Overground Station and is now incorporated into the Transport for London network; and
 - Tottenham Hale has a new Bus Station and there are also planned improvements to the Rail Station at Tottenham Hale.
- 3.53 The purpose of the audit was to undertake a comprehensive on-site audit of all pedestrian and environment components within the study area, so that suggestions for improvement can be made. The 2015 Audit carried by Transport Research Laboratory (TRL) 'PERS Assessment' has been submitted to London Borough of Haringey and TfL for their consideration. Any recommendations taken forward are likely to be included within the s106 Agreement, thereby placing the obligation to implement them on LBH and/or TfL.
- 3.54 The audit area covers all the links, crossings and public transport waiting areas (PTWAs) along the six key routes. The six routes are outlined as follows:
- R1A: Stadium to White Hart Lane Rail Station (via White Hart Lane)
 - R1B: Stadium to White Hart Lane Rail Station (via Love Lane)
 - R2: Stadium to Northumberland Park Rail Station
 - R3: Stadium to Tottenham Hale Underground Station
 - R4: Stadium to Seven Sisters Rail Station
 - R5: Stadium to A406 North Circular Road
- 3.55 In total the PERS study has audited 70 links, 126 crossings, six routes, 29 PTWAs and one interchange. The following key observations were noted across the audit area which are of relevance to the accessibility and attractiveness of the pedestrian environment:

- There are consistently medium/high vehicle flows along the A1010 (High Road) through much of the day and this has a direct impact on the ability of pedestrians to cross the carriageway quickly and safely.
- The area around Tottenham Hale scored particularly well. It forms part of a regeneration area and there are new Underground, Rail and Bus Stations, good interchange opportunities, good accessibility and a pleasant open space.
- There is a high number of bus services running along the A1010 (High Road).
- There is a difference in tactile paving provision – at the southern end of the audit area the tactile paving was a charcoal colour rather than the standard buff or red.

3.56 Route 1B, Stadium to White Hart Lane Rail Station (via Love Lane), scored a red rating, all the others scored amber.

General area observations

3.57 Overall, the area has scored much better in comparison to the previous study. In the 2010 study, eight Links attained a Red rating (compared to five in the 2015 study) and nine crossings attained a Red rating (compared to just one in the 2015 study). This is largely due to the number of highway and junction improvements that have been made locally. Whilst the links and crossings along the High Road (A1010 / A10) tend to show improvement with regards to pedestrian provision, it is the side roads that currently have the worst level of provision. This in itself is not unexpected as priority tends to be given to the most travelled areas but, in terms of improvements, providing better facilities could be prioritised in these areas.

PERS Audit Summary and Recommendations

3.58 The study has identified some key themes that should be addressed to improve the safety, legibility and comfort of the street environment for all pedestrians. These are outlined as follows, along with some recommendations.

Legibility

3.59 Legibility scored poorly because pedestrian signage and wayfinding is currently non-existent or inconsistent around the audit area. As suggested in the previous 2010 study, it is recommended that a coherent wayfinding system is installed along the key walking routes. To ensure that the system is coherent and easy to use it is suggested that it is designed in line with the Legible London wayfinding systems. These wayfinding systems use a network of information boards (monoliths) and finger posts with detailed walking maps that are orientated to the user's point of view and walking time radii. Monoliths and finger posts are designed to guide crowds and encourage walking. Installing Legible London boards at the key arrival nodes in particular would considerably improve the PERS scores.

Rest points

- 3.60 There is a lack of seating provision along some of the routes. At the southern end of the audit area, near to Seven Sisters Station, there was generally a good level of seating provision adjacent to the High Road. There was also a good level of seating provision towards the northern end of the audit area around the Florence Hayes Recreation Ground. However, there was a lack of viable rest points around the central section of the audit area, particularly around the stadium site. It is recommended that suitable rest points are regularly provided along each route so that those with mobility impairments or those unable to walk for long distances are provided with opportunities to rest.

Effective width

- 3.61 The effective width of some of the footways is substandard due to a lack of suitable provision or obstructions such as bollards and street furniture. Footway width is a pertinent issue when considering the potential increase in pedestrian footfall as a result of the increased capacity of the new stadium. It is recommended that footways are cleared of any unnecessary obstructions such as advertising boards along the key walking routes, and that other obstructions are aligned where appropriate in order to provide a greater width of area for pedestrian movements. The widening of existing pedestrian provision should be investigated, particularly at possible pinch points around the stadium exits, as part of the stadium redevelopment plans. It is also recommended that the placement of bollards is reviewed in some locations (such as at the south-east corner of the stadium) in order to provide greater effective footway width, although it is noted that such bollards may be provided for security reasons. The temporary road closures and parking suspensions that already take place on match-days as part of the Event Management Plan should continue to place a heavy emphasis on ensuring pedestrian safety.

Maintenance / Quality of the environment

- 3.62 Observations were made along various links of litter, gum stains and evidence of ponding. It is recommended that increased street cleaning takes place to clear the footways of litter and that resurfacing takes place to deal with ponding issues. Some areas showed a feeling of neglect, with poor quality surface materials and poor / old street furniture which combined to provide a poor visual appeal and results in an area where pedestrians may not want to linger. Enhancement of the public realm, including the refitting of street furniture and the addition of landscaping, would aid in creating a more aesthetically pleasing environment.

Colour Contrast

- 3.63 The lack of colour or tonal contrast was identified along a number of links, with no differentiation between the tactile paving and the surrounding paving. The use of strong colour contrasts is important for partially sighted pedestrians to make the surrounding environment more legible. Where colour contrast is not provided, hazards to partially sighted pedestrians can be exacerbated and represent a potentially dangerous obstruction, rather than a simple inconvenience. When developing proposals for the area, the provision of colour contrasting materials should be considered. Legibility for sensory impaired pedestrians scored poorly in some areas due to a lack of tactile paving provision or instances when its provision was incorrect, inconsistent or misaligned. In some locations, there was poor colour contrast and no delineation between the footway and the carriageway. It is recommended that tactile provision is installed or improved where necessary and that a consistent approach to the use of tactile

paving is adopted. In addition to the above recommendations, a number of 'quick wins' have been identified to enable the local area to score more highly.

Quick wins

- 3.64 The PERS audit has identified a small number of quick win measures which would improve the pedestrian environment. In summary they include:
- Litter and gum removal;
 - Graffiti removal;
 - Enhanced street cleaning;
 - Clearance of overhanging foliage and braches;
 - Reducing obstructions on footways, for example, removal of redundant signs and lighting columns; and
 - Improving dropped curbs and tactile paving.
- 3.65 Further details on which measures are recommended for particular roads can be found in the TRL Report 'PERS Audit 2015'.

Planned improvements

- 3.66 There are a number of planned improvements within the area which are likely to further improve the existing level of pedestrian provision. These include the following:
- Tottenham Hale Interchange – The rail / tube interchange is set to be improved significantly in the future.
 - Bruce Grove Station improvements - TfL and Haringey Council are working together to improve the bus stops in the A10 Tottenham High Road and Bruce Grove area and it is also understood that the links to the south of Bruce Grove are subject to a possible TfL improvement scheme.
 - The Love Lane Estate – There are redevelopment proposals for the Love Lane Estate which incorporates White Hart Lane / Love Lane and Whitehall Street. A new station is proposed along with a new stadium approach which will provide a more direct pedestrian route to the new stadium.

Facilities for Motorcycles

- 3.67 Motorcycle access to the existing stadium is via Bill Nicholson Way, a narrow road leading of the High Road. There is no dedicated motorcycle parking within or on surrounding streets.

Transport Facilities for Disabled People

- 3.68 Facilities for disabled people in London are generally very good. London has one of the most accessible transport networks in the world.

- 3.69 All 8,700 buses in the TfL fleet (apart from a small number of heritage Routemaster buses operating for tourists on route 15) are low floor, wheelchair accessible and fitted with wheelchair ramps. Buses are also able to 'kneel' to pavement level to make it easier for older or disabled passengers to board. Around 95% of London residents live within 400 metres of a bus stop, and the vast majority of these can be used by all bus passengers, including wheelchair users.
- 3.70 The iBus system is also fitted to every bus in London. It provides passengers with audio and visual next stop information, which is of particular use to passengers with sight or hearing impairments or anyone who is unfamiliar with London.
- 3.71 Bus stop accessibility has improved dramatically over the last few years - rising from 29% in 2008 to 80% in 2015. It is planned that at least 95% of bus stops on London's roads will be accessible by 2016. Bus accessibility means that the bus stops have a kerb which is high enough for the wheelchair ramp to deploy and for the step into the bus to be at a reasonable height for older or disabled people to board. It also means there's a protected 'clearway' so only buses can use the stop and it is free from any street furniture or other obstacles blocking access to the doors.

Table 3.8 Facilities for disabled people at local stations

Station	Line(s)	Step Free Access	Ramp Platform to Train
White Hart Lane	Overground	None	No
Bruce Grove	Overground	None	No
Seven Sisters	Overground	None	No
	Victoria Line	None	No
Tottenham Hale	Abellio Greater Anglia	Step free access to Cambridge-bound platform only (platform 2) Not available to London (platform 1)	Yes
	Victoria Line	Access via lifts	Platforms with designated level access boarding points.
Northumberland Park	Abellio Greater Anglia	Yes	Yes

Existing Travel Movements in the local area

- 3.72 Data from the Office of National Statistics has been used to give an indication of the direction of commuting trips from London Borough of Haringey in 2011. In 2011 the working population in Haringey comprised 95,408 people. Two thirds of people travelled to the following six destinations:
- Westminster/City of London 22.7%
 - Haringey 15.9%
 - Camden 12.6%
 - Islington 9.7%

- Enfield 5.2%

3.73 Some 50% of the working population travels south into central London.

3.74 Data from the 2001 census has been compared with that collected in 2011 for Haringey. Table 3.9 below summarises the comparisons.

Table 3.9 Comparison of Census Data for Haringey 2001 to 2011

Criteria	2001	2011	Change	% Change
Households in Haringey	92,170	101,955	9,785	+11%
Aged 16-74 in Haringey in Work	95,732	124,296	28,562	+30%
No Car Households in Haringey	42,822 (46.5% of households)	52,813 (51.8% of households)	9,991	+23%
All Cars and Cars per Household in Haringey	62,949 (0.68 cars per household)	61,515 (0.60 cars per household)	-1,434	-12%
Traffic Flows in High Road next to the stadium	16,708	13,770	2,938	-18%
Traffic Flows in Haringey Count Points	206,025	177,651	-28,374	-14%
Haringey Journey to Work % Travel by Public Transport	51,597 Percentage of population 53.9%	76,280 Percentage of population 61.4%	24,683	+14%
Haringey Journey to Work % Travel by Car	25,864 Percentage of population 27.1%	24,383 Percentage of population 19.6%	-1,481	-18%

3.75 This data highlights some interesting trends. Although the number of residents in Haringey has increased by 11%, the traffic flows on High Road by the existing stadium have reduced by nearly one-fifth. Public transport use for the journey to work has increased by 14%. These are trends which are being replicated across London and give a different context for the consideration of the proposals for the southern area than the previous application in 2010, which was informed by the results of the 2001 census which showed higher car ownership and greater car use.

4 **TRANSPORT STRATEGY**

Local Transport Improvements

- 4.1 There has been considerable progress with the implementation of the THFC transport strategy between 2010 and 2015.
- 4.2 The basic public transport infrastructure was already in place, with five railway stations and up to 144 buses an hour serving the stadium area. There has been significant investment over recent years, particularly to the Victoria Line, which has already improved the quality and frequency of public transport serving the area and there is much more investment to follow.
- 4.3 Many of the transport improvements being implemented in 2015-2018 were not committed in 2010 when the planning application was determined by the LBH Planning Committee. Together the planned and proposed service improvements envisaged in 2010 and new investment to be made by TfL, Network Rail and Haringey Council, will deliver more than enough capacity for the increased number of supporters visiting the new stadium and the revised development proposals.
- 4.4 The new stadium will be actively promoted as a 'Public Transport Destination', just like Wembley Stadium, with service improvements, new shuttle bus links, better pedestrian connections, real-time travel information points, clear signage and regular transport updates on the THFC website, in printed programmes, and directly to fans through various media channels.
- 4.5 The completion of the Victoria Line upgrade has already delivered brand new, faster and higher capacity trains, has ended the disruption that supporters have often faced for many years and has delivered major service improvements, benefitting the local community as well as fans. LUL will shortly introduce their new 'World Class' timetable which will make the Victoria Line the highest frequency railway in the UK. Trains will no longer stop short at Seven Sisters and all trains will run the full length of the line to Walthamstow Central by way of Tottenham Hale. The Victoria Line trains will run every 100 seconds, each way, before a midweek fixture.
- 4.6 In 2010 there were no specific proposals for the improvement of the Seven Sisters station interchange. The first part of the improvements, with extra stairs from the southbound National Rail Overground station towards the Victoria Line Underground station has been completed and further work will be undertaken as part of the London Overground devolution to improve the quality of the station interchange facilities for all passengers.
- 4.7 Seven Sisters station provides the key interchange between the Tottenham area and the London tube and rail network but in the future far greater use will be made of Tottenham Hale station. The White Hart Lane station train service devolution to London Overground in 2015 will deliver brand new and high quality rolling stock (similar to the Metropolitan Line LUL trains) and station improvements in a similar fashion to the North, East and West London Overground line improvements.

- 4.8 In 2010 there were no proposals for White Hart Lane station improvements. This important project is now being developed by TfL, Network Rail and Haringey Council. The passenger facilities at White Hart Lane station will be greatly improved through the construction of a new ticket hall below the central part of the station with new wider platform access stairs plus two additional stairs to be available on match-days. A planning application is expected later in 2015. The new station will be linked to the stadium by a new more direct route, Moselle Square, which is being promoted by Haringey Council.

- 4.9 The upgrade to Tottenham Hale station was also at the earliest stage of development in 2010. The project now has full planning and funding approval and construction will commence in the near future.

- 4.10 The Network Rail scheme to introduce '4 tracking' in sections between Tottenham Hale and Broxbourne was at the earliest stage of project development in 2010. A '3 tracking' scheme is now being advanced for the section through Tottenham Hale and Northumberland Park stations which will entail the reconstruction of Northumberland Park station and significant frequency improvements for services to Stratford. Construction works should be complete well before the development is finished. The current level crossing will be removed and will be replaced by a new and much higher quality footbridge. On non-major event days there will be 4 trains an hour each way to and from Stratford.

- 4.11 Better use will be made of White Hart Lane and Northumberland Park stations. The Club will work with the two new Train Operating Companies to further improve match-day services and make better use of the 8-car service capacity with new queue management systems in place assisted by club stewards.

- 4.12 The removal of the Tottenham Hale Gyratory was a TfL business plan commitment in 2010 but the detail was not fully known. By 2015 the project was substantially complete. The final stage has involved the construction of a major bus station at the Tottenham Hale transport interchange. The gyratory removal provides a simple 2-way traffic connection between the station and the stadium area.

- 4.13 The Club will also seek to minimise the need for bus diversions on match-days so that the buses are back operating in the High Road as soon as possible after the final whistle. There will also be increased use of the W3 and new high frequency shuttle bus services connecting to the Piccadilly line, as an alternative to the scheduled buses to the Victoria line at Seven Sisters.

- 4.14 A conventional 6 day a week Controlled Parking Zone has been implemented in North Tottenham, around the NDP site, to minimise the traffic impacts on local residents and business and to discourage car use.

- 4.15 The Spurs Travel Plan that was introduced in 2008 has been very highly rated when it was independently assessed by the Campaign for Better Transport. This plan forms the basis for the future when all the transport and station improvements come online in advance of the stadium completion.

- 4.16 The construction of the new cycle superhighway, CS1, that connects the stadium (at Church Street) to Liverpool Street commenced in July 2015. The route avoids major roads and will create a new travel option for supporters who live south of the stadium. A large cycle park has been built in the northern development next to Lilywhite House.

- 4.17 In the future all supporters will be actively encouraged to arrive earlier and stay later in the stadium area to take full advantage of the new facilities in and around the redeveloped stadium and to enjoy a new post-match events programme, thereby taking the pressure off all transport services.

Local Highway Improvements

- 4.18 Buro Happold Consulting Engineers has produced a series of drawings which show the improvements proposed for the High Road, Park Lane and Worcester Avenue. The drawings also show the vehicle swept path tracking analysis for the largest vehicles that will be attracted to the site. There are no proposed changes to Northumberland Park or the High Road junctions with Northumberland Park or White Hart Lane. The recent improvements are considered to be working well.

Table 4.1 Highway Improvements Figures List

Layout Drawings

BUR-XX-XX-GA-CI-2001	Proposed Highways Layout & Stadium Access Arrangements
BUR-XX-XX-GA-CI-2101	incl. amendments to bus stops & crossings Proposed Highway Layout
BUR-XX-XX-GA-CI-2102	High Road Detailed Plan Proposed Highway Layout
BUR-XX-XX-GA-CI-2103	Park Lane Detailed Plan Proposed Highway Layout
BUR-XX-XX-SE-CI-2201	Worcester Avenue Detailed Plan Proposed Highway Layout - Typical High Road Sections
BUR-XX-XX-SE-CI-2202	Proposed Highway Layout - Typical Park Lane Sections

Tracking Study Drawings

BUR-XX-XX-GA-CI-2901	Proposed Highway Layout High Road VIP drop off luxury coach access
BUR-XX-XX-GA-CI-2902	Proposed Highway Layout High Road / Park Lane junction incl. Park Lane hotel drop off luxury coach access
BUR-XX-XX-GA-CI-2904	Proposed Highway Layout High Road Ambulance Access
BUR-XX-XX-GA-CI-2911	Proposed Highway Layout High Road / Park Lane junction large articulated lorry access
BUR-XX-XX-GA-CI-2912	Proposed Highway Layout Park Lane / Worcester Avenue junction large articulated lorry access
BUR-XX-XX-GA-CI-2913	Proposed Highway Layout Outside broadcast large articulated lorry access
BUR-XX-XX-GA-CI-2921	Proposed Highway Layout North podium access fire tender
BUR-XX-XX-GA-CI-2922	Proposed Highway Layout South podium access fire tender
BUR-XX-XX-GA-CI-2931	Proposed Highway Layout Hotel car park access
BUR-XX-XX-GA-CI-2952	Proposed Highway Layout Residential Building vehicular access study Level 00

BHC-XX-9226	Stadium service yard vehicular access study - large articulated lorry - sh.2
BHC-XX-9227	Stadium service yard vehicular access study - large articulated lorry - sh.3
BHC-XX-9228	Stadium service yard vehicular access study - large rigid lorry

The High Road

- 4.19 The key change on the High Road is the improvement to pedestrian crossings, as suggested by the LEGION dynamic modelling. An additional pelican crossing is also proposed, as previously. The crossing widths at all the crossings south of White Hart Lane, including the Park Lane junction, will be much wider than previously. The crossing locations relate to the design/layout of the major stairs to the stadium podium – north and south. The requirements have been tested and validated by the recent LEGION work. These changes will necessitate some proposed re-locations to bus stops and associated street furniture.
- 4.20 The introduction of extensive anti-terrorism bollards will be incorporated into the design. On the east side a number of vehicle accesses are removed and replaced by kerb and footway reinstatements.
- 4.21 It should be noted that the High Road traffic management measures would fit equally well with the High Road West masterplan.

Bill Nicholson Way

- 4.22 Bill Nicholson Way is replaced by a new vehicle access to the stadium just to the north. This access will be used for the hotel car parking, with event day use limitations, and as an exit from the stadium basement car park in the post-match situation (for a small proportion of the stadium parking on the west side) once the High Road reopens. The access will be shuttered and be protected by hydraulic bollards. Hotel guests would check in before being allowed to enter the car park. There will no occasional access to the stadium car park unless the visitor has been fully security checked.

Park Lane

- 4.23 The layout of the Park Road junction is very similar to the consented scheme. A swept path analysis has been undertaken for the premium (coach) drop off to the west stand and the Park Lane junction (coach and HGV).
- 4.24 The pedestrian facilities would be upgraded at the Park Lane junction with the removal of the filter lane. The vehicle stop-lines will be set back with the provision of an advanced cycle stop-lines within Park Lane and the High Road – at the start and finish point of Cycle Superhighway 1.
- 4.25 Loading/delivery/waste collection bays would be provided for the hotel and at three locations for the Tottenham Towers. The hotel is accessible by coaches which can make a u-turn around the hotel loading/waste collection bay. On non-event days there will be space available for coach parking bays. A taxi rank would be provided opposite the hotel – to be suspended on event days.

- 4.26 Most of the resident permit parking on the south side of Park Lane would be retained. The carriageway width is a minimum of 7 metres.
- 4.27 The junction of Park Lane and Worcester Avenue would be modified to accommodate the swept path of the largest OBU TV vehicle. Hydraulic bollards at each end of Worcester Avenue would be introduced which would be controlled by the stadium security managers. The northern bollards would replace the existing padlocked gate. These rising bollards are part of the anti-terrorism measures for event days.

Worcester Avenue

- 4.28 It is proposed to introduce a non-event day perpendicular visitor car parking within Worcester Avenue. There will be wheelchair accessible car parking to the north and south. This parking is intended to cater for visitor car parking demand for the health centre to the north, stadium conferences/meetings/minor events and the Tottenham Experience and residential visitors at the south end.
- 4.29 The 2 main car park accesses are both in Worcester Avenue leading to the stadium (basement and ground floor area) and the residential development car parking. The proposed OBU TV parking is to the east of Worcester Avenue. The entry and exit swept paths have been tested for the largest possible vehicle.
- 4.30 A number of properties on the west side of Worcester Avenue have or will be demolished to allow the introduction of a new North West building that will house a specialist health centre and facilitate occasional pitch maintenance access. The resident parking bays in the Worcester Avenue will be amended to allow access to the building.

Car Parking Provision

- 4.31 The policy guidance indicates that in appropriate locations, car free residential development should be promoted. In general, the approach to car parking in the proposed development is to under provide compared to standards, which are in place to set maximum figures. So, whilst the development is not car free, the provision of car parking is significantly less than the standard. For example, the standard applicable to the residential units is up to 1 space per unit, however, the ratio proposed is 0.47 per unit. A recent comparator is Brook House, just north of the old Sainsbury's comprises affordable housing and has a parking ratio of 88 spaces for 222 units which equals 0.4 per unit. The project has recently been completed and is currently being occupied.
- 4.32 The residential project proposed in 2010 had a parking ratio of 0.65 per unit (200 units and 131 car park spaces). The amended Southern Development of 2012 had a ratio of 0.56 per unit (285 units and 160 spaces). So at a proposed ratio of 0.46 per unit the downward trend is being followed.
- 4.33 There would be active provision for electric vehicle charging points for 20% of the spaces with passive provision for a further 20%.
- 4.34 Similarly, if the LBH maximum standard of 0.66 spaces per room was applied to the hotel, there could be 120 spaces provided rather than the 53 spaces allocated to the hotel.

- 4.35 Wheelchair accessible Blue Badge parking is set at 10% or more of the supply. For the residential units this would give a minimum standard of 24.3 spaces (10% of 243). The actual number proposed is 27 spaces which equates to 0.046 blue badge spaces per unit. Within the general population, 4.6% is well in excess of the proportion of wheelchair users that are car owners.
- 4.36 A summary of the proposed car parking associated with the different elements of the development is shown in Table 4.1. Table 4.2 shows the proposed cycle parking within the southern area.

Table 4.1 Car Parking standards applied in the Southern Development Area

Table 4.2 Cycle Parking standards applied in the Southern Development Area

Facility	No of spaces provided	Units/sq m /seating capacity	Policy Guidance	Actual Ratio	Comment
Stadium	0 Staff cycle parking already provided at Lilywhite House	61,000 capacity	To be determined through the TA process	N/A	
Tottenham Experience	0 Staff cycle parking already provided at Lilywhite House	7,285 sq m	To be determined through the TA process	N/A	
Hotel	12 spaces	180 bedrooms and 49 apartments	1 space per 20 members of staff	N/A However provision would relate to 240 members of staff	Compliant with policy
Health Centre	12 spaces on Worcester Ave	2,000 sqm	1 space per practitioner	N/A However provision would relate to 12 members of staff	Compliant with policy
Extreme Sports	16 spaces (on Park Lane)	2,100 sq m	To be determined through the TA process		
Residential Towers	872 spaces	580 units	Haringey Parking Standards 1 space per unit where possible	1.5 spaces per unit	Compliant with policy

Travel Plans

- 4.37 The existing s106 agreement and the proposed revised s106 agreement include the requirement to produce Travel Plans before the occupation of the relevant development.
- 4.38 The following extract from the previous Section 106 agreement sets out the Travel Plans to be prepared and the next steps. The schedule below provides a template for a new planning obligation for the revised proposals.
- 4.39 A Travel Plan Co-ordinator for the whole development will be appointed and a Travel Plan Management Group established. Arrangements for monitoring the plans will be discussed with the London Borough of Haringey

SIXTEENTH SCHEDULE

Part 1 – General Principles Relating to All Travel Plans

GENERAL PRINCIPLES OF FURTHER TRAVEL PLAN DEVELOPMENT

Purpose: *To identify measures to be taken by THFC to achieve the objectives of the 5 agreed Travel Plans.*

Measures: THFC shall liaise with all relevant bodies, including LBH and LBE (Planning & Transportation functions), Transport for London, London Underground Limited, relevant Train Operating Companies, the Metropolitan Police and British Transport Police to ensure that the purposes of the 5 agreed Travel Plans are achieved and implement such reasonable measures as may be required to achieve those purposes.

1. There are six Travel Plans (TPs) which were produced as part of the planning application for the Development. These TPs were:
 - Stadium Travel Plan;
 - Non Event Day Travel Plan;
 - Foodstore Workplace Travel Plan;
 - Residential Travel Plan;
 - Hotel Workplace Travel Plan; and
 - Construction Workplace Travel Plan.
2. These documents set out the measures to be delivered and establish who will be responsible for the delivery of these initiatives. They also set out future actions for travel plan development and refinement, along with targets and appropriate timescales that will be delivered as part of the TPs. The detailed content of all the Travel Plans, other than the Stadium Travel Plan, have been agreed as part of the planning appraisal that led to the resolution for approval.
3. The current construction programme, as of September 2015, is as follows:
 - Re-date - Demolition of buildings within northern area;
 - Re-date - Off site highway and junction improvements commence;
 - Re-date - Construction of the new food store;

- Re-date – Commencement of the first phase of the stadium construction (west, north and east stands);
 - Re-date – Demolition of existing north stand, preparation of new pitch and club move into new stadium;
 - Re-date – Demolition of remainder of existing stadium;
 - Re-date – Completion of new stadium and retail store under the podium; and
 - Re-date – Phased completion of southern development including residential accommodation, offices and hotel.
4. Haringey Council provides specific guidance for writing travel plans within the borough within SPG7b Travel Plans. It provides a list of contents which a Travel Plan should seek to include:
- Setting objectives and targets;
 - Measures to promote and facilitate public transport use, walking and cycling;
 - Car parking restraint;
 - Promoting car sharing and reducing the need to travel;
 - Monitoring and review processes;
 - Travel Plan Coordinator; and
 - Travel information and marketing.
5. In terms of setting objectives and targets this guidance notes that targets need to be related to timescales, be measurable and be specific. Such targets could either be to reduce single occupancy car commuting or to increase the use of public transport, walking and cycling to get to work. The targets have been agreed from the outset as part of the travel plan process. The cost of monitoring the TP will be borne by the Developer however the local authority may assist in organising surveys. The timescale for collecting data and monitoring is to be agreed between the planning authority and the Developer prior to occupation of the site. While it is generally accepted that monitoring of Travel Plans should be undertaken for at least 3 years following occupation of a development, monitoring of the Stadium Travel Plan will continue until the Modal Split Target has been consistently achieved for at least 5 years.
6. A TP Management Group will be established to assist in the further development, management and implementation of the THFC TPs. The Management Group will comprise a range of stakeholders as the travel plans will have wide-reaching effects and strategies may span

across many areas of interest. The group offers an opportunity for the sharing of knowledge, experiences, valuable information and contacts in order to deliver the THFC TPs and meet the targets being set by the Steering Group for the whole site.

7. After the initial monitoring the TP Coordinator appointed by the Developer will meet with TfL and LBH to discuss further monitoring arrangements. A progress report will be completed by the TP Coordinator and submitted to LBH after data collection, which may become supplementary to the TP. The report will present the results of the monitoring surveys clearly identifying if targets for modal shift are being met. This report will also note how well initiatives to promote sustainable travel have been taken up and will provide suggestions by the TP Coordinator on necessary changes or improvements to the TP measures.
8. The 'Next Steps' are as follows:
 - Construction Workplace Travel Plans – after the letting of any main construction contract the lead contractor will be required by THFC to take responsibility for the further development of the Travel Plan. The Travel Plan will be updated to take account of the specific construction programme and will be submitted to LBH within one month of the letting of the contract. The outcomes will then be monitored and reviewed after 3 months of construction activity. Amendments to the agreed Travel Plan can then be agreed at that time, if necessary.
 - Food Store Workplace Travel Plan – the responsibility for this Travel Plan will transfer to the retailer when the lease is signed. The retailer will then update the Travel Plan in advance of the occupation of the completed development and submit the document to LBH. The first monitoring will occur 12 months after the commencement of the use. Amendments to the agreed Travel Plan can then be agreed at that time, if necessary.
 - Non Event Day Travel Plan; the responsibility for this Travel Plan will remain with THFC who will bind in any major occupiers/operators whenever a lease is signed. THFC will then update the Travel Plan in advance of the occupation of each stage of the phased development and re-submit the document to LBH. The first monitoring will commence 12 months after the commencement of the first use. Amendments to the agreed Travel Plan can then be agreed at that time, if necessary.
 - Stadium Travel Plan – see the Schedule in the Major Event Day TA
 - Residential Travel Plan; the responsibility for this Travel Plan will transfer to the development company when the lease is signed. The developer will then update the Travel Plan in advance of the occupation of the completed development and submit the document to LBH. The first monitoring will occur 12 months after the first occupation. Amendments to the agreed Travel Plan can then be agreed at that time, if necessary.

- Hotel Workplace Travel Plan - the responsibility for this Travel Plan will transfer to the operator when the lease is signed. The operator will then update the Travel Plan and submit the document to LBH within a month of occupation. The first monitoring will occur 12 months after the commencement of the use. Amendments to the agreed Travel Plan can then be agreed at that time, if necessary

5 **ASSESSMENTS**

Trip generation

- 5.1 This report considers the central and southern areas of the project site on a non-major event day. The uses which will be located on the site include:
- Tottenham Experience c. 4,300m².
 - A hotel comprising 180 rooms and 49 serviced apartments, with 76 car parking spaces of which 8 (10%) will be accessible.
 - Extreme Sports c.2,100m²
 - Health Centre of approximately 2,000m²
 - Four residential blocks accommodating 580 units plus 5 townhouses. The towers will have 270 car parking spaces, 243 standard spaces and 27 for blue badge holders.
 - Flexible community/office space of approximately 4,000m².
 - Non-Major Event Day stadium uses such as conferences and banquets. The stadium has 822 car parking spaces with 732 standard spaces, including 60 standard sized blue badge spaces and 90 fully accessible parking spaces. However, there will be no public access to this car parking on a non-Major Event Day.
- 5.2 The information that follows has been discussed with TfL and more detailed notes have been prepared to support the assessment.

Residential Units and Serviced Apartments

- 5.3 This section relates to both the conventional residential development and the serviced apartments located above the hotel. The travel patterns of the residential developments will be governed by a detailed Travel Plan to be agreed with LBH and TfL prior to the occupation of any of the dwellings.
- 5.4 The 2011 census data reveals that the Borough is in the Top 5 nationally (of 351 local authorities) for public transport use for journey to work trips. Currently 61% of journey to work trips are made by public transport.
- 5.5 The best comparator sites are the residential developments associated with the Emirates Stadium project in Holloway and Highbury in the London Borough of Islington – which are located some 4 miles away from Tottenham. Even then some amount of judgement is needed to draw sensible conclusions, as outlined below.
- 5.6 There is a recurrent theme from the analysis that the various observed Haringey and Islington car use statistics and the future forecast for North Tottenham compared to Holloway have a typical factor of 2-2.5 from one to the other. These ratios are highlighted as appropriate.

- 5.7 Video surveys for the three largest parking areas at the Holloway developments – at Avenell Road for Highbury Square and at two locations in Hornsey Street for Eden Grove – have been undertaken. These car parks are used exclusively by privately owned, often rented, high density apartments. The number of surveyed units is 1,160 coupled with 860 parking spaces. The parking ratios range from 0.62 to 0.82 spaces per unit. It is known that there is a degree of unallocated spaces in each car park such that the actual parking utilization is close to 0.55 spaces per apartment in each location.
- 5.8 The surveys show that at Holloway the car driver trip generation per unit is 0.14 2-way trips per day. The car driver trip generation per allocated parking space is 0.28 – i.e. 2 car trips a week. Therefore the implicit car driver modal split is only 4% of all travel assuming a total trip generation of 3.5 2-way trips per day.
- 5.9 The propensity for a private vehicle to be used for a journey to work trip in Haringey is 39.6% and the percentage for car travel is 19.6% of all travel to work journeys. That is based on 124,296 residents in work, controlling 61,515 cars of which only 24,383 are used for journey to work trips each day.
- 5.10 The equivalent Islington statistics combine together to show car use for journey to work trips at 9.9% of all journeys (Islington/Haringey factor is 1.98). Public transport use for journey to work trips is however lower in Islington than Haringey.
- 5.11 The daily car trip generation in Islington is thus 40% of the journey to work percentage (i.e. 4% compared to 10%). It is reasonable to expect a similar relationship in Haringey – i.e. 40% of 19.6% equals 7.8% daily car use. However, a higher car driver mode split assumption has been assumed for the NDP assessment.
- 5.12 Looking at the transport links of the two locations, North Tottenham has excellent transport links to the City and very good and quick connections to the West End (by way of the Victoria Line at Seven Sisters). Holloway has excellent connections to the West End, by way of the Piccadilly Line and good connections to the City, with interchange at King's Cross or the walk to Highbury and Islington for trains to Moorgate. Access times to key employment locations such as Oxford Circus, Liverpool Street and Stratford (for Canary Wharf) would be very similar for Holloway and North Tottenham. Both areas are well served by high frequency bus services.
- 5.13 The previous trip generation analysis for the Northumberland Development Project (NDP) used a much lower daily 2-way person trip rate (2.5 compared to 3.5), a much higher car proportion by car drivers at 31% and took no allowance of the proposed car parking ratios (0.66 in 2010 and 0.56 in 2012). Hence, the implicitly assumed car driver use assumed in 2010 was therefore 55% of all trips by car owning households - which is far too high for Haringey in 2015. The 2011 census tells us that c.20% of people travel to work by car.
- 5.14 When applying the typical ratios the implicit number of car driver journey to work trips would significantly exceed the actual number of vehicles by a significant margin – which would not be logical.
- 5.15 Therefore it is proposed that for the revised NDP proposals a daily trip rate of 3.5, a car trip rate per unit of 0.31, compared to 0.14 at Holloway, and an 8.9% car use compared to 4.1% at Holloway (Islington/Haringey factor = 2.15). The key car trip rate for a car owning household in the new development would be 0.67 per unit with a car mode share of 19.1%.

- 5.16 It should be remembered that the parking provision, albeit partly unused, at the Holloway developments is significantly higher than that proposed at the project site.
- 5.17 The time of car travel, ie the temporal distribution in the NDP assessment is based on an average derived from 5 TRAVL surveys. Although the changes in percentages are relatively small, the Holloway AM peak is between 0700 and 0800 and the PM peak occurs between 1700 and 1800.
- 5.18 The TRAVL analysis shows an AM peak hour outbound car trip rate of 0.0484 per unit and a PM inbound trip rate of 0.0372 – the Holloway survey equivalents are both 0.02 (Islington/Haringey factors are 2.4 and 1.85) – which fits with the above assumptions.
- 5.19 The peak period car trip generation assumptions as a proportion of daily car trips set out for NDP are generally very similar to the AFC site survey results and shows a higher proportions (10% higher approx.) in both the AM and PM peak 3-hour periods.
- 5.20 It is concluded that these assumptions are very reasonable given the nature of the development and the transport improvements that will be in place before the development will have been completed.
- 5.21 The following tables show the hourly percentages of daily car travel. The car-based trip rates are given on the basis of the parking spaces in use rather than the overall permitted supply. However, the key results relate to the car trip generation per residential unit. The analysis indicates that there would be approximately:
- 39 cars entering or leaving the site in the morning peak;
 - 37 cars entering or leaving the site in the evening peak; and
 - 200 cars entering and 200 cars leaving the development every day (total c.400).
- 5.22 These trips would result in a very modest impact on the surrounding highway network. It is considered that there would be no significant impact on the peak hour operation of the road network and no outcomes at any time would breach the severe impact test set out in paragraph 32 of the National Planning Policy Framework.

Table 5.1 Trip Generation from Holloway sites

Site Units Spaces	Holloway Area of Intensification						Average by hour	Trip Rates IN by unit	by space	Trip Rates OUT by unit	by space	Car mode split 7 trips per h/h/day (3.5 in, 3.5 out)
	1160 dwellings		ratio	0.74138 cars/hh								
	638 in use			0.55								
	Total In			Total Out								
Time	Cars	Total	Time	Cars	Total							
06:00	1	1	06:00	0	1	3.9%	0.003	0.005	0.009	0.016		
06:15	0	0	06:15	2	2							
06:30	0	1	06:30	4	4							
06:45	2	2	06:45	4	4							
H/Total	3	4	H/Total	10	11							
07:00	1	3	07:00	4	5	8.4%	0.006	0.011	0.018	0.033		
07:15	0	0	07:15	6	13							
07:30	2	2	07:30	7	14							
07:45	4	6	07:45	4	6							
H/Total	7	11	H/Total	21	38							
08:00	2	4	08:00	4	8	4.5%	0.005	0.009	0.008	0.014		
08:15	0	2	08:15	1	3							
08:30	1	2	08:30	2	4							
08:45	3	3	08:45	2	5							
H/Total	6	11	H/Total	9	20							
09:00	4	4	09:00	1	4	5.4%	0.009	0.016	0.007	0.013		
09:15	0	0	09:15	1	7							
09:30	1	2	09:30	2	2							
09:45	5	5	09:45	4	5							
H/Total	10	11	H/Total	8	13							
10:00	0	0	10:00	6	6	4.5%	0.004	0.008	0.009	0.016		
10:15	2	3	10:15	1	3							
10:30	1	4	10:30	0	1							
10:45	2	2	10:45	3	4							
H/Total	5	9	H/Total	10	14							
11:00	4	4	11:00	1	2	5.7%	0.007	0.013	0.009	0.017		
11:15	1	1	11:15	5	6							
11:30	2	2	11:30	4	4							
11:45	1	1	11:45	1	3							
H/Total	8	8	H/Total	11	15							
12:00	4	4	12:00	1	1	5.7%	0.007	0.013	0.009	0.017		
12:15	1	1	12:15	2	3							
12:30	2	3	12:30	4	4							
12:45	1	1	12:45	4	6							
H/Total	8	9	H/Total	11	14							
13:00	1	1	13:00	3	3	5.1%	0.006	0.011	0.009	0.016		
13:15	2	2	13:15	4	4							
13:30	2	2	13:30	1	1							
13:45	2	3	13:45	2	2							
H/Total	7	8	H/Total	10	10							
14:00	4	4	14:00	4	4	6.0%	0.009	0.017	0.008	0.014		
14:15	3	5	14:15	0	0							
14:30	1	2	14:30	2	3							
14:45	3	3	14:45	3	11							
H/Total	11	14	H/Total	9	14							
15:00	1	1	15:00	4	7	6.0%	0.007	0.013	0.010	0.019		
15:15	1	1	15:15	3	4							
15:30	2	2	15:30	3	3							
15:45	4	6	15:45	2	4							
H/Total	8	10	H/Total	12	18							
16:00	3	3	16:00	2	3	6.0%	0.011	0.020	0.006	0.011		
16:15	3	3	16:15	3	3							
16:30	2	3	16:30	0	2							
16:45	5	6	16:45	2	3							
H/Total	13	15	H/Total	7	11							
17:00	4	4	17:00	3	6	8.1%	0.015	0.027	0.009	0.016		
17:15	5	6	17:15	2	2							
17:30	6	8	17:30	3	3							
17:45	2	4	17:45	2	3							
H/Total	17	22	H/Total	10	14							
18:00	4	5	18:00	5	5	7.8%	0.012	0.022	0.010	0.019		
18:15	3	8	18:15	2	3							
18:30	4	4	18:30	1	1							
18:45	3	4	18:45	4	5							
H/Total	14	21	H/Total	12	14							
19:00	9	12	19:00	4	4	7.8%	0.017	0.031	0.005	0.009		
19:15	2	5	19:15	0	1							
19:30	5	6	19:30	2	2							
19:45	4	6	19:45	0	1							
H/Total	20	29	H/Total	6	8							
20:00	2	7	20:00	6	7	6.3%	0.008	0.014	0.010	0.019		
20:15	1	2	20:15	2	2							
20:30	3	3	20:30	2	3							
20:45	3	3	20:45	2	3							
H/Total	9	15	H/Total	12	15							
21:00	2	4	21:00	1	1	4.5%	0.010	0.019	0.003	0.005		
21:15	4	4	21:15	0	0							
21:30	5	5	21:30	0	0							
21:45	1	1	21:45	2	3							
H/Total	12	14	H/Total	3	4							
22:00	5	5	22:00	1	1	3.9%	0.008	0.014	0.003	0.006		
22:15	2	3	22:15	1	1							
22:30	1	1	22:30	1	1							
22:45	1	1	22:45	1	1							
H/Total	9	10	H/Total	4	4							
23:00	1	2	23:00	0	0	0.3%	0.00	0.00	0.00	0.00	IN % CAR 4.1%	OUT % CAR 4.1%
23:15	0	0	23:15	0	0							
23:30	0	0	23:30	0	0							
23:45	0	0	23:45	0	0							
H/Total	1	2	H/Total	0	0							
18H Total	168	223	18H Total	165	239							

Table 5.2 Trip Generation from Residential Units in Southern Area

NDP Residential Trip Generation				05/09/15	
No. of Dwellings = 634 49 apartlets above hotel and 585 units					
	Car Drivers			Car Pass	
	In	Out	hourly	In	Out
07:00-07:30	2	7		0	0
07:30-08:00	3	10	22	0	3
08:00-08:30	4	11		1	2
08:30-09:00	4	20	39	0	7
09:00-09:30	8	6		0	1
09:30-10:00	6	5	25	1	0
10:00-10:30	4	6		0	1
10:30-11:00	3	6	20	0	1
11:00-11:30	6	6		1	0
11:30-12:00	6	6	24	1	1
12:00-12:30	6	6		1	0
12:30-13:00	7	5	24	2	2
13:00-13:30	6	3		1	0
13:30-14:00	3	4	16	1	2
14:00-14:30	5	5		2	1
14:30-15:00	4	4	18	1	1
15:00-15:30	7	9		3	2
15:30-16:00	9	7	31	4	2
16:00-16:30	6	4		3	1
16:30-17:00	10	4	25	3	2
17:00-17:30	8	7		3	1
17:30-18:00	11	7	33	2	2
18:00-18:30	12	6		4	3
18:30-19:00	12	7	37	3	2
19:00-19:30	13	5		2	0
19:30-20:00	9	6	34	4	4
20:00-20:30	9	4		3	1
20:30-21:00	10	7	30	3	3
21:00-21:30	6	4		1	1
21:30-22:00	4	3	17	1	1
Total	203	192	395	52	49
All Day	9.2%	8.6%		2.3%	2.2%
Daily Trip Rate	0.3	0.3	0.6	0.1	0.1
Trip Rates					
303 parking spaces at 0.46/unit					
Per resi. unit	0.32	0.30	0.62		
Per car space	0.67	0.63	1.30		

Tottenham Experience and Non-Event Day Attractions

- 5.23 The key background information for this part of the Transport Assessment is provided by the Socio-Economic consultants – Quod, who worked on the 2010 application (Hunt Dobson Stringer – Regeneration Strategy).
- 5.24 The package of proposals for Non-Major Event Day attractions in and around the NDP stadium are quite unprecedented in terms of the variety of activities. Table 5.3 below gives the estimated Major Event Day and non-Major Event Day estimates of visitors for the various facilities together with comparators from Quod.

Table 5.3 Estimated Visitor Numbers to the NDP Project



Estimated Matchday and non-Matchday Visits to THFC

Element / Activity	Annual Visitor Estimate	Source / Justification
Football matches	1,677,000 (approx.)	61,100 capacity stadium hosting approx. 28 games per season (ave. last five seasons), at 98% capacity
NFL matches	120,000	2 games per year @ approx. 60,000 capacity (Deloitte, Scenario 1)
Other Major Events (x8)	480,000	61,100 capacity stadium at 98% capacity
Concerts	330,000	6 concerts @ 55,000 capacity
Conferences / Banqueting (would include meetings, weddings etc.)	73,800 – 81,180	Feasibility Study by The Right Solution for THFC January 2015 (total number of 'delegate days'). Current average 71 delegates per booking, with 232 bookings in 2014 = 16,500 visitors (N.B. this includes weddings).
Tottenham Experience	Approx. 120,000 (upper estimate)	Chelsea FC's visitor experience has attracted an average of 160,000 visitors p/a in the last 5 years; Arsenal attracter around 120,000 in 2014; Other key sports tourism average around 80-90k (Wimbledon LTA museum, MCC museum). Note - Currently 18,500 at THFC existing facilities
Sky walk	45,500 – 96,600	Feasibility Study for THFC undertaken by Wire & Sky January 2015
Extreme sports centre	100,000	Arch climbing wall in Bermondsey approx. 100,000-180,000 visits p/a; The Castle in Stoke Newington approx. 150,000 visits p/a
Total non-matchday	Approx. 1,327,780	

- 5.25 The Major Events are considered in a separate Transport Assessment as previously referenced.
- 5.26 Commercial assessments have also been undertaken by THFC and other advisors and drawn into the assessment. The Quod approach has been to review published data for similar facilities – in this case likely to include Chelsea and Arsenal's stadium activities, the LT museum at Wimbledon, and Wembley.

- 5.27 The anticipated draw of the Tottenham Experience and associated facilities is quite separate to the day-to-day conference/banqueting/hospitality given the extent that these activities are led by the market demand.
- 5.28 It is concluded that given the existing facilities, and propensity for online shopping, the additional floorspace for the megastore alone wouldn't be a significant draw above current levels (save for the double counting with other trips). There are few comparisons for this kind of activity, and although there would certainly be some level of additional trade draw due to the increased floor area, it would likely be a small number and difficult to quantify and disaggregate from other linked trips.
- 5.29 A key component of the Tottenham Experience is the stadium tours which have become important and established tourist attractions in London in the last 5 years. The Chelsea numbers have increased by around 20% in the last few years, and these numbers are higher than AFC probably due to the stadium's slightly more central location and the more successful team.
- 5.30 The activities within the open spaces around the stadium would be mostly linked to the Foundation's plans for community events. The Section 106 Agreement will commit the club to stage 12 cultural/community events per annum. Most of these would involve the local residents and businesses so a high walk percentage would be assumed. These events are not part of the visitor attraction trip generation and would use public spaces in the stadium perimeter.
- 5.31 It has been assumed that the definition of a Major Event would remain as per the previous Section 106 Agreement and cover any occasion with an attendance in excess of 10,000 people (i.e. much bigger than a conference).
- 5.32 The previous application assumed an effective capacity of around 56,000 for concerts but this may need to be capped in the short term for layout, management, crowd safety and/or transport reasons. For example, Arsenal started at 46,000 (Bruce Springsteen) but then moved up to 60,000 following a successful review of the operations.
- 5.33 The assumed net additional 25% for a 'busy day' is a sensible assumption to account for seasonality and higher activity levels in days before and after major events. With respect to double counting, it is concluded that the megastore is not considered to generate net additional visits above the levels captured in the 2015 traffic surveys.
- 5.34 There would certainly be some combined trips. The Sky Walk and Tottenham Experience could be separately ticketed (this is a commercial decision for the Club), but that does not eliminate the possibility of multiple purpose trips – the worst case scenario is to assume none in the knowledge that it will happen. The Extreme Sport facility is not assumed to be linked to any of the above in terms of ticketing, but again may be linked in terms of trips.
- 5.35 The travel patterns for journeys to and from the various visitor attractions will be governed by a new Travel Plan that will be agreed with LBH and TfL in advance of the first use of the new stadium. At that time there will more information available about the likely attendees at non-Major Events in and around the new stadium.
- 5.36 The current Section 106 Agreement defines a Major Event as having more than 10,000 attendees and sets a modal split target of more than 77% of the trips by non-car modes. Given the scale of the visitor attractions it would also seem to be appropriate to also set a target for non-car travel to apply to the combined activities as an average target.

- 5.37 The key assumptions for this Transport Assessment are the 'high end' numbers provided by Quod. These numbers are then allocated to the 'average day' having discounted Major Event Days. A global factor of +25% is applied to estimate a busy day, which is the main test of the transport impacts and is the reference point for the travel demand analysis. Table 5.4 below shows the conversion of the annual visitor numbers to a busy day.

Table 5.4 Conversion of Annual Visitor Numbers to a Busy Day

	Annual	Active Days	Average Day	Busy Day (+25%)
Stadium Conf & Banq Tottenham Experience Sky Walk Extreme Sports	81,180	245	331	414
	120,000	319	376	470
	96,600	319	303	379
	100,000	319	313	392
				1655

- 5.38 It is then assumed that in a busy day up to 5% or 10% of the arrivals or departures would take place during the standard peak travel time periods – which equates to a maximum of 165 arrivals or departures per commuter peak hour. Table 5.5 shows the estimated peak hour arrivals and departures.

Table 5.5 Peak hour arrivals and departures for the non-Major Event Day attractions.

<u>All Modes</u> 100%			<u>Private Car Drivers and Taxis</u> 10% (plus 10% passengers)		
Non Event Day Attractions			Non Event Day Attractions		
	Arrive	Depart		Arrive	Depart
<u>All Modes</u>			<u>Private Car Drivers</u>		
07:00 - 08:00	33	0	07:00 - 08:00	3	0
08:00 - 09:00	165	83	08:00 - 09:00	17	8
09:00 - 10:00	165	83	09:00 - 10:00	17	8
16:00 - 17:00	83	165	16:00 - 17:00	8	17
17:00 - 18:00	83	165	17:00 - 18:00	8	17
18:00 - 19:00	165	165	18:00 - 19:00	17	17

- 5.39 The supply of car parking will be very limited. There will be no access to the stadium car parking for occasional visitors. The only use of the stadium car parking would relate to a small allocation for conference and banqueting event organisers. At the Emirates that is a maximum of 4 spaces per event. There will be 56 car parking spaces in Worcester Avenue of which 8 would be wheelchair accessible. There are a similar number of other Pay and Display parking spaces in the stadium area following the introduction of the conventional CPZ by LBH in the local area in March 2014.

- 5.40 On a busy day, as set out above, it is estimated that the combined visitor attractions would generate 1,655 person trips to and from the local area. There is no assessment of multi-purpose trips beyond the fact that many visitors would also use the THFC megastore. The modal split assumptions/targets are that 10% of the journeys would be cars/taxis with an average occupancy of 2 visitors per trip. Half (50%) of the visitors are assumed to use the local rail services at White Hart Lane and Northumberland Park before walking to the stadium.
- 5.41 A total of 20% of visitors are assumed to use local bus services – in particular the services that connect to the Victoria Line at Seven Sisters station. 5% of visitors are expected to arrive in organised coaches – which would be equivalent to 2-3 coach trips per day. Finally, 5% of visitors will walk or cycle to the visitor attractions. The key outcomes by mode for a busy day at the new stadium are set out in the following tables.

Table 5.6 Walk and Rail and Bus Public Transport Mode Shares for a busy day.

<u>Walk and Public Transport</u>			<u>Bus Trips</u>		
50%			20% (plus 5% coaches)		
Non Event Day Attractions			Non Event Day Attractions		
	Arrive	Depart		Arrive	Depart
<u>Walk and Public Transport</u>			<u>Bus Trips (part of Walk/PT)</u>		
07:00 - 08:00	17	0	07:00 - 08:00	7	0
08:00 - 09:00	83	41	08:00 - 09:00	33	17
09:00 - 10:00	83	41	09:00 - 10:00	33	17
16:00 - 17:00	41	83	16:00 - 17:00	17	33
17:00 - 18:00	41	83	17:00 - 18:00	17	33
18:00 - 19:00	83	83	18:00 - 19:00	33	33

Table 5.7 Cycle and Walk all the way mode shares for a busy day

<u>Cycle Trips</u>			<u>Walk Only</u>		
2%			3%		
Non Event Day Attractions			Non Event Day Attractions		
	Arrive	Depart		Arrive	Depart
<u>Cycle Trips</u>			<u>Walk Only</u>		
07:00 - 08:00	1	0	07:00 - 08:00	1	0
08:00 - 09:00	3	2	08:00 - 09:00	5	2
09:00 - 10:00	3	2	09:00 - 10:00	5	2
16:00 - 17:00	2	3	16:00 - 17:00	2	5
17:00 - 18:00	2	3	17:00 - 18:00	2	5
18:00 - 19:00	3	3	18:00 - 19:00	5	5

- 5.42 These are holistic assumptions. In some instances, for example, car and coach travel might be higher but will be less so on other occasions.
- 5.43 The nearest equivalent stadium-based visitor attraction in London is at the Emirates Stadium where there is similarly extensive use of the stadium facilities by way of commercial events, stadium tours and a museum. At the Emirates Stadium the recently amended local area CPZ controls only apply from 10am until 2pm – which would indicate that there are few issues with non-event day visitors using private cars.
- 5.44 Whereas most of the activities will run 7 days a week, excluding Major Event Days, the commercial activities within the stadium will be focused on weekdays i.e. for 245 days rather than 319 days per year.

Flexible Community/Office Use

- 5.45 It is proposed that a flexible community/office use of 3,897 square metres is provided within the southern development. Currently there is no allowance in the weekday trip generation analysis because it is not possible to identify the likely use or produce a reliable estimate of the generations and attractions.
- 5.46 The floorspace will not have any car parking so the level of peak hour car trip generation will be very low – just related to paid on-street visitor parking. The use may well be ancillary to the non-Major Event Day activities and visitor attractions already assessed.
- 5.47 Any subsequent planning application related to the details of the floorspace use should be supported by a short Transport Statement. The activity would be included within the Travel Plan to be secured by the Section 106 obligations.

Trip Generation of the Health Centre

- 5.48 The trips arising from the Health Centre have been assessed on the same basis as the 2010 trip generation parameters, previously agreed with LB Haringey officers and consultants. The trip rates are set out in the following tables, Table 5.8, Table 5.9 and Table 5.10 below.

Trip Generation of the Hotel

- 5.49 The trips arising from the hotel development have been assessed on the same basis as the 2010 trip generation parameters previously agreed with LB Haringey officers and consultants. The trip rates are set out in the following tables, Table 5.8, Table 5.9 and Table 5.10 below.

Table 5.8 Weekday Peak Hour Trip Generation - All Modes and Car Drivers and Taxis

<u>Weekday Peak Hour Trip Generation</u>					
<u>All Modes</u>			<u>Private Car Drivers</u>		
Health Centre	2000 square metres		Health Centre	2000 square metres	
	Arrive	Depart		Arrive	Depart
07:00 - 08:00	0.08602	0	07:00 - 08:00	0.03226	0
08:00 - 09:00	2.25688	1.37615	08:00 - 09:00	0.84403	0.41285
09:00 - 10:00	3.7706	2.74312	09:00 - 10:00	1.15597	0.75229
16:00 - 17:00	1.51376	3.66055	16:00 - 17:00	0.5688	0.79817
17:00 - 18:00	1.16514	2.31193	17:00 - 18:00	0.39449	0.40366
18:00 - 19:00	0.61468	1.38532	18:00 - 19:00	0.23854	0.3211
<u>All Modes</u>			<u>Private Car Drivers</u>		
07:00 - 08:00	2	0	07:00 - 08:00	1	0
08:00 - 09:00	45	28	08:00 - 09:00	17	8
09:00 - 10:00	75	55	09:00 - 10:00	23	15
16:00 - 17:00	30	73	16:00 - 17:00	11	16
17:00 - 18:00	23	46	17:00 - 18:00	8	8
18:00 - 19:00	12	28	18:00 - 19:00	5	6
<u>All Modes</u>			<u>Private Car Drivers</u>		
Hotel	180 bedrooms		Hotel	180 bedrooms	
	Arrive	Depart		Arrive	Depart
07:00 - 08:00	0.08248	0.15979	07:00 - 08:00	0.0103	0.04124
08:00 - 09:00	0.13402	0.40206	08:00 - 09:00	0.01031	0.08247
09:00 - 10:00	0.18556	0.29382	09:00 - 10:00	0.04639	0.05154
16:00 - 17:00	0.20103	0.12371	16:00 - 17:00	0.06185	0.01031
17:00 - 18:00	0.42783	0.1701	17:00 - 18:00	0.14948	0.03608
18:00 - 19:00	0.23196	0.18042	18:00 - 19:00	0.04639	0.04639
<u>All Modes</u>			<u>Private Car Drivers</u>		
07:00 - 08:00	15	29	07:00 - 08:00	2	7
08:00 - 09:00	24	72	08:00 - 09:00	2	15
09:00 - 10:00	33	53	09:00 - 10:00	8	9
16:00 - 17:00	36	22	16:00 - 17:00	11	2
17:00 - 18:00	77	31	17:00 - 18:00	27	6
18:00 - 19:00	42	32	18:00 - 19:00	8	8
<u>All Modes</u>			<u>Private Car Drivers</u>		
Apartment's	49 units		Apartment's	49 units	
	Arrive	Depart		Arrive	Depart
<u>All Modes</u>			<u>Private Car Drivers</u>		
07:00 - 08:00	2	17	07:00 - 08:00	0	1
08:00 - 09:00	5	28	08:00 - 09:00	1	2
09:00 - 10:00	6	12	09:00 - 10:00	1	1
16:00 - 17:00	18	12	16:00 - 17:00	1	1
17:00 - 18:00	23	12	17:00 - 18:00	1	1
18:00 - 19:00	26	11	18:00 - 19:00	2	1

<u>All Modes</u>			<u>Private Car Drivers</u>		
Apartments		585 units	Apartments		585 units
	Arrive	Depart		Arrive	Depart
<u>All Modes</u>			<u>Private Car Drivers</u>		
07:00 - 08:00	26	199	07:00 - 08:00	5	16
08:00 - 09:00	65	335	08:00 - 09:00	8	28
09:00 - 10:00	75	140	09:00 - 10:00	13	10
16:00 - 17:00	220	137	16:00 - 17:00	15	8
17:00 - 18:00	272	145	17:00 - 18:00	18	13
18:00 - 19:00	310	136	18:00 - 19:00	22	12
	Annual	Active Days	Average Day	Busy Day (+25%)	
Stadium Conf & Banq	81,180	245	331	414	
Tottenham Experience	120,000	319	376	470	
Sky Walk	96,600	319	303	379	
Extreme Sports	100,000	319	313	392	
				1655	
<u>All Modes</u>			<u>Private Car Drivers and Taxis</u>		
100%			10% (plus 10% passengers)		
Non Event Day Attractions			Non Event Day Attractions		
	Arrive	Depart		Arrive	Depart
<u>All Modes</u>			<u>Private Car Drivers</u>		
07:00 - 08:00	33	0	07:00 - 08:00	3	0
08:00 - 09:00	165	83	08:00 - 09:00	17	8
09:00 - 10:00	165	83	09:00 - 10:00	17	8
16:00 - 17:00	83	165	16:00 - 17:00	8	17
17:00 - 18:00	83	165	17:00 - 18:00	8	17
18:00 - 19:00	165	165	18:00 - 19:00	17	17
<u>All Activities</u>			<u>Private Car Drivers and Taxis</u>		
	Arrive	Depart		Arrive	Depart
<u>All Modes</u>			<u>Private Car Drivers and Taxis</u>		
07:00 - 08:00	78	245	07:00 - 08:00	11	25
08:00 - 09:00	305	546	08:00 - 09:00	44	62
09:00 - 10:00	355	342	09:00 - 10:00	62	43
16:00 - 17:00	387	410	16:00 - 17:00	47	43
17:00 - 18:00	478	399	17:00 - 18:00	62	46
18:00 - 19:00	555	373	18:00 - 19:00	53	44

Table 5.9 Weekday Peak Hour Trip Generation – Walk and Public Transport

<u>Weekday Peak Hour Trip Generation</u>					
<u>Walk and Public Transport</u>			<u>Bus Trips</u>		
Health Centre	2000 square metres		Health Centre	2000 square metres	
	Arrive	Depart		Arrive	Depart
07:00 - 08:00	0.01075	0	07:00 - 08:00	0	0
08:00 - 09:00	0.46789	0.2477	08:00 - 09:00	0.05505	0.0367
09:00 - 10:00	1.02752	0.80734	09:00 - 10:00	0.04587	0.04587
16:00 - 17:00	0.34862	0.48623	16:00 - 17:00	0	0.08256
17:00 - 18:00	0.39449	0.36697	17:00 - 18:00	0.04587	0.06422
18:00 - 19:00	0.11009	0.22936	18:00 - 19:00	0.01835	0
<u>Walk and Public Transport</u>			<u>Bus Trips</u>		
07:00 - 08:00	0	0	07:00 - 08:00	0	0
08:00 - 09:00	9	5	08:00 - 09:00	1	1
09:00 - 10:00	21	16	09:00 - 10:00	1	1
16:00 - 17:00	7	10	16:00 - 17:00	0	2
17:00 - 18:00	8	7	17:00 - 18:00	1	1
18:00 - 19:00	2	5	18:00 - 19:00	0	0
<u>Walk and Public Transport</u>			<u>Bus Trips</u>		
Hotel	180 bedrooms		Hotel	180 bedrooms	
	Arrive	Depart		Arrive	Depart
07:00 - 08:00	0.06185	0.1031	07:00 - 08:00	0	0
08:00 - 09:00	0.11856	0.25258	08:00 - 09:00	0	0
09:00 - 10:00	0.12887	0.20103	09:00 - 10:00	0	0
16:00 - 17:00	0.1031	0.07732	16:00 - 17:00	0	0
17:00 - 18:00	0.19588	0.1134	17:00 - 18:00	0	0
18:00 - 19:00	0.16494	0.10824	18:00 - 19:00	0	0
<u>Walk and Public Transport</u>			<u>Bus Trips (part of Walk/PT)</u>		
07:00 - 08:00	11	19	07:00 - 08:00	0	0
08:00 - 09:00	21	45	08:00 - 09:00	0	0
09:00 - 10:00	23	36	09:00 - 10:00	0	0
16:00 - 17:00	19	14	16:00 - 17:00	0	0
17:00 - 18:00	35	20	17:00 - 18:00	0	0
18:00 - 19:00	30	19	18:00 - 19:00	0	0
<u>Walk and Public Transport</u>			<u>Bus Trips</u>		
Apart'lets	49 units		Apart'lets	49 units	
	Arrive	Depart		Arrive	Depart
<u>Walk and Public Transport</u>			<u>Bus Trips (part of Walk/PT)</u>		
07:00 - 08:00	1	7	07:00 - 08:00	0	0
08:00 - 09:00	3	15	08:00 - 09:00	0	0
09:00 - 10:00	3	7	09:00 - 10:00	0	0
16:00 - 17:00	10	7	16:00 - 17:00	0	0
17:00 - 18:00	13	7	17:00 - 18:00	0	0
18:00 - 19:00	16	7	18:00 - 19:00	0	0

<u>Walk and Public Transport</u>			<u>Bus Trips</u>		
Apartments	585 units		Apartments	585 units	
	Arrive	Depart		Arrive	Depart
<u>Walk and Public Transport</u>			<u>Bus Trips (part of Walk/PT)</u>		
07:00 - 08:00	13	88	07:00 - 08:00	0	0
08:00 - 09:00	39	174	08:00 - 09:00	0	0
09:00 - 10:00	41	84	09:00 - 10:00	0	0
16:00 - 17:00	116	84	16:00 - 17:00	0	0
17:00 - 18:00	158	84	17:00 - 18:00	0	0
18:00 - 19:00	193	81	18:00 - 19:00	0	0
<u>Walk and Public Transport</u>			<u>Bus Trips</u>		
50%			20% (plus 5% coaches)		
Non Event Day Attractions			Non Event Day Attractions		
	Arrive	Depart		Arrive	Depart
<u>Walk and Public Transport</u>			<u>Bus Trips (part of Walk/PT)</u>		
07:00 - 08:00	17	0	07:00 - 08:00	7	0
08:00 - 09:00	83	41	08:00 - 09:00	33	17
09:00 - 10:00	83	41	09:00 - 10:00	33	17
16:00 - 17:00	41	83	16:00 - 17:00	17	33
17:00 - 18:00	41	83	17:00 - 18:00	17	33
18:00 - 19:00	83	83	18:00 - 19:00	33	33
<u>All Activities</u>					
	Arrive	Depart		Arrive	Depart
<u>Walk and Public Transport</u>			<u>Bus Trips</u>		
07:00 - 08:00	42	114	07:00 - 08:00	7	0
08:00 - 09:00	156	281	08:00 - 09:00	34	17
09:00 - 10:00	171	185	09:00 - 10:00	34	17
16:00 - 17:00	193	198	16:00 - 17:00	17	35
17:00 - 18:00	255	202	17:00 - 18:00	17	34
18:00 - 19:00	324	194	18:00 - 19:00	33	33

Table 5.10 Weekday Peak Hour Trip Generation – Cycle and Walk Trips

<u>Weekday Peak Hour Trip Generation</u>					
<u>Cycle Trips</u>			<u>Walk Only</u>		
Health Centre	2000 square metres		Health Centre	2000 square metres	
	Arrive	Depart		Arrive	Depart
07:00 - 08:00	0	0	07:00 - 08:00	0.03226	0
08:00 - 09:00	0.0367	0.00917	08:00 - 09:00	0.58716	0.55963
09:00 - 10:00	0.03669	0	09:00 - 10:00	1.13761	0.88991
16:00 - 17:00	0.01835	0.01835	16:00 - 17:00	0.34862	0.41285
17:00 - 18:00	0	0	17:00 - 18:00	0.15596	0.17431
18:00 - 19:00	0	0	18:00 - 19:00	0.16514	0.11927
<u>Cycle Trips</u>			<u>Walk Only</u>		
07:00 - 08:00	0	0	07:00 - 08:00	1	0
08:00 - 09:00	1	0	08:00 - 09:00	12	11
09:00 - 10:00	1	0	09:00 - 10:00	23	18
16:00 - 17:00	0	0	16:00 - 17:00	7	8
17:00 - 18:00	0	0	17:00 - 18:00	3	3
18:00 - 19:00	0	0	18:00 - 19:00	3	2
<u>Cycle Trips</u>			<u>Walk Only</u>		
Hotel	180 bedrooms		Hotel	180 bedrooms	
	Arrive	Depart		Arrive	Depart
07:00 - 08:00	0	0	07:00 - 08:00	0	0
08:00 - 09:00	0	0	08:00 - 09:00	0	0
09:00 - 10:00	0	0	09:00 - 10:00	0	0
16:00 - 17:00	0	0	16:00 - 17:00	0	0
17:00 - 18:00	0	0	17:00 - 18:00	0	0
18:00 - 19:00	0	0	18:00 - 19:00	0	0
<u>Cycle Trips</u>			<u>Walk Only (part of Walk/PT)</u>		
07:00 - 08:00	0	0	07:00 - 08:00	0	0
08:00 - 09:00	0	0	08:00 - 09:00	0	0
09:00 - 10:00	0	0	09:00 - 10:00	0	0
16:00 - 17:00	0	0	16:00 - 17:00	0	0
17:00 - 18:00	0	0	17:00 - 18:00	0	0
18:00 - 19:00	0	0	18:00 - 19:00	0	0
<u>Cycle Trips</u>			<u>Walk Only</u>		
Apart'lets	49 units		Apart'lets	49 units	
	Arrive	Depart		Arrive	Depart
<u>Cycle Trips</u>			<u>Walk Only</u>		
07:00 - 08:00	0	3	07:00 - 08:00	1	7
08:00 - 09:00	0	3	08:00 - 09:00	3	15
09:00 - 10:00	0	1	09:00 - 10:00	3	7
16:00 - 17:00	1	0	16:00 - 17:00	10	7
17:00 - 18:00	2	0	17:00 - 18:00	13	7
18:00 - 19:00	2	1	18:00 - 19:00	16	7

<u>Cycle Trips</u>			<u>Walk Only</u>		
Apartments	585 units		Apartments	585 units	
	Arrive	Depart		Arrive	Depart
<u>Cycle Trips</u>			<u>Walk Only</u>		
07:00 - 08:00	0	32	07:00 - 08:00	7	55
08:00 - 09:00	3	32	08:00 - 09:00	14	92
09:00 - 10:00	0	12	09:00 - 10:00	20	32
16:00 - 17:00	15	3	16:00 - 17:00	67	39
17:00 - 18:00	20	0	17:00 - 18:00	71	44
18:00 - 19:00	26	8	18:00 - 19:00	62	31
<u>Cycle Trips</u>			<u>Walk Only</u>		
2%			3%		
Non Event Day Attractions			Non Event Day Attractions		
	Arrive	Depart		Arrive	Depart
<u>Cycle Trips</u>			<u>Walk Only</u>		
07:00 - 08:00	1	0	07:00 - 08:00	1	0
08:00 - 09:00	3	2	08:00 - 09:00	5	2
09:00 - 10:00	3	2	09:00 - 10:00	5	2
16:00 - 17:00	2	3	16:00 - 17:00	2	5
17:00 - 18:00	2	3	17:00 - 18:00	2	5
18:00 - 19:00	3	3	18:00 - 19:00	5	5
<u>All Activities</u>			<u>Walk Only</u>		
	Arrive	Depart		Arrive	Depart
<u>Cycle Trips</u>			<u>Walk Only</u>		
07:00 - 08:00	1	35	07:00 - 08:00	10	63
08:00 - 09:00	7	37	08:00 - 09:00	34	120
09:00 - 10:00	4	15	09:00 - 10:00	51	60
16:00 - 17:00	19	7	16:00 - 17:00	87	60
17:00 - 18:00	24	3	17:00 - 18:00	90	59
18:00 - 19:00	31	12	18:00 - 19:00	87	45

Cumulative Transport Impacts

- 5.50 The cumulative effect of the car trips generated from all these southern uses has been considered. Table 5.11 below shows the numbers of vehicles forecast to use the main access point at the Park Lane/High Road Junction, including the trips generated by the new development.

Impact on Highway Operations

- 5.51 The key conclusion is that even with the additional trip generation from the southern development, the total vehicle flows through the junction, of 1,480 in the peak hour of 0800 - 0900 are significantly less than those previously forecast for a 2016 baseline.
- 5.52 Previously, Buro Happold estimated that the 2016 baseline flow through the junction would be 1,662 vehicles per hour in the AM peak and 1,775 vehicles per hour in the PM peak (see Appendix C). This marked reduction is due to the fact that background traffic flows have decreased significantly over the last few years and the northern development trip generation has been much less than initially forecast by Buro Happold. Therefore, it is not considered that there will be a significant impact on the local highway network given that much higher local traffic flows have been shown to operate satisfactorily.

Table 5.11 Impact on Park Lane/High Road Junction

Time	Whole Junction - Park Lane/High Road July 2015							
	Cars	Lgv	Ogv1	Ogv2	Psv	Mcy	Pcy	Total
07:00 - 08:00	631	169	26	1	93	23	51	994
08:00 - 09:00	1015	164	29	5	79	19	63	1374
09:00 - 10:00	746	189	39	4	90	6	42	1116
3Hour	2392	533	94	10	262	48	156	3484
16:00 - 17:00	872	142	12	2	86	28	55	1197
17:00 - 18:00	859	143	4	0	75	41	77	1199
18:00 - 19:00	857	98	3	0	84	25	64	1131
3Hour	2588	383	19	2	245	94	196	3527
Time	Arr/Dep							
	Car Gen	%age of Junction Flow						
07:00 - 08:00	36	3.6%						
08:00 - 09:00	106	7.7%						
09:00 - 10:00	105	9.4%						
3Hour	247	7.1%						
16:00 - 17:00	90	7.5%						
17:00 - 18:00	107	9.0%						
18:00 - 19:00	97	8.6%						
3Hour	295	8.4%						

Impact on Public Transport

- 5.53 The analysis has shown that the only significant combined peak hour and peak direction public transport trip generation will be from the residential development. This aspect has been examined in more detail shown in Table 5.12 below.

Table 5.12 Residential Trip Generation – Impact on Local Stations

Estimate Peak Hour Flows for the Residential/Serviced Apartment Developments

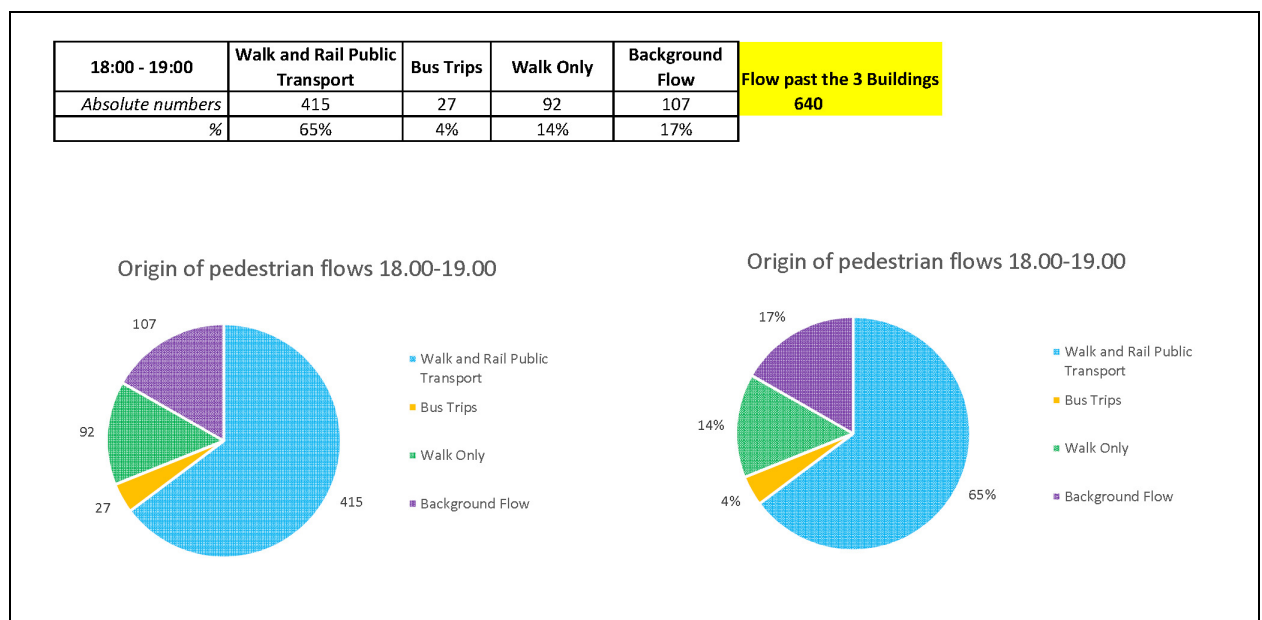
<u>AM Peak Hour Out</u>			
	Sub-Division of Walk/PT	%age of all travel	Hourly Trips
White Hart Lane	32%	17%	60
Northumberland Park	14%	7%	26
Bus then Victoria Line	30%	16%	57
Bus Main Mode	24%	12%	45
	100%	52%	189
<u>PM Peak Hour In</u>			
	Sub-Division of Walk/PT	%age of all travel	Hourly Trips
White Hart Lane	32%	20%	67
Northumberland Park	14%	9%	29
Bus then Victoria Line	30%	19%	63
Bus Main Mode	24%	15%	50
	100%	62%	209
<u>All Day Trips</u>			
	Sub-Division of Walk/PT	%age of all travel	Daily Trips
White Hart Lane	32%	18%	797
Northumberland Park	14%	8%	349
Bus then Victoria Line	30%	17%	747
Bus Main Mode	24%	13%	598
	100%	56%	2490

- 5.54 To represent a worst case it is assumed that all new trips will be heading southbound into Central London once at a station. The forecasts indicate that there will be 60 additional trips to White Hart Lane Station in the morning peak hour. There are currently 5 southbound services, which would equate to 12 additional passengers per train. At Northumberland Park there would be an additional 26 passengers per hour. This would equate to 7 passengers per train.
- 5.55 Similarly, it is expected that there will be 63 additional trips on the 4 local bus services to Seven Sisters in the morning peak hour which typically would be 2 passengers per bus.

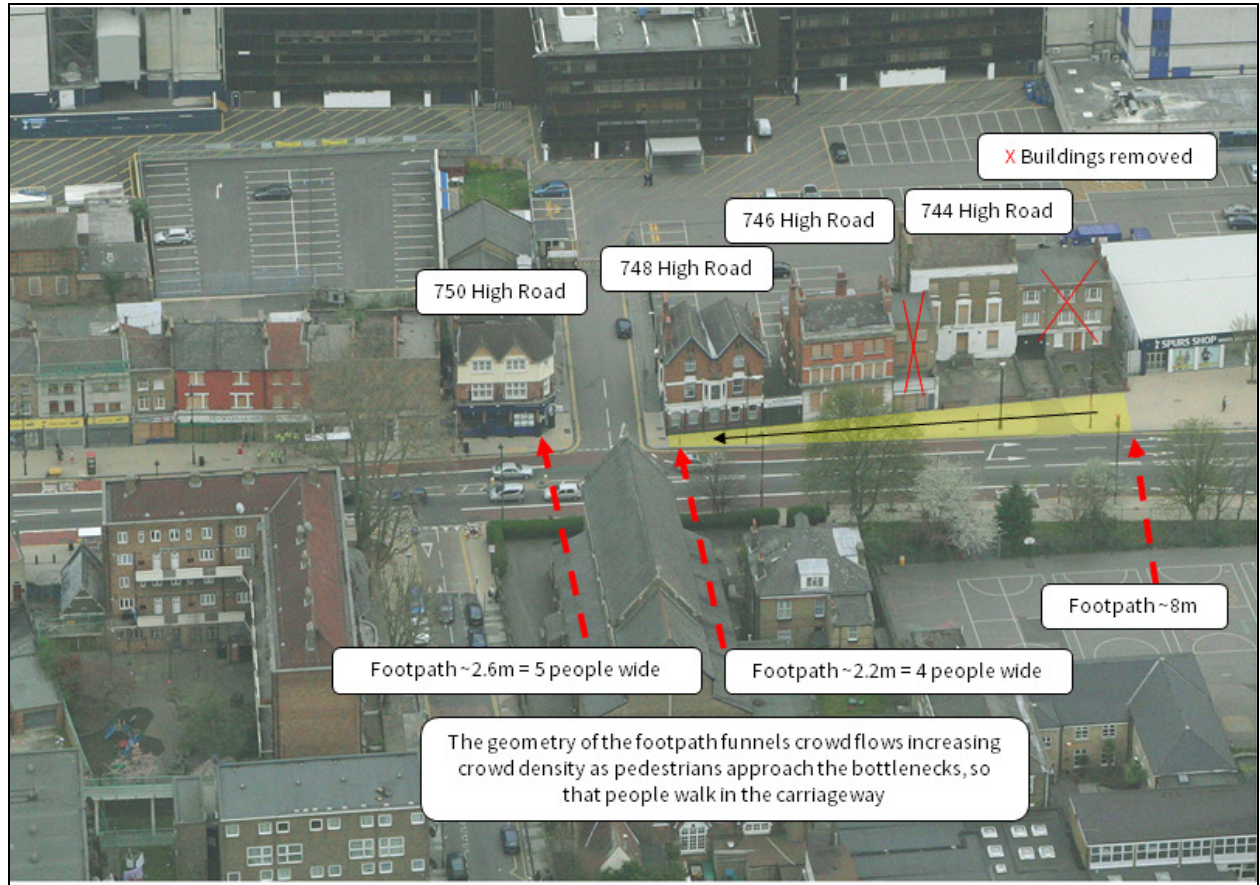
- 5.56 There would also be 50 other main mode bus trips using the closest bus services, including the W3, 341 and 476 services which are accessible at Northumberland Park, generally in both directions of travel which would equate to less than 1 passenger per alternate service.
- 5.57 None of these are considered to be significant impacts.
- 5.58 Similar volumes of inbound trips would occur in the evening peak. Therefore it is also concluded that the impacts would not be significant in the evening peak.

Impact on Pedestrian Footways

- 5.59 The table and charts below show the analysis of additional walk trips on the east side of the East side of the High Road, which will be generated by the southern area use. The footway would have the highest level of additional pedestrian activity, on the route to and from White Hart Lane station. It indicates that in the evening peak hour there will be an additional 534 pedestrians compared to a background flow of 107 people.

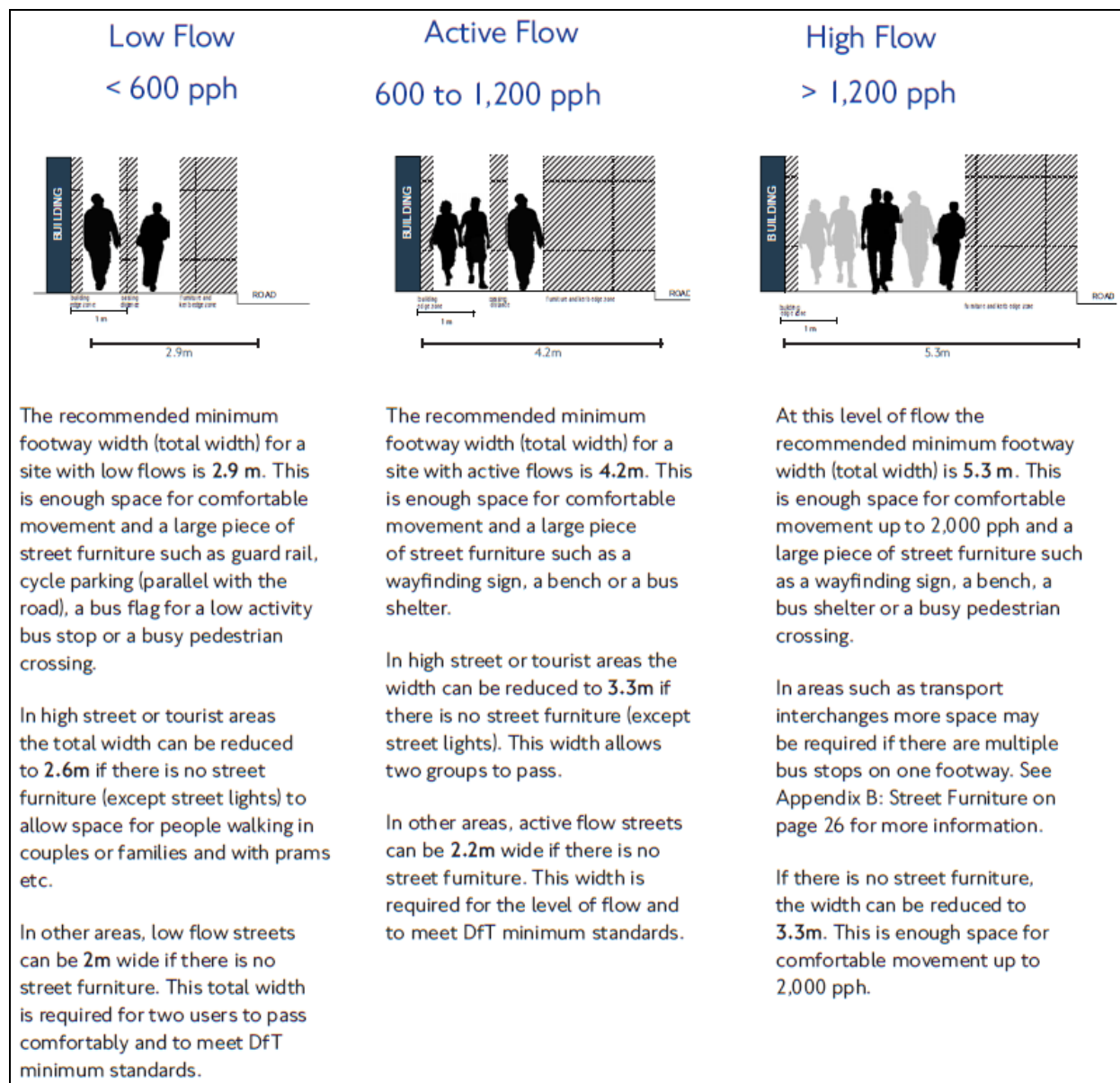


- 5.60 The highlighted flow past the 3 building relates to the 746, 748 and 750 High Road buildings which are proposed to be demolished.
- 5.61 The existing footway width is approximately 2.2 metres which will be increased to a minimum of 8.5 metres with the development.



- 5.62 This level of demand is equivalent to 11 pedestrians per minute
- 5.63 The Transport for London Pedestrian Comfort guidance, shown below, puts this pedestrian flow forecast into the 'Active Flow' category for a High Road.
- 5.64 Given that anti-terrorism bollards would be required to protect the perimeter of the whole NDP project and that these would sit within the existing footways, the recommended footway width in this location is 4.2 metres.

Extract from TfL's Pedestrian Comfort Guidance



- 5.65 It is therefore concluded that none of these outcomes are likely to cause any difficulties with regard to highway, train, bus or footway capacities in the local transport networks.

6 CONSTRUCTION TRAFFIC

- 6.1 This chapter of the Transport Assessment has been produced with technical support provided by Buro Happold (Consulting Engineers) and EC Harris (Quantity Surveyors). The Transport Assessment (TA) of the permitted construction activity was previously assessed in the multi-report TA (Buro Happold 'Northumberland Development Project, Transport Assessment Volume 6 – Construction Traffic') dated May 2010.
- 6.2 In this chapter the traffic assessment of the construction activity that has already been approved is set out as well as the incremental traffic impact of the construction of the revised stadium building.

Previously Approved Changes to the Stadium Building Project

- 6.3 The purpose of the 2015 Section 73 application was to permit the development of a horse-shoe basement area beneath the west, north and east stands of the permitted stadium development. The gross floor area of the new basement was stated as 16,850 square metres. The new basement will be used for stadium car parking, plant and furniture storage and will free up space at the ground floor level to be allocated to other operational requirements such as enhanced media facilities and larger player changing areas.
- 6.4 The only significant transport issue related to the basement construction activity was the removal of a proportion of the excavated material (spoil) to off-site locations. The increased volume of new building construction was previously far less significant given that it would probably equate to less than a 10% net increase in the overall 56,250 capacity stadium building construction activity for example, in terms of the volume of concrete needed to build the project).
- 6.5 It was proposed that the basement excavation would occur in 3 stages – all of which are of a lesser scale, in traffic terms, to the already completed spoil removal from the Northern Development area. The developer, THFC, and their contractors will seek to maximise the extent that the excavated material can either be retained on site or put to beneficial re-use at other building construction or landscaping (for example, berm) sites.

Assessment Methodology

- 6.6 The methodology and criteria applied are the same as those set out in Chapter 13 of Volume 2 of the ES, dated May 2010, other than where expressly set out in this chapter. The 2010 planning application was supported by a comprehensive Transport Assessment which included an assessment of Construction Traffic (Volume 6). The findings were summarised in Chapter 5 of the ES – Construction Methodology and Phasing.
- 6.7 The key change to the technical assessment as a consequence of the Section 73 application was to reduce the assumed average loading per vehicle, when transporting spoil, from the previously assumed 15 cubic metres per vehicle to 8.75 cubic metres per vehicle – which was based on the outcome observed for the previous spoil removal activity within the Northern Development area.

- 6.8 A new traffic survey was commissioned for the J Sainsbury's development. It ran for 72 hours from Friday 27th June to Sunday 29th June 2014. The results showed that car trip generation of the supermarket was much lower than the 'worst case' traffic impact assessments required by both LBH and TfL. The vehicle trip generation actually only ranged from between 29% to 36% (depending on the particular hour in question) of the peak hour private vehicle trip generation assessed by LBH and TfL as part of the 2010 planning application and associated traffic/highway engineering assessment.

Previously Revised Assessment of Construction Traffic

- 6.9 The new food store private vehicle trip generation is actually very similar to that related to the old store which was located just to the north of the NDP area. The fact that the basement construction work is now happening after the new supermarket opening is therefore unlikely to be a significant issue.
- 6.10 Within the May 2010 ES it was considered that the most intensive generation of construction traffic would be during the time of the demolition and site clearance phase of the northern site, north of Paxton Road. However, the phasing of the construction activity has been delayed by between 3 and 4 years. The supermarket opened 2 years later than was set out in the ES.
- 6.11 The stadium construction was scheduled to commence in January 2012 and the construction traffic assessment did not include any further provision for site clearance or excavated earthworks other than the demolition of the existing stadium.
- 6.12 In the 2010 TA and ES the peak daily construction traffic generation was stated as 151 daily movements (say 150) – that is 75 arrivals and 75 departures - the 'effective cap'. The northern site clearance and slab removal (both scheduled at 2 month duration but off-set by 1 month) in that period was stated as 132 1-way trips i.e. 66 arrivals and 66 departures over a peak 1 month period (said to be March 2011).
- 6.13 The actual number of spoil removal trips per day, for a given volume, was actually higher than as assessed because of the lower cubic volumes per average vehicle. This change was fully counter-balanced by lower levels of spoil removal than as previously assessed (i.e. 25,000 cubic metres rather than the 46,000 cubic metres assessed in the TA).
- 6.14 The spoil removal from the Northern Development, which occurred between June 3rd 2013 and August 21st 2013, amounted to the removal of 25,000 cubic metres – at an average daily rate of 50 HGV trips into and then out of the construction site. This activity resulted in an overall HGV trip generation that was very similar to but less than that assessed in the TA (at 66 trips per day) given that the spoil removal occurred at the same time as the building construction activity related to the now completed Northern Development.
- 6.15 The key differences relate to lower volumes of spoil, smaller vehicles and longer and less peaked timescales. The net effect was, however, very similar to the 2010 predictions.

- 6.16 Traffic flows for a DfT monitoring site on the A1010 High Road next to the stadium (given in Table 6.1 below) shows that there have been slight reductions to local traffic volumes since the data was collected for the TA and ES in 2008 and 2009. In the last 10 years bus and cycle flows have increased at a considerable rate. Car and taxi traffic has decreased significantly – by 27% in 10 years. Commercial vehicle traffic flows have been far more constant with a slight decrease since the recent peak of 2007. Overall motorised traffic flows fell by 17% from 2004 to 2013 and have shown a small fall, overall, since the main THFC traffic data collection in 2008 and 2009.

Table 6.1 Annual Average Day Flows on A1010 High Road

High Road DfT Count Point Data near White Hart Lane Stadium (ref. 73479)								
AADF Year	Pedal Cycles	Motorcycles	Cars Taxis	Buses Coaches	Light GV's	All HGV's	All Motor Vehicles	Change from 2004
2001	48	138	13420	602	1998	550	16708	
2002	50	132	13420	656	2038	506	16752	
2003	73	136	13151	756	2243	477	16763	
2004	82	157	13451	691	1691	438	16428	
2005	83	145	13303	738	1726	424	16336	-1%
2006	251	195	10652	1359	1849	364	14419	-12%
2007	325	191	10493	1365	1891	405	14345	-13%
2008	380	186	10251	1387	1851	390	14065	-14%
2009	413	176	10169	1464	1803	357	13969	-15%
2010	399	166	9894	1556	1783	354	13753	-16%
2011	397	166	9864	1606	1775	359	13770	-16%
2012	343	180	9676	1583	1733	386	13558	-17%
2013	281	176	9760	1460	1777	399	13572	-17%
2014	316	183	9788	1401	1837	375	13583	-17%
2011/2001	727%	20%	-26%	167%	-11%	-35%	-18%	
2014/2004	243%	12%	-27%	111%	5%	-9%	-17%	
2014/2008	-17%	-2%	-5%	1%	-1%	-4%	-3%	
2014/2008	-64	-3	-463	14	-14	-15	-482	

- 6.17 The NDP project demolition and construction activity was active in both 2012 and 2013 and there is no evidence of a large increase in commercial vehicle flows, at the count site just north of Paxton Road. This suggests that the recommended construction traffic route, north to the A406 (North Circular Road) is being closely adhered to by contractors.
- 6.18 Buro Happold investigated the engineering works needed to construct the proposed new basement. This assessment also considered the volume of excavated material that will need to be transported away from the site.
- 6.19 The initial phase of the site preparation related to the area north of Paxton Road entailed the excavation of 1.5 metres and included the site clearance. This work was completed in mid-January 2015. The volume of material to be excavated was estimated to be 34,300 cubic metres of which 2,900 cubic metres, of crushed concrete, was expected to be retained on-site.
- 6.20 The timescale for this activity was predicted in advance to be 3 months (69 working days). This would have averaged out at 44 HGV trips per day into and out of the construction site.
- 6.21 The actual outcome was very similar. The main variance related to a longer timeframe (103 working days for the main activity) and a lower average number of HGV trips on the average day (averaging 33/day in the same 103 day timeframe). In the busiest month (October 2014) the average number of HGV trips into and out of the site was 48 vehicles per day. In total 61% of the HGV trips related to the re-use of the excavated material to enable the construction of a landscaped berm next to a motorway.

- 6.22 The next phase of the work related to the area north of Paxton Road which would entail the main deeper excavation to the basement sub-formation level. The volume of material to be excavated is 42,500 cubic metres of which 95% of the material (e.g. usable gravel) will be re-used in construction. The timescale for the activity is also predicted to be 3 months (69 working days). This will average at 4 HGV trips per day into and out of the construction site.
- 6.23 The final phase of the site preparation works related to the area south of Paxton Road (inclusive of the removal of the street) which would entail the deeper excavation to the basement sub-formation level. The volume of material to be excavated is 26,700 cubic metres of which 75% of the gravel material will be retained on-site.
- 6.24 The timescale for the activity was also predicted to be 3 months (69 working days). This averages at 11 HGV trips per day into and out of the construction site. The 2 stages of work will actually yield more re-usable material than could be beneficially used on the site. Of the 58,500 cubic metres that would be recovered some 20,000 cubic metres (34%) would be removed for off-site use. Over the two 69 day periods that would result in a further 16 HGV trips a day to and from the work site.
- 6.25 On the basis of an 'effective cap' of 75 arrival and departure trips, as per the worst case assessment in the May 2010 ES, this level of activity was well within the threshold deemed to be acceptable. Furthermore, the actual level of HGV trip generation for the Northern Development spoil removal, which was slightly lower than that initially assessed, is such that the impact of these new works will, on a daily basis, be much less than the earlier phase of spoil removal, as assessed in the TA, but for a slightly longer timescale.
- 6.26 The construction traffic assessment does not relate to any staff journey to work trips. However, the staff numbers to undertake the new works is not likely to be a substantial amount in the context of the overall project which will peak much later with the stadium building construction and fit-out.

Mitigation Measures and Residual Effects

- 6.27 The key mitigation measure for construction traffic will be the effective cap of 75 HGV arrivals and departures per day.
- 6.28 THFC will seek to maximise the re-use of the excavated material to minimise the spoil removal and the future need to import aggregate – a double benefit. Any use of the excavated gravel material at other local construction sites would result in considerable savings in average HGV travel distances by way of 1 short trip rather than 2 much longer journeys.
- 6.29 It has been possible to 'validate' the 2010 assessment of the Northern Development spoil removal phase – the previously defined worst case situation. This shows that the traffic impact was lower than expected and there is no evidence of problems caused by the longer than expected duration of the HGV activity.
- 6.30 In all instances the assessed activity post-dated the opening of the supermarket so the cumulative impact would now be less than that previously assessed, due the much lower than expected supermarket private vehicle trip generation, and as considered by LBH prior to the approval of the planning application.

New Proposals for the Stadium Development and the Southern Development

- 6.31 The new stadium has the same basic footprint as the consented KSS project but includes a basement and pitch pocket for the retractable grass pitch. The stadium capacity will increase from a previously proposed 56,250 to 61,000 and the impact on the scale of the stadium building construction activity is broadly proportionate to this capacity increase.
- 6.32 The excavation and site preparation works have already been considered above.
- 6.33 The construction traffic trip generation of the 2010 consented scheme was 20,600 1-way trips or 10,300 vehicles attractions within a 39 month period, from May 2011 to August 2014. The highest level of construction traffic was forecast to be 84 1-way vehicle movements in December 2013 (i.e. 42 arrivals and 42 departures) which was substantially related to the demolition of the existing stadium.
- 6.34 The new stadium construction is now forecast in 2015 to generate 27,330 1-way trips – an increase of 33%. This increase is based on a like-for-like comparison with the 2010 application. This increase is significantly related to the volume of concrete required to build the stadium basement and the pitch pocket. It is proposed that the stadium will be constructed in 31 months from January 2016 to July 2018.
- 6.35 The peak trip generation for the stadium construction will occur in May and June 2017 – at 75 1-way trips a day – i.e. a peak of 37 vehicles arrivals and departures each day – which is similarly related to the, re-assessed, demolition of the existing stadium. This level of construction traffic is well below the ‘effective cap’, in terms of the highest monthly forecast of NDP construction traffic, which was established and accepted in 2010, and is also less than the peak daily stadium-related construction traffic forecast in 2010, at 84 1-way trips (as forecast to occur in December 2013). The detail is presented in Scenario A in the APPENDIX D.
- 6.36 All these vehicles would be directed to travel to and from the site by way of the A1010 to the Fore Street junction with the North Circular Road. The environmental impacts would be no worse than as forecast in 2010.
- 6.37 As a result of the extensive re-use of the excavated material, sands and gravels, which was fully anticipated at the time that the stadium basement received planning approval THFC now has an opportunity to change the approach to the construction of the main structure by incorporating a work site at the Construction Compound at White Hart Lane Depot which sits immediately to the east of the railway tracks – a short distance from the stadium.
- 6.38 The use of the Construction Compound would not significantly reduce the peak daily forecast, at 73 trips compared to 75, because that trip generation would still relate to the stadium demolition.
- 6.39 However, there are 3 benefits to be derived from the use of the Construction Compound. Firstly, it would be possible to use larger bulk vehicles to shuttle between the Construction Compound and the stadium site – rather than conventional concrete delivery vehicles used in urban areas. The volume per trip would increase from 6 cubic metres to 8.5 – a significant opportunity to reduce the number of trips.

- 6.40 Secondly, the vehicles would only travel less than 1 kilometre for a round trip rather than some 20 kilometres for a delivery from a large capacity concrete batching plant. This means that 10,070 2-way trips of 20 kilometres would be replaced by 7,059 2-way trips of no more than 1 kilometre - a significant opportunity to reduce the length of trips. The net reduction to HGV travel would be 194,341 vehicle kilometres – a reduction of 96.5% for the delivery of concrete to the construction site.
- 6.41 Thirdly, THFC would be able to solve the logistical problem of having the excavated, cleaned and sorted re-usable material being stored on site, in effect, in the way of the building activity. If the concrete batching did occur in a remote location the sand and gravel would need to be transported a significant distance away from the site only to return shortly afterwards as concrete.
- 6.42 With the Construction Compound in place the new stadium construction as now forecast in 2015 to generate 21,307 1-way trips – an increase of 3% compared to the 2010 application construction traffic forecast. This increase is based on a like-for-like comparison. This small increase is significantly related to the volume of concrete required to build the stadium basement and the pitch pocket being almost fully offset by the larger vehicles used to deliver the concrete to the stadium site. The stadium would still be constructed in 31 months from early 2016 to July 2018.
- 6.43 Without the Construction Compound all the construction traffic would route to the stadium construction site by way of the A1010 High Road/Fore Street that connects to site to the A406 North Circular Road. This route has been adhered to in the previous stages of the Northumberland Development Project construction. This would still be the route for the construction traffic other than the concrete deliveries.
- 6.44 The biggest benefits of the Construction Compound would be apparent in 2016 when there would be a 95% reduction to the volume of construction traffic within the A1010 north of the construction site i.e. a reduction from 42 daily 1-way movements to 2 daily 1-way trips. There would be smaller benefit in the A1010 south of White Hart Lane as a result of the larger bulk of concrete per vehicle trip. In 2016 there would typically be an average of 28 1-way trips in the short section of White Hart Lane between the High Road and the Construction Compound.
- 6.45 In 2017 the benefit of the Construction Compound to the A1010 traffic corridor would be much less, with a forecast reduction from 47 daily 1-way trips to 32 daily 1-way trips and the construction vehicles flows in White Hart Lane would be much less, at 11 1-way trips per day. The detail is presented in Scenario B in the APPENDIX D.
- 6.46 It is assumed here that the Construction Compound would become non-operational for concrete batching in late 2017. The facility would not be available for the final stages of construction related to the completion of the Southern Development.
- 6.47 The construction of the proposed Southern Development will be a big bigger undertaking than that assessed in 2010. The number of residential units is more than 3 times greater, the hotel is slightly larger and there is the addition of the Extreme Sports building plus a slightly larger Tottenham Experience building.
- 6.48 It is assumed overall that the construction activity will be 3 times greater than as assessed in 2010 but over a much longer timeframe commencing in 2018 and completing in December 2021.

- 6.49 The peak monthly construction traffic would occur in the second half of 2019 and October/November 2020. On each occasion the peak activity would equate to 13 1-way trips per day, i.e. 6-7 daily arrivals and departures. This level of construction traffic trip generation for the Southern Development is well below the 'effective cap' of 150 1-way trips as established as an acceptable level of trip generation in 2010. The detail is presented in Table C in APPENDIX D.

7 SUMMARY AND CONCLUSIONS

Introduction

- 7.1 Tottenham Hotspur Football Club (THFC) has embarked on a major re-development programme, to construct a new stadium on the site currently occupied by its existing stadium known as White Hart Lane, and other land surrounding it. The project is known as the Northumberland Development Project (NDP).
- 7.2 The project site is located in the London Borough of Haringey, northeast of Tottenham town centre and is bounded by the A1010 High Road to the west, Northumberland Park to the north, Worcester Avenue to the east and Park Lane to the south.
- 7.3 The project site is split into three areas:
- The Northern area – located south of Northumberland Park has recently been developed and now comprises a Sainsbury's superstore, offices, education uses and car parking.
 - The Central area – located to the north of Paxton Road is currently under development to provide a 61,000 seater stadium for Tottenham Hotspur Football Club
 - The Southern area – is located to the south of Paxton Road. The new stadium will incorporate Paxton Road and the southern stand is to the south. It is proposed that a hotel, residential uses, the Tottenham Experience and an extreme sports facility are provided on this site.
- 7.4 A planning application covering all three areas was submitted in 2010 and a Transport Assessment prepared to accompany the submission. Since the original submission the proposals for the northern area have been implemented. In addition, revised development proposals for the central and southern areas have come forward and a revised planning application for them has been submitted.
- 7.5 This document concentrates on the non-major event day transport impacts of the development of the southern area. A further document 'Northumberland Development Project - Major Event Day Transport Assessment and Travel Planning 2015' has been prepared to consider event days which are expected to attract more than 10,000 spectators.
- 7.6 Currently the southern area is broadly made up of the existing 36,000 seater THFC stadium and associated facilities, for example, offices, the ticket office, Spurs shop and conference/meeting facilities. The High Road accommodates a mix of uses including, office, retail and residential uses many of which are currently boarded up.

Central and Southern Development Proposals

- 7.7 A new 61,000 seater stadium will be constructed to replace the current stadium in the central area. As well as conventional football matches it is proposed that up to 16 major events are held per annum, including up to six concerts and ten sporting events.
- 7.8 The Southern area will comprise a range of facilities including:
- The Tottenham Experience - museum, Spurs Megastore, cinema, ticket office, café etc;
 - Hotel – 180 bedrooms and 49 serviced apartments;

- Extreme Sports – sports centre;
- Residential towers - 580 units and 5 townhouses; and
- Community Health Centre.

Planning Policy

7.9 The London Plan, the Mayor's Transport Strategy and various documents produced by the London Borough of Haringey have been used to provide a framework which has informed the development of the proposals and this Transport Assessment. A considerable amount of care has been taken to ensure that, where possible, the proposals are compliant with current transport policy.

Existing Conditions

7.10 The existing transport conditions are similar but not exactly the same as those comprehensively surveyed in 2003, 2007, 2008 and 2009. In particular, it should be noted that:

- The highway network is dominated by the A1010 High Road which runs in a north south direction and links to the A406 North Circular in the north and the A10 in the south.
- The traffic surveys were repeated in 2015. These give interesting results, as there has been a significant decrease in traffic flows in the local area since the first surveys. This finding is in line with the 2011 census data which reveals that at the DfT count point along the High Road there has been a drop of 18% in flows between 2001 and 2011. The results should also be seen in the context of the removal of uses, and therefore trips, from the central site and that the northern development has been completed and occupied.
- There have been comprehensive changes made to the Controlled Parking Zones (CPZs) across Tottenham. These changes were brought into effect in early 2014 and now cover match days and non-match days.
- An analysis of accident data shows that the accident rate along the High Road for a three year period 2012 to 2014 indicates that the accident rate is well below the national average for an A road and below the average for Haringey. Although the yearly average is for 19 accidents (18 slight and 1 serious) there have been no fatalities in three years. Therefore, it is not thought that there is an accident issue which needs to be considered as part of the development proposals.
- The local area is very well served by public transport. An indicator of this are the PTAL ratings for various locations of between 3-5, which is 'average and above'.
- White Hart Lane, Bruce Grove, Seven Sisters, Northumberland Park and Tottenham Hale are all rail stations (national rail and Overground) which can be accessed from the site. Seven Sisters and Tottenham Hale Stations are also served by the Victoria Underground Line. National Rail and Overground services have high train frequencies of between 2 and 10 trains per hour in the peak periods. The Victoria Line is currently running a reduced service as engineering works take place to facilitate the new 36 trains per hour timetable. The rail and underground surveys indicate that there is spare capacity available on all services.
- The project site is well served by a range of bus services, all running high frequency services.

- Although, the updated PERS Audit undertaken notes that the local environment for pedestrians has improved since 2010, the report still makes recommendations for some quick wins and longer term enhancements which will improve the local area. In particular gum, litter and graffiti removal, de-cluttering and works to dropped curbs and tactile paving are suggested.
- Data from the Office of National Statistics has been used to give an indication of direction of commuting trips from London Borough of Haringey in 2011. Two thirds of people travelled to six destinations, Westminster/City of London (22.7%), Haringey (15.9%), Camden (12.6%), Islington (9.7%) and Enfield (5.2%). Some 50% of the working population travels south to central London. The data also reveals that public transport use for the journey to work has increased by 14%.

Transport Strategy

- 7.11 There has been considerable progress with the implementation of the THFC transport strategy between 2010 and 2015.
- 7.12 There has been significant investment over recent years, particularly to the Victoria Line, thereby improving the service for fans and the local community. New faster and higher capacity trains have already been delivered and a new 36 trains per hour frequency will be introduced in the near future. In addition, there is much more investment to follow in the local area.
- 7.13 Many of the improvements currently being implemented were not planned in 2010 when the previous planning application was submitted. For example:
- The first part of the Seven Sisters station interchange improvements have been completed with further work still to be completed.
 - The London Overground devolution will improve services and rolling stock at White Hart Lane and other stations.
 - A planning application for proposals to improve White Hart Lane Station is expected in late 2015. The station will be linked to the stadium by a more direct route, Moselle Square, which is being promoted by Haringey Council.
 - The upgrade to Tottenham Hale Station was in the earliest stage of development in 2010, construction will start in the near future.
 - Northumberland Park station will be reconstructed as part of the 3 tracking scheme, facilitating significant service improvements for the route to Stratford. This should be finished well before the development is finished. On non-major event days there will be 4 trains an hour each way to and from Stratford.
 - The removal of the Tottenham Hale Gyratory was a TfL Business Plan commitment in 2010. In 2015 it is substantially complete. The final stage has involved the construction of a major bus station at Tottenham Hale interchange.
 - The construction of the new Cycle Superhighway CS1 that connects the stadium to Liverpool Street started in July 2015. A large cycle park has been built in the northern development next to Lilywhite House.

Local Highway Improvements

- 7.14 As part of the project some improvements are proposed to the High Road, Park Lane and Worcester Avenue. There are no proposed changes to Northumberland Park, or the High Road junctions with Northumberland Park or White Hart Lane. The recent improvements are considered to be working well.

Car Parking Provision

- 7.15 The policy guidance indicates that in appropriate locations, then car free residential development should be promoted. In general, the approach to car parking in the proposed development is to under provide compared to standards, which are in place to set maximum figures. So, whilst the development is not car free, the provision of car parking is significantly less than the standard. For example, the standard applicable to the residential units is up to 1 space per unit, however, the ratio proposed is 0.47 per unit.
- 7.16 There would be active provision for electric vehicle charging points for 20% of the spaces with passive provision for a further 20%.
- 7.17 Similarly, if the LBH maximum standard of 0.66 spaces per room was applied to the hotel, there should be 120 spaces provided rather than the 53 allocated.
- 7.18 Wheelchair accessible Blue Badge parking is set at 10% or more of the supply. For the residential units this would give a minimum standard of 24.3 spaces (10% of 243). The actual number proposed is 27 spaces which equates to 0.046 blue badge spaces per unit. Within the general population, 4.6% is well in excess of wheelchair users that are car owners.

Travel Plans

- 7.19 A series of Travel Plans was prepared for the previous application. These living documents will be updated and new ones added for different aspects of the development. The revised, proposed s106 Agreement sets out commitments to develop the Travel Plans, appoint a Travel Plan Co-ordinator for the whole development and to establish a Travel Plan Management Group. Arrangements for monitoring the plans will be discussed with the London Borough of Haringey.

Assessments

Trip Generation

Residential Units and Serviced Apartments

- 7.20 The best comparator for the proposed development is felt to be the residential units associated with the Emirates Stadium project. Here, even at parking ratios of 0.62-0.82 spaces per unit, there are still some unallocated spaces. The actual utilization is closer to 0.55 spaces per apartment. The trip generation per unit is 0.14 two way trips per day, i.e. two trips per week.

- 7.21 Taking into account the census data for journey to work by car and public transport, and the previous trip generation assumptions, it is proposed that for the revised NDP proposals a daily trip rate of 3.5, a car trip rate per unit of 0.31, compared to 0.14 at Holloway, and an 8.9% car use compared to 4.1% at Holloway (Islington/Haringey factor = 2.15). The key car trip rate for a car owning household in the new development would be 0.67 per unit with a car mode share of 19%.
- 7.22 The analysis indicates that there would be approximately:
- 39 cars entering or leaving the site in the morning peak;
 - 37 cars entering or leaving the site in the evening peak; and
 - 200 cars entering and 200 cars leaving the development every day (total c.400).
- 7.23 These trips would result in a very modest impact on the surrounding highway network. It is considered that there would be no significant impact on the network.

Tottenham Experience and Non-Major Event Day Attractions

- 7.24 The proposed Non Major Event Day activities include:
- The Tottenham Experience
 - Conferences and banqueting
 - Sky Walk
 - Extreme Sports Centre
- 7.25 Estimates for the number of visitors have been made using relevant comparators. Cautious assumptions for combined trips and allowances for variations on a day to day basis have been incorporated into the analysis. On a busy day it is estimated that the combined visitor attractions would generate 1,655 person trips to and from the local area.
- 7.26 The modal split assumptions/targets are that 10% of the journeys would be cars/taxis with an average occupancy of 2 visitors per trip. Half (50%) of the visitors are assumed to use the local rail services at White Hart Lane and Northumberland Park before walking to the stadium.
- 7.27 A total of 20% of visitors are assumed to use local bus services – in particular the services that connect to the Victoria Line at Seven Sisters station. 5% of visitors are expected to arrive in organised coaches – which would be equivalent to 2-3 coach trips per day. Finally, 5% of visitors will walk or cycle to the visitor attractions. However, it is expected that these figures will change on a day to day basis depending on the activities running at the time.

Cumulative Impact

- 7.28 The trips generated by the health centre and hotel have also been estimated and the cumulative impact of the southern development considered including the residential elements and the Tottenham Experience.

- 7.29 The numbers of vehicles using the Park Lane/High Road Junction has been forecast, including the trips generated by the new development. The key conclusion is that even with the additional trips from the southern development, the total vehicle flows of up to 1,374 in the peak hour of 0800 - 0900 are less than those previously forecast for a 2016 baseline (1,662 vehicles in the AM peak), without the southern development. This is due to the fact that background traffic flows have decreased significantly over the last few years. Therefore it is not considered that there will be a significant impact on the highway network.

Impact on Public Transport

- 7.30 The analysis has shown that the only significant peak hour and peak direction public transport trip generation will be from the residential development.
- 7.31 To represent a worst case it is assumed that all new trips will be heading southbound into Central London once at a station. The forecasts indicate that there will be 60 additional trips to White Hart Lane Station in the morning peak hour. There are currently 5 southbound services, which would equate to 12 additional passengers per train. At Northumberland Park there would be an additional 26 passengers per hour. This would equate to 7 passengers per train.
- 7.32 Similarly, it is expected that there will be 63 additional trips on the 4 local bus services to Seven Sisters in the morning peak hour which typically would be 2 passengers per bus.
- 7.33 There would also be 50 other main mode bus trips using the closest bus services, including the W3, 341 and 476 services which are accessible at Northumberland Park, generally in both directions of travel which would equate to less than 1 passenger per alternate service.
- 7.34 None of these are considered to be significant impacts.
- 7.35 Similar volumes of inbound trips would occur in the evening peak. Therefore it is also concluded that the impacts would not be significant in the evening peak.

Walking

- 7.36 An analysis of additional walk trips on the east side of the East side of the High Road, which will be generated by the southern area use has been carried out. The footway would have the highest level of additional pedestrian activity, on the route to and from White Hart Lane station. It indicates that in the evening peak hour there will be an additional 534 pedestrians compared to a background flow of 107 people. The existing footway width is approximately 2.2 metres which will be increased to a minimum of 8.5 metres with the development.
- 7.37 This level of demand is equivalent to 11 pedestrians per minute. Guidance indicates that the recommended footway width at this location should be 4.2 metres.
- 7.38 It is therefore concluded that none of these outcomes are likely to cause any difficulties with travel capacity in the local transport networks.

Construction Traffic

Basement Construction

- 7.39 The only additional significant transport issue related to the construction of the new basement for the stadium was the removal of a proportion of the excavated material (spoil) to off-site locations. The increased volume of new building construction was far less significant given that it would probably equate to less than a 10% net increase in the overall stadium building construction activity for example, in terms of the volume of concrete needed to build the project).
- 7.40 It is proposed that the basement excavation occurs in 3 stages – all of which are of a lesser scale, in traffic terms, to the already completed spoil removal from the Northern Development area.
- 7.41 Surveys have revealed that the new food store private vehicle trip generation is actually very similar to that related to the old store which was located just to the north of the NDP area. Levels are actually two-thirds less than those predicted and accepted by TfL/LBH. The effect of the construction work has happened after the new supermarket opening is therefore unlikely to be a significant issue.

Central and Southern Areas

- 7.42 The initial phase of the site preparation related to the area north of Paxton Road entailed the excavation of 1.5 metres and included the site clearance. This work was completed in mid-January 2015. The volume of material to be excavated was estimated to be 34,300 cubic metres of which 2,900 cubic metres, of crushed concrete, was expected be retained on-site. In the busiest month (October 2014) the average number of HGV trips into and out of the site was 48 vehicles per day.
- 7.43 The next phase of the work would also relate to the area north of Paxton Road which would entail deeper excavations. The timescale for the activity is predicted to be 3 months (69 working days). This will average at 4 HGV trips per day into and out of the construction site.
- 7.44 The final phase of the site preparation works would relate to the area south of Paxton Road. The timescale for the activity is also predicted to be 3 months (69 working days). This will average at 11 HGV trips per day into and out of the construction site. The 2 stages of work will actually yield more re-usable material than could be beneficially used on the site. Of the 58,500 cubic metres that would be recovered some 20,000 cubic metres (34%) would be sold for off-site use. Over the two 69 day periods that would result in a further 16 HGV trips a day to and from the work site.
- 7.45 On the basis of an 'effective cap' of 75 arrival and departure trips, as per the worst case assessment in the May 2010 ES, this level of activity would be well within the threshold deemed to be acceptable.

New Stadium Proposals

- 7.46 The new stadium construction is now forecast in 2015 to generate 27,330 1-way trips – an increase of 33%. This increase is based on a like-for-like comparison with the 2010 application. This increase is significantly related to the volume of concrete required to build the stadium basement and the pitch pocket. The stadium will be constructed in 31 months from January 2016 to July 2018.

- 7.47 The peak trip generation for the stadium construction will occur in May and June 2017 – at 75 1-way trips a day – i.e. a peak of 37 vehicles arrivals and departures each day – which is similarly related to the, re-assessed, demolition of the existing stadium. This level of construction traffic is well below the ‘effective cap’, in terms of the highest monthly forecast of NDP construction traffic, which was established and accepted in 2010, and is also less than the peak daily stadium-related construction traffic forecast in 2010, at 84 1-way trips (as forecast to occur in December 2013).
- 7.48 All these vehicles would be directed to travel to and from the site by way of the A1010 to the Fore Street junction with the North Circular Road. The environmental impacts would be no worse than as forecast in 2010.
- 7.49 It is proposed that a Construction Compound at the White Hart Lane Depot to the east of the railway tracks is used. Although this would not significantly reduce the peak daily forecast of trips, there are three main benefits to using the site:
- It would be possible to use larger vehicles to shuttle between the works sit and the stadium site
 - The total vehicle mileage would be significantly reduced, 1 km trips rather than 20 km trips.
 - The site would provide a local storage area away from the construction site for all the material to be re-used in construction.
- 7.50 With the Construction Compound in place the new stadium construction is forecast to generate 21,307 1 way trips an increase of 3% compared to the 2010 information. This increase mainly relates to the additional works required for the stadium basement and pitch pocket.
- 7.51 The biggest benefits of the Construction Compound would be apparent in 2016 when there would be a 95% reduction to the volume of construction traffic within the A1010 north of the construction site i.e. a reduction from 42 daily 1-way movements to 2 daily 1-way trips. In 2017 the benefit of the Construction Compound to the A1010 traffic corridor would be much less, with a forecast reduction from 47 daily 1-way trips to 32 daily 1-way trips.

Vehicle Routing

- 7.52 Without the Construction Compound all the construction traffic would route to the stadium construction site by way of the A1010 High Road/Fore Street that connects to site to the A406 North Circular Road. This route has been adhered to in the previous stages of the Northumberland Development Project construction. This would still be the route for the construction traffic other than the concrete deliveries.

Southern Area

- 7.53 The construction of the proposed Southern Development will be a big bigger undertaking than that assessed in 2010. The number of residential units is more than 3 times greater, the hotel is slightly larger and there is the addition of the Extreme Sports building plus a slightly larger Tottenham Experience building.
- 7.54 It is assumed overall that the construction activity will be 3 times greater than as assessed in 2010 but over a much longer timeframe commencing in 2018 and completing in December 2021.

- 7.55 The peak monthly construction traffic would occur in the second half of 2019 and October/November 2020. On each occasion the peak activity would equate to 13 1-way trips per day, i.e. 6-7 daily arrivals and departures. This level of construction traffic trip generation for the Southern Development is well below the 'effective cap' of 150 1-way trips as established as an acceptable level of trip generation in 2010.

Mitigation Measures

- 7.56 The key mitigation measure for construction traffic will be the effective caps of 75 HGV arrivals and departures per day. THFC will seek to maximise the re-use of the excavated material to minimise the spoil removal and the future need to import aggregate – a double benefit. The use of a local work site will also reduce the length of construction vehicle trips for concrete deliveries.
- 7.57 It has been possible to 'validate' the 2010 assessment of the Northern Development spoil removal phase – the previously defined worst case situation. This shows that the traffic impact was lower than expected and there is no evidence of problems caused by the longer than expected duration of the HGV activity.

APPENDICES

APPENDIX A – TRANSPORT PLANNING POLICY

THE LONDON PLAN

Below are extracts from the London Plan 2011 consolidated with:

- Revised Early Minor Alterations to the London Plan published October 2013
- Further Alterations to the London Plan published March 2015

POLICY 6.1 STRATEGIC APPROACH

Strategic

A The Mayor will work with all relevant partners to encourage the closer integration of transport and development through the schemes and proposals shown in Table 6.1 and by:

- a encouraging patterns and nodes of development that reduce the need to travel, especially by car – boroughs should use the standards set out in Table 6.2 in the Parking Addendum to this chapter to set maximum car parking standards in DPDs
- b seeking to improve the capacity and accessibility of public transport, walking and cycling, particularly in areas of greatest demand – boroughs should use the standards set out in Table 6.3 in the Parking Addendum to set minimum cycle parking standards in DPDs
- c supporting development that generates high levels of trips at locations with high levels of public transport accessibility and/or capacity, either currently or via committed, funded improvements including, where appropriate, those provided by developers through the use of planning obligations (See Policy 8.2).
- d improving interchange between different forms of transport, particularly around major rail and Underground stations, especially where this will enhance connectivity in outer London (see Policy 2.3)
- e seeking to increase the use of the Blue Ribbon Network, especially the Thames, for passenger and freight use
- f facilitating the efficient distribution of freight whilst minimising its impacts on the transport network
- g supporting measures that encourage shifts to more sustainable modes and appropriate demand management
- h promoting greater use of low carbon technology so that carbon dioxide and other contributors to global warming are reduced
- i promoting walking by ensuring an improved urban realm
- j seeking to ensure that all parts of the public transport network can be used safely, easily and with dignity by all Londoners, including by securing step-free access where this is appropriate and practicable.

B The Mayor will, and boroughs should, take an approach to the management of streetspace that takes account of the different roles of roads for neighbourhoods and road users in ways that support the policies in this Plan promoting public transport and other sustainable means of transport (including policies 6.2, 6.7, 6.9 and 6.10) and a high quality public realm. Where appropriate, a corridor-based

approach should be taken to ensure the needs of street users and improvements to the public realm are co-ordinated.

POLICY 6.3 ASSESSING EFFECTS OF DEVELOPMENT ON TRANSPORT CAPACITY

Planning decisions

A Development proposals should ensure that impacts on transport capacity and the transport network, at both a corridor and local level, are fully assessed. Development should not adversely affect safety on the transport network.

B Where existing transport capacity is insufficient to allow for the travel generated by proposed developments, and no firm plans exist for an increase in capacity to cater for this, boroughs should ensure that development proposals are phased until it is known these requirements can be met, otherwise they may be refused. The cumulative impacts of development on transport requirements must be taken into account.

C Transport assessments will be required in accordance with TfL's Transport Assessment Best Practice Guidance for major planning applications. Workplace and/or residential travel plans should be provided for planning applications exceeding the thresholds in, and produced in accordance with, the relevant TfL guidance. Construction logistics plans and delivery and servicing plans should be secured in line with the London Freight Plan¹ and should be co-ordinated with travel plans.

LDF preparation

D Boroughs should take the lead in exploiting opportunities for development in areas where appropriate transport accessibility and capacity exist or is being introduced. Boroughs should facilitate opportunities to integrate major transport proposals with development in a way that supports London Plan priorities.

E LDFs should include policies requiring transport assessments, travel plans, construction logistics and delivery/servicing plans as set out in C above.

POLICY 6.9 CYCLING

Strategic

A The Mayor will work with all relevant partners to bring about a significant increase in cycling in London, so that it accounts for at least 5 per cent of modal share by 2026. He will:

- a identify, promote and implement a network of cycle routes across London which will include Cycle Superhighways and Quietways
- b continue to operate and improve the cycle hire scheme
- c fund the transformation of up to four outer London borough town centres into cycle friendly 'miniHollands'.

Planning decisions

B Developments should:

- a provide secure, integrated, convenient and accessible cycle parking facilities in line with the minimum standards set out in Table 6.3 and the guidance set out in the London Cycle Design Standards (or subsequent revisions)
- b provide on-site changing facilities and showers for cyclists
- c contribute positively to an integrated cycling network for London by providing infrastructure that is safe, comfortable, attractive, coherent, direct and adaptable and in line with the guidance set out in the London Cycle Design Standards (or subsequent revisions)
- d provide links to existing and planned cycle infrastructure projects including Cycle purposes – e.g. Central, Inner and mini-Hollands, leisure trips across the capital and commuting trips to Central London. Superhighways, Quietways, the Central London Grid and the ‘mini-Hollands’
- e facilitate the Mayor’s cycle hire scheme through provision of land and/or planning obligations where relevant, to ensure the provision of sufficient capacity.

LDF preparation

C DPDs should:

- a identify, promote and facilitate the completion of relevant sections of cycle routes including Cycle Superhighways, Quietways and the Central London Grid and local borough routes, in light of guidance from TfL
- b identify and safeguard sites for new or expanded cycle docking stations to increase capacity of the Mayor’s cycle hire scheme in areas of high usage or operational stress
- c identify and implement safe and convenient direct cycle routes to town centres, transport nodes and other key uses such as schools
- d implement secure cycle parking facilities in line with the minimum standards set out in Table 6.3 or implement their own cycle parking standards to provide higher levels of provision.

POLICY 6.13 PARKING

Strategic

A The Mayor wishes to see an appropriate balance being struck between promoting new development and preventing excessive car parking provision that can undermine cycling, walking and public transport use.

B The Mayor supports Park and Ride schemes in outer London where it can be demonstrated they will lead to overall reductions in congestion, journey times and vehicle kilometres.

Planning decisions

C The maximum standards set out in Table 6.2 in the Parking Addendum to this chapter should be the basis for considering planning applications (also see Policy 2.8).

D In addition, developments must:

- a ensure that 1 in 5 spaces (both active and passive) provide an electrical charging point to encourage the uptake of electric vehicles
- b provide parking for disabled people in line with Table 6.2
- c meet the minimum cycle parking standards set out in Table 6.3
- d provide for the needs of businesses for delivery and servicing.

LDF preparation

E

a the maximum standards set out in Table 6.2 in the Parking Addendum should be used to set standards in DPDs.

b in locations with high public transport accessibility, carfree developments should be promoted (while still providing for disabled people)

c in town centres where there are identified issues of vitality and viability, the need to regenerate such centres may require a more flexible approach to the provision of public car parking to serve the town centre as a whole

d outer London boroughs wishing to promote a more generous standard for office developments would need to take into account in a DPD – a regeneration need – no significant adverse impact on congestion or air quality – a lack (now and in future) of public transport – a lack of existing on or off street parking – a commitment to provide space for electric and car club vehicles, bicycles and parking for disabled people above the minimum thresholds – a requirement, via Travel Plans, to reduce provision over time.

Table 6.2 Car parking standards

Designated Blue Badge parking bays recommended in BS 8300:2009			
Building Type	Provision from the outset	Future provision	
	number of spaces* for each employee who is a disabled motorist	number of spaces* for visiting disabled motorists	number of enlarged standard spaces**
Workplaces	one space	5% of the total capacity	a further 5% of the total capacity
shopping, recreation and leisure facilities	one space	6% of the total capacity	a further 4% of the total capacity
railway buildings	one space	5% of the total capacity	a further 5% of the total capacity
religious buildings and crematoria	two spaces or 6% whichever is the greater.		a further 4% of the total capacity
sports facilities	determined according to the usage of the sports facility***		
* Parking spaces designated for use by disabled people should be 2.4m wide by 4.8m long with a zone 1.2m wide provided between designated spaces and at the rear outside the traffic zone, to enable a disabled driver or passenger to get in or out of a vehicle and access the boot safely. ** Enlarged standard spaces 3.6m wide by 6m long that can be adapted to be parking spaces designated for use by disabled people to reflect changes in local population needs and allow for flexibility of provision in the future. *** Further detailed guidance on parking provision for sports facilities can be found in the Sport England publication Accessible Sports Facilities 2010.			

6A

Parking for residential development

Maximum residential parking standards number of beds 4 or more 3 1-2 parking spaces up to 2 per unit
up to 1.5 per unit less than 1 per unit

Parking for retail development

6A.4 The starting point for meeting parking demand for new retail development should be use of existing public off-street provision. Parking needs should be assessed taking account of the reduction in demand associated with linked trips. If onsite parking is justified there should be a presumption that it will be publicly available. Boroughs should take a coordinated approach with neighbouring authorities, including those outside London if appropriate, to prevent competition between centres based on parking availability and charges. Further advice on retail parking is provided in the Town Centres SPG. Parking for commercial development

6A.5 Parking for commercial vehicles should be provided at a maximum standard of one space per 500 sq. m of gross B2 or B8 floorspace. See also SPGs on Town Centres and Land for Industry and Transport.

6A.6 An appropriate proportion of car parking spaces in commercial developments should be marked out for motor-cycle use.

Parking for residential development

	PTAL 0 to 1		PTAL 2 to 4		PTAL 5 to 6	
	150–200 hr/ha	Parking provision	150–250 hr/ha	Parking provision	200–350 hr/ha	Parking provision
Suburban						
3.8–4.6 hr/unit	35–55 u/ha	Up to 2 spaces per unit	35–65 u/ha	Up to 1.5 spaces per unit	45–90 u/ha	Up to one space per unit
3.1–3.7 hr/unit	40–65 u/ha		40–80 u/ha		55–115 u/ha	
2.7–3.0 hr/unit	50–75 u/ha		50–95 u/ha		70–130 u/ha	
Urban	150–250 hr/ha		200–450 hr/ha		200–700 hr/ha	
3.8–4.6 hr/unit	35–65 u/ha	Up to 1.5 spaces per unit	45–120 u/ha	Up to 1.5 spaces per unit	45–185 u/ha	Up to one space per unit
3.1–3.7 hr/unit	40–80 u/ha		55–145 u/ha		55–225 u/ha	
2.7–3.0 hr/unit	50–95 u/ha		70–170 u/ha		70–260 u/ha	
Central	150–300 hr/ha		300–650 hr/ha		650–1100 hr/ha	
3.8–4.6 hr/unit	35–80 u/ha	Up to 1.5 spaces per unit	65–170 u/ha	Up to one space per unit	140–290 u/ha	Up to one space per unit
3.1–3.7 hr/unit	40–100 u/ha		80–210 u/ha		175–355 u/ha	
2.7–3.0 hr/unit	50–110 u/ha		100–240 u/ha		215–405 u/ha	

Maximum residential parking standards			
number of beds	4 or more	3	1-2
parking spaces	up to 2 per unit	up to 1.5 per unit	less than 1 per unit

Notes:

All developments in areas of good public transport accessibility should aim for significantly less than 1 space per unit

Adequate parking spaces for disabled people must be provided preferably on-site¹

20 per cent of all spaces must be for electric vehicles with an additional 20 per cent passive provision for electric vehicles in the future.

¹ Mayor of London. Housing Supplementary Planning Guidance. GLA, 2012. Mayor of London. Accessible London. Supplementary Planning Guidance. GLA, 2014.

Table 6.3 Cycle Parking minimum standards

Land use		Long-stay	Short-stay
A1	food retail	from a threshold of 100 sqm: 1 space per 175 sqm	from a threshold of 100 sqm: first 750 sqm: 1 space per 40 sqm thereafter: 1 space per 300 sqm
	non-food retail	from a threshold of 100 sqm: first 1000 sqm: 1 space per 250 sqm thereafter: 1 space per 1000 sqm	from a threshold of 100 sqm: first 1000 sqm: 1 space per 125 sqm thereafter: 1 space per 1000 sqm
A2-A5	financial / professional services	from a threshold of 100 sqm: 1 space per 175 sqm	from a threshold of 100 sqm: 1 space per 40 sqm
	cafes & restaurants		
	drinking establishments		
	take-aways		
B1	business offices	inner/ central London: 1 space per 90 sqm outer London: 1 space per 150 sqm	first 5,000 sqm: 1 space per 500 sqm thereafter: 1 space per 5,000 sqm
B1	light industry and research and development	1 space per 250 sqm	1 space per 1000 sqm
B2-B8	general industrial, storage or distribution	1 space per 500 sqm	1 space per 1000 sqm
C1	hotels (bars, restaurants, gyms etc open to the public should be considered individually under relevant standards)	1 space per 20 bedrooms	1 space per 50 bedrooms
C2	hospitals	1 space per 5 staff	1 space per 30 staff
C2	care homes / secure accommodation	1 space per 5 staff	1 space per 20 bedrooms
C2	student accommodation	1 space per 2 beds	1 space per 40 beds
C3-C4	dwellings (all)	1 space per studio and 1 bedroom unit	1 space per 40 units
		2 spaces per all other dwellings	
D1	nurseries/schools (primary and secondary)	1 space per 8 staff + 1 space per 8 students	1 space per 100 students
	universities and colleges	1 space per 4 staff + 1 space per 20 FTE students	1 space per 7 FTE students
	health centre, including dentists	1 space per 5 staff	1 space per 3 staff
	other (e.g. library, church, etc.)	1 space per 8 staff	1 space per 100 sqm
D2	other (e.g. cinema, bingo, etc.)	1 space per 8 staff	1 per 30 seats
	sports (e.g. sports hall, swimming, gymnasium, etc.)	1 space per 8 staff	1 space per 100 sqm
Sui generis		as per most relevant other standard e.g. casino and theatre = d2	
Stations		to be considered on a case-by-case basis through liaison with tfl	

Notes:

- in outer London town centres that are designated as 'mini-Hollands' or which have high PTALs, cycle parking standards are expected to match those of inner/central London.
- where the size threshold has been met, for all land uses in all locations a minimum of 2 short-stay and 2 long-stay spaces must be provided.
- Cycle parking areas should allow easy access and cater for cyclists who use adapted cycles

Extracts from the Mayor's Transport Strategy

E1 The Mayor's Transport Strategy (MTS) is a statutory document, developed alongside the London Plan (The London Plan: Spatial Development Strategy for Greater London, consultation draft replacement plan, October 2009) and Economic Development Strategy (Rising to the Challenge: The Mayor's Economic Development Strategy for Greater London, public consultation draft, October 2009) (EDS) as part of a strategic policy framework to support and shape the economic and social development of London over the next 20 years. It sets out the Mayor's transport vision and describes how Transport for London (TfL) and its partners, including the London boroughs, will deliver that vision.

E6 Six goals set out how this overarching vision should be implemented. The transport strategy should:

- Support economic development and population growth
- Enhance the quality of life for all Londoners
- Improve the safety and security of all Londoners
- Improve transport opportunities for all Londoners
- Reduce transport's contribution to climate change and improve its resilience
- Support delivery of the London 2012 Olympic and Paralympic Games and its legacy

Improving transport opportunities for all Londoners

37 The strategy will help deliver equal life chances for all. Improved availability and helpfulness of staff, together with better information provision, will provide more reassurance, help and advice to passengers. A 'whole journey approach' will deliver increased step-free access and other accessibility improvements to the bus, Tube and rail networks. Improvements to the streetscape will improve physical accessibility. Targeted fare concessions and door-to-door services will continue for specific user groups.

76 Ensuring good door-to-door journey time and facilitating local movement in town centres, residential areas, and to local employers, services and leisure opportunities is essential for London's economy, and for the maintenance and improvement of people's quality of life. Representing more than 70 per cent of trips made by London residents, local trips are those millions of trips under five kilometres which are made daily to schools, local shops, leisure centres, health facilities, banks, etc. It is important to note that all journeys – whether seeking to access international or sub-regional transport networks – tend to start and end on the local transport network. For freight deliveries, for example, the ability to access premises and load and unload is vital.

77 Shopping (and personal business) is the most common trip purpose for a local trip, accounting for more than a third of trips (Based on local trips made within a region (Travel in London, report number 1). This is followed by leisure, which represents around a quarter of trip purpose. It is more sustainable and less costly for people to access goods and services which meet their needs locally. This saves journey time and reduces demand on the transport system. It is therefore beneficial for individuals and the transport system as a whole by reducing costs and congestion. As a majority of local trips are made by walking, cycling and public transport, their encouragement would support the achievement of CO₂, PM₁₀ and NO₂ emission reduction objectives. Local trips form the vast majority of journeys: everyone makes local journeys almost every day. It is therefore essential to facilitate local trip making, especially by walking, cycling and public transport.

78 More specifically, local trips in London are predominantly made by walking and cycling if the distance is less than half a kilometre. The car and bus are used for longer local trips between one and five kilometres, with lower levels of walking and cycling. A challenge will therefore be to encourage further

modal shift towards walking, cycling and the bus network for those short distance trips. In central London, where the average trip distance is smaller than in other London sub-regions, walking is the dominant mode of travel for almost half of all trips. However, further modal shift from the car and the Underground towards the bus, walking and cycling should be encouraged as some local trips are faster by bus, foot or cycle than Tube or private car.

Changing travel behaviour

158 In order to make the best use of London's limited road space, encouragement of more efficient modes of transport in terms of road space will continue, in particular buses, cycling and walking. Alongside this, TfL will continue to work with the boroughs to deliver a smarter travel initiatives to encourage people to choose between the full range of travel options and increase the share of journeys made by walking, cycling and public transport.

159 To achieve the desired economic and other strategy outcomes, challenging mode shifts are necessary. The strategy intends to build on the significant achievements to date, with an aim of increasing the mode share (in terms of trips, there has been about a five per cent increase in public transport mode share between 2000 and 2008. In terms of journey stages, there has been a seven per cent increase in public transport mode share between 2000 and 2008. See mode share in glossary) of public transport, walking and cycling from 57 per cent to 63 per cent (The projected mode share change from the strategy is set against a 2006 baseline) (34 per cent public transport, 25 per cent walking, five per cent cycling (numbers rounded to the nearest one per cent) or further should road user charging be required to meet the strategy's goals. This means that between 3.5 and 4.5 million extra trips each day will need to be made by public transport, walking and cycling to support the growth envisaged in the London Plan (allowing for mode shift as well as population and employment growth). The mode shifts are challenging but achievable with the investment and policies set out by the strategy.

Policy 11: The Mayor, through TfL, and working with the DfT, Network Rail, train operating companies, London boroughs and other stakeholders, will seek to reduce the need to travel, encourage the use of more sustainable, less congesting modes of transport (public transport, cycling, walking and the Blue Ribbon Network), set appropriate parking standards, and through investment in infrastructure, service improvements, promotion of smarter travel initiatives and further demand management measures as appropriate, aim to increase public transport, walking and cycling mode share. This policy is taken forward by proposals: 51, 52, 53, 54, 57, 59, 61, 83, 115, 116, 120, 125 127, 129 and 130.

Proposal 57 The Mayor will seek to use his planning powers and work with the London boroughs to encourage cycling by supporting development that:

- a) Provides cycle parking to an appropriate standard
- b) Integrates the needs of cyclists into the design
- c) Promotes the co-location of key trip attractors to make cycling a more viable and attractive travel option
- d) Provides cycle hire docking stations dependent on sufficient demand and feasibility studies

709 At the borough level the implementation of the MTS is delivered by the LIP, prepared by each London borough council (including the City). The MTS and non-statutory London sub-regional transport plans will provide the overarching framework for their development. The new LIPs must be prepared as soon as reasonably practicable after this new MTS is published in 2010, and when approved by the Mayor, will supersede any previous version.

Developer contributions to transport

736 Developments such as new offices, retail and housing often places significant demands on London's transport system. This needs to be addressed in order to ensure the development is viable and sustainable. TfL will continue to work with the LDA and boroughs to secure developer contributions for the necessary transport improvements through existing planning obligations to facilitate the success of the development and mitigate its impacts on the current transport network, in accordance with relevant legislation and policy guidance.

HARINGEY'S SPATIAL STRATEGY

SP7: TRANSPORT

Delivering Regeneration and Access

In line with London Plan policies, the Local Implementation Plan (LIP) and the Mayor's Transport Strategy, the Council will work with its partners to promote the following key infrastructure proposals to support Haringey's regeneration and local/strategic access to London, employment areas and local services;

- The Council, in cooperation with neighbouring boroughs, will seek to reduce the impact of larger lorries in local residential areas and town centres and investigate the feasibility of a freight distribution hub;
- Improvements to the Piccadilly, Victoria and Northern Lines including new trains, new signalling and new control centres;
- Improvements to overground routes along West Anglia, East Coast (Great Northern) and Barking - Gospel Oak line that service the centre and east of the borough;
- Access and interchange improvements to overground stations at Alexandra Palace, Finsbury Park, Harringay, Hornsey White Hart Lane, Northumberland Park, South Tottenham, and Bruce Grove;
- Improvements to interchanges at Tottenham Hale and Seven Sisters;
- Improvements to the Tottenham Gyratory; and
- Improvements to east - west bus routes as well as promoting new east - west routes.

Delivering Action on Climate Change and Quality and Healthy Places

In line with the London Plan, the Council will work with its partners to promote the following travel demand management schemes to tackle climate change, improve local place shaping and public realm, and environmental and transport quality and safety by:

- Minimising congestion and addressing the environmental impacts of travel;
- Promoting public transport, walking and cycling (including minimum cycle parking standards);
- Promoting road safety and pedestrian movement particularly in town centres and close to local services;
- Promoting car sharing and establishing car clubs;
- Seeking to locate major trip generating developments in locations with good access to public transport and so better integrate transport and land use planning;
- Adopting maximum car parking standards and car free housing wherever feasible;
- Seeking to mitigate the impact of road based freight and promote alternatives;
- Supporting measures to influence behavioural change such as promoting low carbon vehicles; and
- Requiring the submission of transport assessments and travel plans for large scale proposals in line with TfL guidance

Haringey Unitary Development Plan
Extracts from Parking Standards

Dwelling Houses

G4 Maximum number of car parking spaces

Type	Detached and semi-detached houses	Terraced houses and flats (2 or more bedrooms)	Flats/Bedsits (1 bedroom)
Private / Public	1.5 spaces per unit	1 space per unit	0.33 spaces per unit

Residential Cycle Parking

G.5 1 space per residential unit should be provided where possible. The cycle parking can be either internal or external to the residential dwelling provided it is secure, safe and undercover.

D1 NON-RESIDENTIAL INSTITUTIONS

J.1 For larger developments a Transport Assessment will be required. Parking provision will be assessed on an individual basis as part of this process. The standard set out below relate to smaller developments.

Car Parking, Disabled Parking and Cycle Parking

Type	Public Transport Accessibility			Disabled Parking (minimum)	Cycle Parking (minimum)
	Low	Medium	High		
Doctors, Dental, Veterinary Surgery, Group Practice	2 spaces per practitioner 1 space per 2 auxiliary staff	2 spaces per practitioner 1 space per 2 auxillary staff	None	1 space	1 space per practitioner

D2 LEISURE USE

K.1 The type and scale of leisure uses vary greatly. The parking provision will be assessed on an individual basis and for large developments a Transport Assessment might be required, in which case it would inform the parking provision.

Cycle Parking

K.7 The level of cycle parking required will be assessed as part of the Individual Assessment.

C1 HOTELS AND SUI GENERIS HOSTELS

E.1 Car Parking

Type	Maximum number of car parking spaces	Minimum number of disabled parking bays	Minimum number of cycle parking
Hotel	2 spaces per 3 bedrooms	1 bay per 20 rooms or part thereof	1 space per 20 members of staff should be provided that can also be used by guests.
Hostels	1 space per 7 bedrooms for student hostels		1 space for 20 students in student hostels
	1 space per 10 bedrooms for other hostels		1 space per 30 bedrooms for other hostels

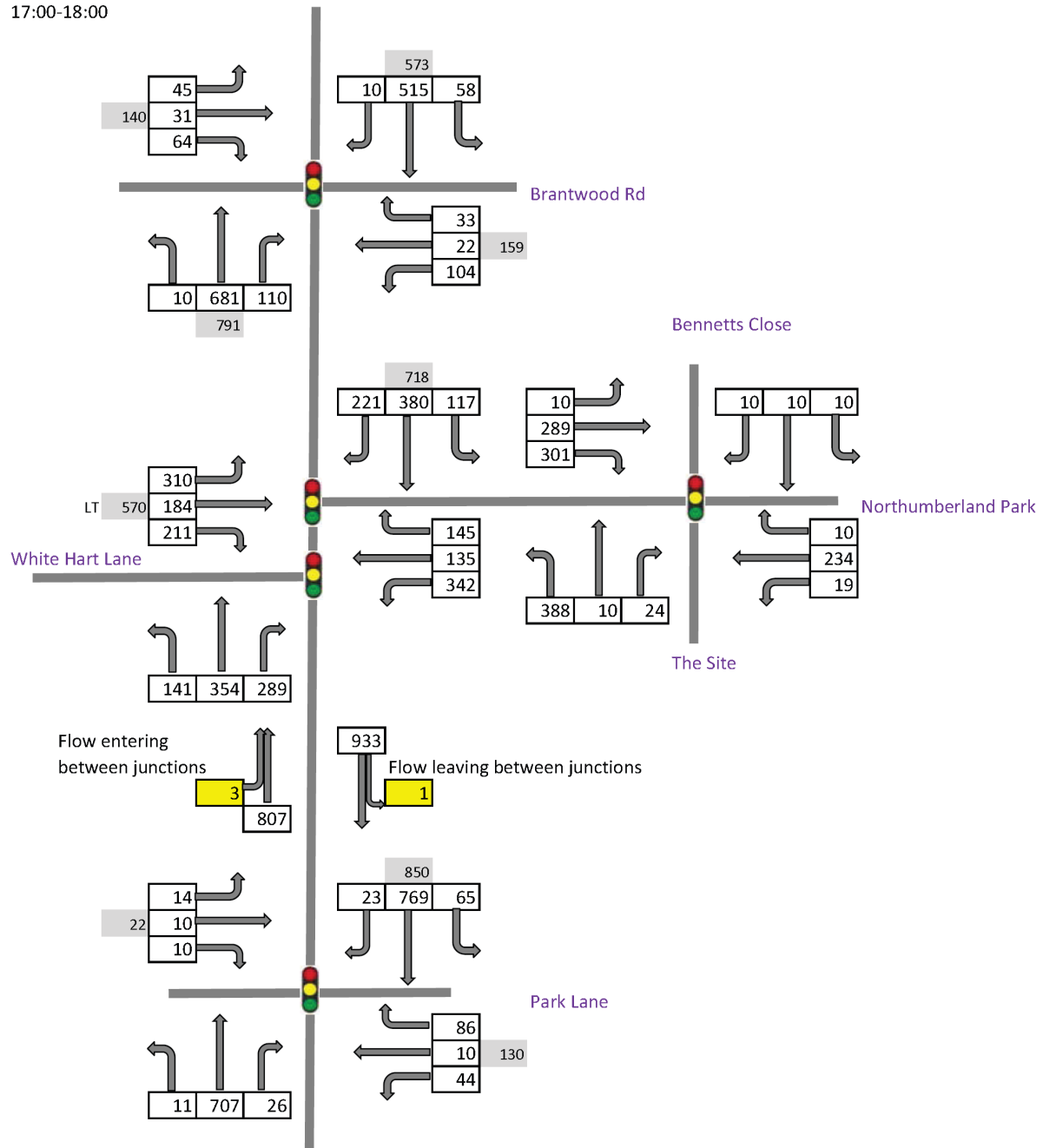
**APPENDIX B-
TRAFFIC SURVEYS 2015**

Traffic Survey Data to be included within a separate copy

APPENDIX C-
BROOK HOUSE TRAFFIC FORECASTS

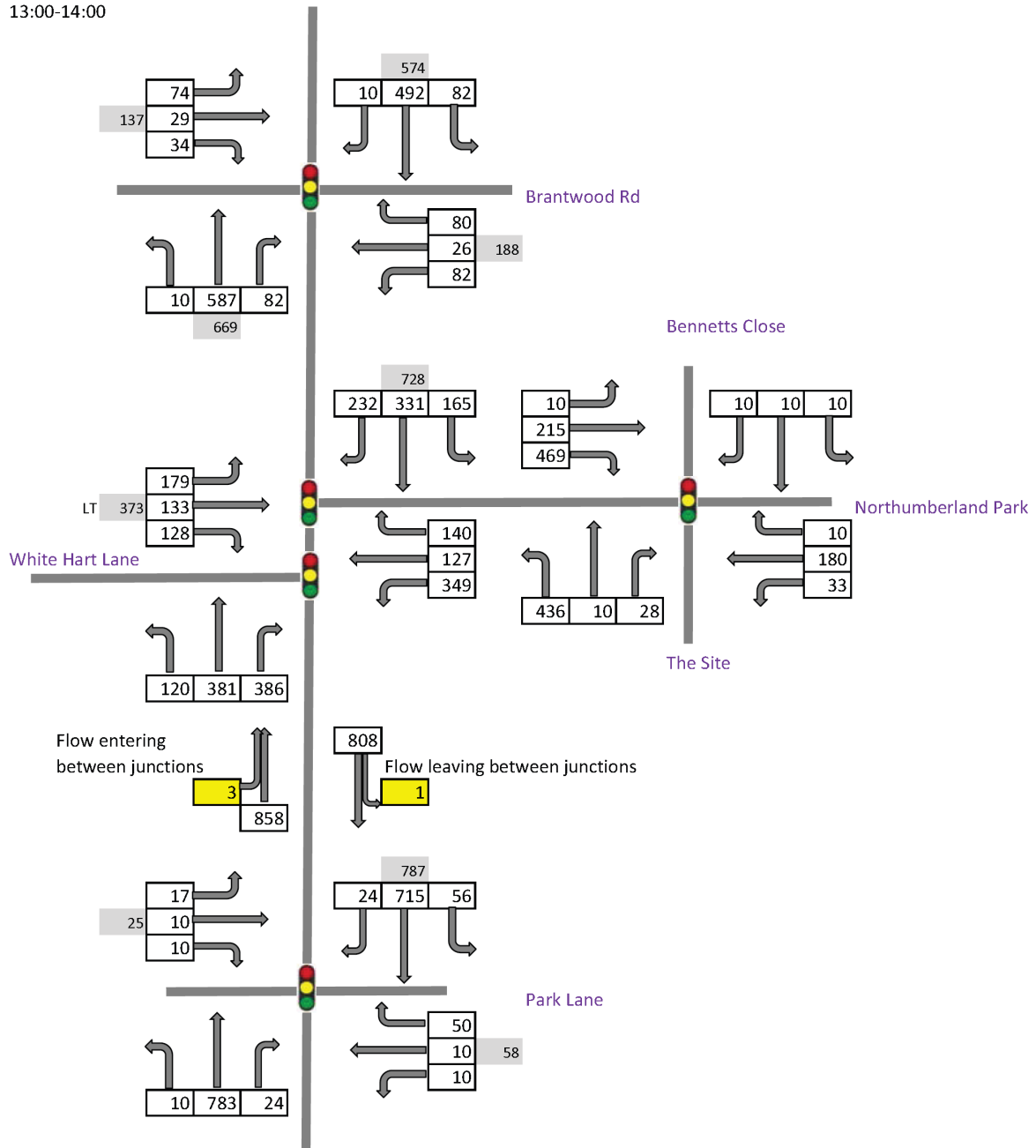
PM Peak 2016 Base + Phase 1 Model Flows

17:00-18:00



Saturday Peak 2016 Base + Phase 1 Model Flows

13:00-14:00



APPENDIX D- CONSTRUCTION TRAFFIC SCENARIOS

Construction of Stadium

Start date Jan-15

End Date

Jul-18

Duration 43 months

SCENARIO B - WITH GOODS YARD WORK SITE

			Total Duration	Car / Pick Up / 3.5T Van	7.5T Box Van / Panel Van	Low Loader / Artic	Ready Mix Concrete Truck - see Note 2	Mobile Crane	Skip Lorry	Tipper Truck - see Note 3	2015 Scheme Totals		2010 Scheme Totals
All construction traffic forecasts relate to 1-way trips either to or from the stadium site													
Enabling Works	Jan 15 - Dec 15		12	120	120	120			96	21000	21456		28
Demolition		Jan 17 - June 17	6	60	60	120			4000	4000	8240		
Piling & Foundations	Sept 15 - Feb 16	May 17 - July 17	9	180	180	360	see note 1	6	72		798		3512
Structure	Jan 16 - Oct 17		15	300	300	600	11294	8	120		12622		11068
Roof Structure & Cladding	Mar 17 - Apr 18		14	280	280	560		12	112		1244		1066
Envelope	Jan 17 - June 18		18	360	360	720		36	144		1620		884
Fit-Out & facilities	Sept 16 - June 18		22	440	440	880	2823		176		4759		3936
Commissioning	May 18 - July 18		3	60	60	120			24		264		134
Total Trips											21307		20600

Note 1 Concrete batched on site so no ready mixed concrete deliveries - would otherwise have been 6000 trips

Note 2 Ready mixed concrete based on 8.5m3 trucks

Note 3 Figure in red based on actual load count January to July of 6200 demolition / excavation loads that have left the site (and x by 2 for trips)

Note 4 The demolition/excavation phase was separately accounted for in the 2010 assessment, which did not allow for a basement or pitch pocket.

3% Increase over 2010 scheme exact like for like comparison.

Activity				Monthly Trips											
				Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15
Enabling Works	Jan 15 - Dec 15		12	1788	1788	1788	1788	1788	1788	1788	1788	1788	1788	1788	1788
Demolition		Jan 17 - June 17	6												
Piling & Foundations	Sept 15 - Feb 16	May 17 - July 17	9									89	89	89	89
Structure	Jan 16 - Oct 17		15												
Roof Structure & Cladding	Mar 17 - Apr 18		14												
Envelope	Jan 17 - June 18		18												
Fit-Out & facilities	Sept 16 - June 18		22												
Commissioning	May 18 - July 18		3												
Total Trips per month				1788	1788	1788	1788	1788	1788	1788	1788	1877	1877	1877	1877
Total Trips per day		30 days per month		60	60	60	60	60	60	60	60	63	63	63	63
Total Trips per hour		12 hours per day		5	5	5	5	5	5	5	5	5	5	5	5

High Road AADT 59.8

WHL AADT 0.0

0.0 Hi Rd BENEFIT

Activity				Monthly Trips											
				Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16
Enabling Works	Jan 15 - Dec 15		12												
Demolition		Jan 17 - June 17	6												
Piling & Foundations	Sept 15 - Feb 16	May 17 - July 17	9	89	89										
Structure	Jan 16 - Oct 17		15	841	841	841	841	841	841	841	841	841	841	841	841
Roof Structure & Cladding	Mar 17 - Apr 18		14												
Envelope	Jan 17 - June 18		18												
Fit-Out & facilities	Sept 16 - June 18		22									216	216	216	216
Commissioning	May 18 - July 18		3												
Total Trips per month				930	930	841	841	841	841	841	841	1058	1058	1058	1058
Total Trips per day		30 days per month		31	31	28	28	28	28	28	28	35	35	35	35
Total Trips per hour		12 hours per day		3	3	2	2	2	2	2	2	3	3	3	3

High Road AADT 30.5

WHL AADT 27.7

1.5 1.4

29.1

-40.0 Hi Rd BENEFIT

Activity				Monthly Trips												High Road AADT	WHL AADT
				Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17		
Enabling Works	Jan 15 - Dec 15		12														
Demolition		Jan 17 - June 17	6	1030	1030	1030	1717	1717	1717								
Piling & Foundations	Sept 15 - Feb 16	May 17 - July 17	9					89	89	89							
Structure	Jan 16 - Oct 17		15								841	841	841				
Roof Structure & Cladding	Mar 17 - Apr 18		14			89	89	89	89	89	89	89	89	89	89		
Envelope	Jan 17 - June 18		18	90	90	90	90	90	90	90	90	90	90	90	90	90	
Fit-Out & facilities	Sept 16 - June 18		22	216	216	216	216	216	216	216	216	216	216	216	216	216	
Commissioning	May 18 - July 18		3														
Total Trips per month				1336	1336	1425	2112	2201	2201	484	1237	1237	1237	395	395	42.7	6.9
Total Trips per day		30 days per month		45	45	48	70	73	73	16	41	41	41	13	13	31.6	4.2
Total Trips per hour		12 hours per day		4	4	4	6	6	6	1	3	3	3	1	1	-15.7 HI Rd BENEFIT	

Activity				Monthly Trips								7 MONTH High Road AADT	WHL AADT	structure fit out
				Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18				
Enabling Works	Jan 15 - Dec 15		12											
Demolition		Jan 17 - June 17	6											
Piling & Foundations	Sept 15 - Feb 16	May 17 - July 17	9											
Structure	Jan 16 - Oct 17		15											
Roof Structure & Cladding	Mar 17 - Apr 18		14	89	89	89	89							
Envelope	Jan 17 - June 18		18	90	90	90	90	90	90					
Fit-Out & facilities	Sept 16 - June 18		22	216	216	216	216	216	216					
Commissioning	May 18 - July 18		3					88	88	88				
Total Trips per month				395	395	395	395	394	394	88		11.5	0.0	
Total Trips per day		30 days per month		13	13	13	13	13	13	3		7.9	3.6	
Total Trips per hour		12 hours per day		1	1	1	1	1	1	0		-5.3 HI Rd BENEFIT		

SCENARIO A - WITHOUT GOODS YARD WORK SITE

All construction traffic forecasts relate to 1-way trips either to or from the tsdium site				Total Duration	Car / Pick Up / 3.5T Van	7.5T Box Van / Panel Van	Low Loader / Artic	Ready Mix Concrete Truck - see Note 2	Mobile Crane	Skip Lorry	Tipper Truck - see Note 3	2015 Scheme Totals	2010 Scheme Totals
Enabling Works	Jan 15 - Dec 15		12		120	120	120			96	21000	21456	28
Demolition		Jan 17 - June 17	6		60	60	120			4000	4000	8240	
Piling & Foundations	Sept 15 - Feb 16	May 17 - July 17	9		180	180	360	see note 1	6	72		798	3512
Structure	Jan 16 - Mar 17		15		300	300	600	16000	8	120		17328	11068
Roof Structure & Cladding	Mar 17 - Apr 18		14		280	280	560		12	112		1244	1066
Envelope	Jan 17 - June 18		18		360	360	720		36	144		1620	884
Fit-Out & facilities	Sept 16 - June 18		22		440	440	880	4140		176		6076	3936
Commissioning	May 18 - July 18		3		60	60	120			24		264	134
Total Trips												27330	20600
													33% increase over 2010 scheme exact like for like comparison.

Note 1 Concrete batched on site so no ready mixed concrete deliveries - would otherwise have been 6000 trips

Note 2 Ready mixed concrete based on 6m3 trucks

Note 3 Figure in red based on actual load count January to July of 6200 demolition / excavation loads that have left the site (and x by 2 for trips)

Note 4 The demolition/excavation phase was separately accounted for in the 2010 assessment, which did not allow for a basement or pitch pocket.

Activity				Monthly Trips												High Road AADT	WHL AADT
				Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15		
Enabling Works	Jan 15 - Dec 15		12	1788	1788	1788	1788	1788	1788	1788	1788	1788	1788	1788	1788		
Demolition		Jan 17 - June 17	6														
Piling & Foundations	Sept 15 - Feb 16	May 17 - July 17	9									89	89	89	89		
Structure	Jan 16 - Mar 17		15														
Roof Structure & Cladding	Mar 17 - Apr 18		14														
Envelope	Jan 17 - June 18		18														
Fit-Out & facilities	Sept 16 - June 18		22														
Commissioning	May 18 - July 18		3														
Total Trips per month				1788	1788	1788	1788	1788	1788	1788	1788	1877	1877	1877	1877		
Total Trips per day		30 days per month		60	60	60	60	60	60	60	60	63	63	63	63	59.8	0.0
Total Trips per hour		12 hours per day		5	5	5	5	5	5	5	5	5	5	5	5	59.8	0.0

Activity				Monthly Trips												High Road AADT	WHL AADT
				Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16		
Enabling Works	Jan 15 - Dec 15		12														
Demolition		Jan 17 - June 17	6														
Piling & Foundations	Sept 15 - Feb 16	May 17 - July 17	9	89	89												
Structure	Jan 16 - Mar 17		15	1155	1155	1155	1155	1155	1155	1155	1155	1155	1155	1155	1155		
Roof Structure & Cladding	Mar 17 - Apr 18		14														
Envelope	Jan 17 - June 18		18														
Fit-Out & facilities	Sept 16 - June 18		22									276	276	276	276		
Commissioning	May 18 - July 18		3														
Total Trips per month				1244	1244	1155	1155	1155	1155	1155	1155	1431	1431	1431	1431	41.5	0.0
Total Trips per day		30 days per month		41	41	39	39	39	39	39	39	48	48	48	48	41.5	0.0
Total Trips per hour		12 hours per day		3	3	3	3	3	3	3	3	4	4	4	4	4	0.0

Activity				Monthly Trips												High Road AADT	WHL AADT
				Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17		
Enabling Works	Jan 15 - Dec 15		12														
Demolition		Jan 17 - June 17	6	1030	1030	1030	1717	1717	1717								
Piling & Foundations	Sept 15 - Feb 16	May 17 - July 17	9					89	89	89							
Structure	Jan 16 - Mar 17		15								1155	1155	1155				
Roof Structure & Cladding	Mar 17 - Apr 18		14			89	89	89	89	89	89	89	89	89	89		
Envelope	Jan 17 - June 18		18	90	90	90	90	90	90	90	90	90	90	90	90		
Fit-Out & facilities	Sept 16 - June 18		22	276	276	276	276	276	276	276	276	276	276	276	276		
Commissioning	May 18 - July 18		3														
Total Trips per month				1396	1396	1485	2172	2260	2260	544	1610	1610	1610	455	455	47.3	0.0
Total Trips per day		30 days per month		47	47	50	72	75	75	18	54	54	54	15	15	47.3	0.0
Total Trips per hour		12 hours per day		4	4	4	6	6	6	2	4	4	4	1	1	4	0.0

Activity				Monthly Trips								7 MONTH High Road AADT	WHL AADT
				Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18			
Enabling Works	Jan 15 - Dec 15		12										
Demolition		Jan 17 - June 17	6										
Piling & Foundations	Sept 15 - Feb 16	May 17 - July 17	9										
Structure	Jan 16 - Mar 17		15										
Roof Structure & Cladding	Mar 17 - Apr 18		14	89	89	89	89						
Envelope	Jan 17 - June 18		18	90	90	90	90	90	90	0			
Fit-Out & facilities	Sept 16 - June 18		22	276	276	276	276	276	276	0			
Commissioning	May 18 - July 18		3					88	88	88	13.2	0.0	
Total Trips per month				455	455	455	455	454	454	88	13.2	0.0	
Total Trips per day		30 days per month		15	15	15	15	15	15	3	13.2	0.0	
Total Trips per hour		12 hours per day		1	1	1	1	1	1	0	1	0.0	

Table C - Construction of Residential, Hotel and Extreme Sports Centre

Start date May-17					End Date Dec-21					Duration 56 month					2010		2015			
in 2010					times 3					per month					Total Trips		5634		13927.215	
Activity					Monthly Trips															
					May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17								
Enabling Works / Exca / Remed	28	84	21	4	4	4	4	4	4	4	4	4	4							
Piling and Foundations	716	2148	24	90																
Structure	4404	13212	48	275																
Roof and Caladding	100	300	12	25																
Envelope	192	576	12	48																
Fit out ad Facilities	152	456	12	38																
Commissioning	38	114	6	19																
Total Trips per month					4	4	4	4	4	4	4	4	4							
Total Trips per day	30	days per month			0	0	0	0	0	0	0	0	0							
Total Trips per hour	12	hours per day			0	0	0	0	0	0	0	0	0							

Activity					Monthly Trips													
					Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18		
Enabling Works / Excavation / Remediation					4	4	4	4	4	4	4	4	4	4	4	4	4	4
Piling and Foundations												90	90	90	90	90		
Structure					275	275	275	275	275	275	275	275	275	275	275	275		
Roof and Caladding																		
Envelope																		
Fit out ad Facilities																		
Commissioning																		
Total Trips per month					279	279	279	279	279	279	279	369	369	369	369	369	369	369
Total Trips per day	30	days per month			9	9	9	9	9	9	9	12	12	12	12	12	12	12
Total Trips per hour	12	hours per day			1	1	1	1	1	1	1	1	1	1	1	1	1	1
																	High Road AADT	3799
																		10.4

Activity					Monthly Trips													
					Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19		
Enabling Works / Excavation / Remediation					4													
Piling and Foundations					90	90	90	90	90	90	90							
Structure					275	275	275	275	275	275	275	275	275	275	275	275		
Roof and Caladding											25	25	25	25				
Envelope												48	48	48	48			
Fit out ad Facilities														38	38	38	38	38
Commissioning															19	19		
Total Trips per month					369	365	365	365	365	365	390	348	348	386	380	332	4378	4378
Total Trips per day	30	days per month			12	12	12	12	12	12	13	12	12	13	13	11	12.0	12.0
Total Trips per hour	12	hours per day			1	1	1	1	1	1	1	1	1	1	1	1		
																	High Road AADT	4378
																		12.0

Activity				Monthly Trips													
				Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20		
Enabling Works / Excavation / Remediation																	
Piling and Foundations																	
Structure				275	275	275	275	275	275	275	275	275	275	275	275	275	
Roof and Caladding										25	25	25	25				
Envelope											48	48	48	48			
Fit out ad Facilities				38										38	38	38	
Commissioning														19	19	19	
Total Trips per month				313	275	275	275	275	275	300	348	348	386	380	332	3785	
Total Trips per day				30 days per month	10	9	9	9	9	9	10	12	12	13	13	11	10.4
Total Trips per hour				12 hours per day	1	1	1	1	1	1	1	1	1	1	1	1	