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Your ref: HGY/2015/3000

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-by email only-

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Dear Neil

Re: Northumberland Park, LB Haringey – TfL's initial comments

I write following receipt of the Transport Assessment (TA) dated September 2015 submitted in support of the above referable planning application to the London Borough of Haringey. The non event day element of these proposals were subject to TfL pre-application discussions and an advice letter on those matters only was issued on the 9th September 2015.

Similarly, TfL's comments within this letter are split into two sections; the first will relate to the event day impact only and the second will relate to the non event day impact. Notwithstanding that there will be issues raised that are common to both sections.

The following comments represent the views of Transport for London officers and are made on a "without prejudice" basis. They should not be taken to represent an indication of any subsequent Mayoral decision in relation to a planning application based on the proposed scheme. These comments also do not necessarily represent the views of the Greater London Authority.

Site and Surrounding Area

The site is bounded by the A1010 High Road to the west, Northumberland Park, the Tottenham UTC and Tottenham FC offices to the north, Worcester Avenue to the east and Park Lane to the south. Whilst the High Road is part of the strategic road network (SRN), the nearest part of the Transport for London Road Network (TLRN) is the A10 at Bruce Grove. In addition the site is approximately 1km south of the A406/Fore Street junction which is also part of the TLRN.

There are ten bus routes serving this area with bus stops located on the High Road and on Northumberland Park. White Hart Lane station is approximately 200m to the west and provides access to London Overground services to

Liverpool Street, Enfield Town and Chestnut stations. Northumberland Park station is approximately 600m to the east and provides access to services on the Tottenham Hale branch of the Lea Valley line. The nearest underground station is Tottenham Hale on the Victoria Line, approximately 2.2 km to the south east. Although Seven Sisters is actually further away, at 2.3m to the south, it is however perceived as being more accessible to this area given the short bus interchange on Tottenham High Road and the direct walking route. The overall site records a Public Transport Accessibility Level of (PTAL) of 4 on a scale of 1 to 6, where 6 is classed as excellent.

Cycling Superhighway 1 (CS1), currently under construction, will link this area (the route terminates at Church Road) with the City (terminating at Liverpool Street to the south). It will avoid major roads and will provide a new alternative route with improved cycling facilities.

Major events – football matches, NFL and concerts

Impact assessment

To applicant has used match day survey data in May 2014 to inform the trip generation for match days. TfL welcomes the use of up to date data, however the applicant should clarify how this mode split has been recorded within the Transport Assessment (TA). TfL understands from pre-application discussions that 'spectator club' data has been used; this needs to be confirmed within the TA. Furthermore, it would appear that this data only relates to weekday matches and considering that the level of public transport service is greater on weekdays, the applicant should also provide a weekend split. Furthermore, where a modal split has been provided, the applicant should provide the actual number of trips that these equate to as TfL have had to make assumptions to derive the actual trip numbers for the time being.

Using arrival profiles from a combination of data recorded at both White Hart Lane on March 2008 and Emirates Stadium during the 2006 season, the applicant has assumed that the majority of spectators (55%) will enter through the stadium gateline 30 minutes before kick off. For departures, 75% of spectators will have left through the stadium gateline 15 minutes after the final whistle.

The applicant has assumed that approximately 60% of fans will spend at least 45 minutes or more in the local area pre-match (TfL has assumed that this is before they enter through the gateline however this should be clarified). This equates to almost 37,000 people which seems high. The applicant has assumed that 30% of home spectators (17,400) and 5% of away spectators (150) will spend time in the local area post match waiting for crowds to dissipate however it is not clear to what extent their dwell time will be.

The applicant has submitted a pre and post match entertainment programme however this relates to a 15.00 weekend kick off only, for which the applicant has not submitted any assumed dwell times. On that basis, the applicant should provide the expected dwell times for the weekend fixtures and conversely the proposed entertainment programme for a weekday game. Encouraging a smoother arrival and departure profile is an important element in avoiding queues at public transport hubs. It is also requested that the departure profile for a home game loss is provided as it is expected that the departure profile will differ with less fans dwelling in the local area post game.

With regards to proposals for the two National Football League (NFL) games per season, the applicant has used data derived from assumptions recorded within Tim Spencer & Co's 'NFL and Concert versus PL at NDP (24th June 2015)'. This document should be provided so TfL can understand the methodology adopted.

The NFL match is assumed to take place on a Sunday and the arrival profiles have been derived from observations of NFL games at Wembley Stadium in 2014. The arrival profiles for football and NFL are similar however the data indicates that there is a smoother profile post-match with a departure peak of 40% 15-30 minutes after the final whistle.

To assess the impact of a concert scenario, the applicant has assumed a venue capacity between 45,000 and 55,000 and that it will occur on a Saturday evening between 20.00 and 22.00. A steady flow of visitors into the stadium between 15 and 90 minutes has been assumed however it is not clear on what grounds these assumptions have been made and this needs to be clarified – have these been observed from other concert venues? The modal split assumptions have been derived from the June 2015 document requested above.

The applicant has then subsequently assessed the impact of these three scenarios on the following:

- Local bus network
- Pedestrian network
- Highway and car parking
- Coach demand
- Cycle network
- Taxi demand
- Tottenham Hale interchange
- Seven Sisters interchange
- Rail capacity

And TfL comments on each of these assessments are as follows:

Bus network

A bus mode share of 10.5% for home spectators and 13% for away spectators is predicted for arriving at the stadium and this decreases for home spectators to 8% on departure and remains the same for away spectators. TfL is satisfied that there will not be a detrimental impact on bus capacity as this site is well served by bus services. Nevertheless it is noted that public realm works proposed on the High Road will necessitate the relocation of existing bus stops and this will need to be discussed in more detail with TfL.

Pedestrian network

The applicant predicts that 3% of spectators will use walking as their main mode to and from the stadium and has undertaken capacity assessments on the most heavily used routes which connect the stadium to the various transport interchanges. To establish the network capacity the applicant has used link lengths to allow for an estimation of walk times. The pedestrian widths have been captured by using mapping of the local area. Walk speeds have been assumed to be 1.5m/s on walkways (0.2m/s faster than TfL's station planning figure of 1.3m/s).

A Pedestrian Environment Review System (PERS) audit has been provided and TfL considers the scope appropriate. It has identified numerous improvements to the local area which includes the widening of footways where appropriate. In particular the applicant has identified that there are safety issues caused by the 1.9m pinch point on the High Road pavement in front of 750 High Road which can cause pedestrians to walk into the adjoining southbound bus lane.

In principle, TfL does not object to a widening of the footway on the High Road however, however as the High Road is part of the SRN and a key bus corridor, any highway amendments will need to be agreed with TfL and the impact on bus and traffic performance understood. The applicant should also confirm how the other deficiencies will be remedied as part of the package of mitigation required in accordance with London Plan policy 6.10 '*Walking*'.

The assessments on station capacity is covered in further detail within later sections of this letter however queues outside stations will be a frequent occurrence and on that basis the applicant should confirm to what extent these will impact on the pedestrian environment.

Highway and car parking

The applicant has already committed to an expanded major event day controlled parking zone (CPZ) secured through a section 106 agreement. The Haringey CPZ is now two-thirds complete and the Enfield scheme will follow in the next few years.

The car parking on site has been increased from the 319 spaces previously proposed to 822 spaces. The applicant has stated that this will be offset by a reduction of 870 off street spaces in the local surrounding area as other sites within the local area are redeveloped. When the grass pitch is retracted the number of spaces is reduced by 217 to 518.

For departing home spectators a car mode split of 23% has been assumed and for away spectators this is 10%. This is consistent with that assumed with the 2010 scheme and represents a notable reduction from the mode split of 45.6%, last recorded in 2014 (although in table 7-5 and 7-6 it refers to a survey date of 19th March 2008 which is assumed to be a typo). The predicted car mode share for both NFL and concerts is notably lower.

A map of off-street parking availability has been provided and identifies 22 sites potentially available for parking. The quantum of off street parking spaces will reduce from 1,800 to 1,675 and this will be complimented by 900 new on street parking spaces, in addition to the 1,350 existing on street spaces which give a total of 5,725 spaces. TfL requests that the applicant clarifies whether 'old' refers to extant permission or the existing conditions and how an additional 900 on street spaces are delivered.

The applicant should confirm what walk distance has been used to establish the boundary where parking capacity has been included as it is important that this aligns with the maximum distance a car user would be willing to walk to the stadium once parked. In addition, the applicant should justify why in the context of a significantly reduced car mode share the on site car parking proposed has been increased.

As with the 2010 scheme, no highway impact assessment of major event day traffic has been undertaken on the assumption that the level of vehicular use is capped as existing and TfL considers this reasonable.

Coach demand

Coach parking requirements are related to demand from the away spectators for a football game and total coach demand is forecasted to be less than 30 coaches per game which is expected to be accommodated within the nearby industrial area. The applicant states that coach management for the NFL games will be similar to the football scenario and it is assumed that this is relevant for the concert scenario too. The coach mode share for the away fans is 16% and for the home fans 1.5% however the coach mode share for all NFL visitors is 5%.

Considering that only 4.92% of the total football stadium capacity is allocated for the away spectators, the applicant should confirm what the maximum coach demand will be for the NFL games, as it could be a greater generator of coach

trips and demonstrate that sufficient capacity exists within the local area. An assessment on coach demand for concerts would also be required. The applicant has proposed for overspill demand to be accommodated on Pretoria Road however it should be clarified how this will be managed with parking controls present.

Taxi demand

The taxi mode share for home spectators is expected to be 1.7%; slightly lower than the 2.0% mode share for NFL and 3% for concerts. It is welcomed that a taxi rank to serve the stadium is proposed on Park Lane, though the applicant should provide additional detail on its capacity and operation. Provision will also need to be made for Private Hire Vehicles (PHV). TfL also requests that a taxi and PHV management plan is secured by condition. More discussion with TfL is required on these matters and the extent of marshalling required.

Cycle network

A cycling mode share for the major events of only 1% is expected. The route of CS1 referred to above will avoid major roads and provide an alternative to the High Road to the south. Although not formally designated, Park Lane offers a continuation of CS1. It should therefore be designed to offer at least the same level of service for cycling as that provided by CS1 on Church Road. However, the drawings submitted show Park Lane as being considerably wider, and with servicing facilities close to the junction. These features significantly diminish the cycling level of service provided by CS1 and sever its continuity as an appealing cycling route, instead of enhancing it.

On that basis and in accordance with London Plan policy 6.9 ‘Cycling’ the applicant should review the design of Park Lane and propose a layout that at least matches, though preferably improves, the cycling level of service of CS1.

The applicant has failed to provide a detailed assessment of cycling accessibility to the site. We recommend that the applicant provide a study of ‘cycling level of service’ (CLoS) of existing streets in the vicinity of the new development, following the methodology explained in section 2.3.4 of London Cycle Design Standards (LCDS). This approach would help identify severance issues and which crossings and links are fundamental to access the site. It is also recommended that an assessment of junctions in close vicinity of the development is performed to inform scoring of the collision risk criteria in the CLoS Assessment (LCDS Chapter 2.3.6). Overall, this will provide a clear picture of the most important safety issues to cycle to/from the site and will inform which improvements could be made to provide a safer access to cyclists.

Rail capacity

The capacity of the future London Overground rolling stock (CL 710/1 AC fleet) will be 689, not the 859 as stated in section 8.4.1 of the TA. Even overestimating train capacity, the applicant has identified that rail capacity is constrained for pre-match northbound rail services from Seven Sisters (between 18:15 and 19:30) and Tottenham Hale (between 18:00 and 18:00) during the evening peak. TfL would expect the applicant to reassess the impact of match demand using the correct rail capacity.

Post match queueing is predicted at all local stations and this is considered below for specific stations. At the weekend pre match, no capacity constraints are predicted on the Tottenham Hale branch however, there will be some capacity constraints on the Seven Sisters branch as the peak arrival period between 13:45 and 14:00 coincides with a significant gap in service.

White hart Lane

This station is expected to accommodate 21% of all spectators in the pre-match period and 20% post match. As such for the weekday post match period, the maximum queue length for an individual outside the station will be 21 minutes for northbound services and 32 minutes for southbound. For weekend matches the northbound wait will be up to 12 minutes and southbound, up to 29 minutes. For the NFL this is expected to be 22% and 19% respectively with 45 minute southbound queues and no northbound queues. For the concert scenario 13,200 attendees will arrive at the station and 11,550 will depart, this equates to a queue of up to 29 minutes for a southbound service and no queue for northbound services.

Queuing illustrations have been provided. If the southbound queue for the station is on the southern side of Whitehall Street for the 55,000 capacity concert scenario then the queue would extend onto the High Road. The alternative queueing arrangement on the northern side of Whitehall Street includes queueing in space that would be occupied by parked vehicles. This would extend the queue further into the High Road.

The southbound queue is shown as starting within the footprint of the proposed ticket hall and as the queue is proposed to be held outside the ticket hall, this would also result in the queue extending onto the High Road. The weekend matchday and 55,000 concert scenarios show the queue spilling onto the carriageway on Love Lane which would not be acceptable and therefore the queue would extend onto the High Road.

The preferred option for access to the northbound platforms as part the proposed station upgrade design is still to be confirmed. One option is the arrangement used in the queuing illustrations but other options include retaining the existing staircase and access through the new ticket hall.

Section 7.4.1 of the TA suggests that the station upgrade is expected to increase platform capacity, however this is not the case. Staircase capacity could be increased to aid platform clearance but not the platform capacity itself.

The applicant recommends the use of a wider stair width of 4m to serve both platforms which would enable a full trainload to access and egress within the minimum train headway. The expected cost of delivering these works would be £2 million.

Northumberland Park

For match days, the station is expected to accommodate 13% of spectators in the pre-match period and 14% in the post-match period. This equates to no queues pre match and queues of 33 minutes and 35 minutes for northbound and southbound services respectively. The applicant states that the station itself will have capacity to accommodate forecast flows.

Interchange (Seven Sisters and Tottenham Hale)

TfL considers the 2021 forecast and applied background growth used to be acceptable and it should be noted that Railplan 2011-2021 pm peak growth forecasts suggests that Tottenham Hale will experience greater growth than Seven Sisters. RODS data suggests that there has already been 20-25% growth in usage at Tottenham Hale since 2011.

TfL would have expected the applicant to consider the operation of the stations with Railplan 2031 background growth as this would represent the future growth expected on the Victoria Line.

The applicant has used estimates of capacity from 2008 surveys rather than the station planning guidelines for Seven Sisters which means there is no allowance for service disruptions. The station planning guidelines have been developed to ensure that there is a safety case for the levels of crowding operated. The assessment does not make it clear if the stations would fail when assessed using these guidelines and TfL would expect this to be addressed.

Seven Sisters

For midweek matches, 24% of spectators will use Seven Sisters during the pre-match period, the majority of which will exit the station and walk to the stadium. Approximately half will interchange to London Overground services or onto local buses. Post match, 23% of spectators will use the station and the profile is similar to the pre match except approximately 1000 people

interchanging from London Overground instead of bus services. This arrival profile is very similar for the weekend match days.

The applicant has identified that during the midweek pre-match period there will be capacity constraints on London Overground services travelling northbound and those who choose to interchange onto these services will have to wait for up to two services to pass before being able to board. All station vertical circulation elements have been deemed to provide sufficient capacity.

During the post match period the applicant also concludes that there would be sufficient capacity. However, queues can be expected at the times of peak interchange and a maximum 'shuffling' (as characterised by the applicant) queue of 250 people could be expected where passengers will pass from the London Overground services to the Victoria Line escalators. More information on what the consequences are of 'shuffling' is required – what level of service does this refer to and what are the impacts on station operation and how will this be expected to be managed?

Usage of this station will be greater for NFL games and passengers will have to wait for the third or fourth northbound London Overground service during the pre-match period and this would result in platform loadings in excess of 1,000 people. For the post match period queues will form outside the station and the maximum delay will be one minute. A 'shuffling' queue of 100 people is expected at the top of escalator from London Overground services to the Victoria Line. As above, the level of services this equates to needs to be clarified.

There is not expected to be any impact on Seven Sisters during the arrival period of a 55,000 capacity concert and during departures there is expected to be a queue of up to 13 minutes for entry into the station. Internally, there will be small 'shuffling' queue of 50 people queueing at the escalator. For the 45,000 capacity this queue time falls to 8 minutes however there will be an internal queue of 100 people for the escalator from London Overground services to the Victoria Line. It is not clear why for a smaller capacity concert approximately 500 more people will use seven sisters and why this equates to smaller queues outside the station and this should be clarified.

For entry into the station the applicant has used the capacity of the Wide Aisle Gate however it should be noted that this capacity is bi-directional and therefore if the full capacity is allocated towards entry then the applicant should confirm how passengers will exit the station.

Current signage directs spectators via the Seven Sisters Road exit which is a smaller gateline. A signage review will assist in ensuring that spectators will make the best use of the station capacity when exiting the station.

The conversion of the staircase into an escalator could elevate vertical congestion and improve the vertical flow of passengers. The applicant should note however that the expected cost of delivering these works would be £3.6 million.

Tottenham Hale

TfL has now received tenders for the main design and build contract for the £32m upgrade of Tottenham Hale station. Following TfL review and assurance, the contractor will be appointed in early 2016. The upgraded station will be open by autumn 2017. The scheme design is integrated with the upgrade of the West Anglia Main line and DfT's funded 'Access for All' bridge, both being delivered by Network Rail.

During the pre-match period for a midweek match 13% of spectators will use the station with just under half exiting the station and walking to the stadium. Approximately 35% will interchange onto the Shuttle Bus with the remainder interchanging onto Abellio Greater Anglia services to Northumberland Park. The weekend scenario is similar, however there are 1% fewer spectators using the station. Post match, 15% of spectators will use the station of which the majority will walk from the stadium and the remainder will be split evenly between interchanging from rail services and shuttle buses. The weekend scenario is again similar; however there will be 3% more spectators using the station and approximately 500 more spectators using the Shuttle Bus than rail services.

During the pre-match midweek period the applicant has identified that the most significant constraint on station capacity is access to the escalators/stairs from the Victoria line platforms and analysis has shown that some queueing can be expected for at least 45 minutes and if the stairs are not used this would be for two hours. TfL has assumed that this conclusion is based on using 32 trains per hour however, this should be clarified. Post match queues are envisioned of up to six minutes and no capacity constraints are expected as spectator management will hold crowds outside the station. It should be noted that should queueing within the station ever present a safety concern then trains would no longer call at that station.

No capacity constraints are expected during the weekend primarily due to the lower volumes of non spectator travel.

For the NFL games, subject to the use of the stairs, no impact on station operation is expected and there will be queues of up to 3 minutes post match outside the station. For the concert scenarios the impact is similar however the queue outside the station will be up to 13 minutes.

The assessment assumes that the station upgrade will be complete when the new stadium is operational. However should the applicant consider how the

station will operate should the new stadium be delivered before the station upgrade would be completed.

The proposed queueing route into the station conflicts with the location of TfL's consented pop up commercial development, which is due to be opened in early 2016 and this needs to be revised accordingly.

The applicant states that planned train frequency increases will assist in reducing the escalator queues. Whilst TfL acknowledges that greater capacity on the Victoria line is an advantage, this will not mitigate the impact on station capacity, rather the effect will be less time between trains for the platform to clear. During periods when the service is only 32tph, the queues will be expected to peak.

Replacing the central staircase with an escalator would create greater vertical capacity which would enable the platforms to clear more smoothly when demand peaks, particularly in the mid week pre match period. To minimise the impact on station operation it would be beneficial to deliver this at the same time as the station upgrade works referred to above. Furthermore, additional vertical capacity could only be utilised with gateline expansion.

In order to mitigate the impact of additional match day demand, minimise the impact of queuing and support the proposed mode shift to public transport, TfL recommends that additional escalator capacity is provided at one of the Victoria Line stations. As with the 2010 scheme, the applicant predicts that additional demand for underground services should be encouraged at Tottenham Hale. Given the planned and recent upgrades at this interchange, TfL concurs with this strategy. As for Seven Sisters, the expected cost of an additional escalator would be £3.6 million, but if delivered with the station upgrade it would reduce to £3 million. TfL welcomes further discussion with the applicant about securing a contribution to help deliver these works.

Shuttle Bus

Two services will be operated to and from the stadium; one between Tottenham Hale and the other from Alexandra Palace via Wood Green. The former will be a premium service tailored towards those with one of the 9,000 seats at Box and Club level with the latter operated as a standard service. The demand is expected to be split 75%:25% between Alexandra Palace and Wood Green station. For all scenarios it is expected that a 2-3 minute frequency will lead to a worst case maximum wait time of up to 21 minutes however more commonly it will be six minutes.

The applicant has stated this service will play an important role in offering a range of modes for those visiting the stadium and potentially reducing the impact on other parts of the network. More information is required before TfL can fully understand the potential of this service. For example, the frequency of

2-3 minutes appears quite high and therefore it would be useful to clarify how many buses this would equate to and also how long the journey time would be. In addition, the applicant should clarify how they have assumed the number of users of the service.

It is understood that operational space requirements will be negotiated at the time of contracting an operator.

Cycle parking

The applicant does not propose any staff cycle parking for the stadium as there is already a provision at Lillywhite House. The applicant should confirm the quantum of those spaces before TfL can consider this approach acceptable.

The applicant has stated that the current public cycling facilities are poor and it is therefore welcomed that a cycling strategy will be prepared which will provide dispersed cycle parking facilities that can be securely managed on Major Event Days.

Although there are no specific London Plan cycle standards for a stadium, the applicant could consider a cinema as a place of assembly to be comparable. This land use has a requirement of one space per 50 seats which in this instance would correspond to 1,120 spaces. This quantum will provide sufficient capacity for the 1% mode share predicted and allow for some future proofing as this number will be sufficient to also accommodate a 2% mode share (which would be a realistic travel plan target). More discussion on this matter would be welcomed.

Full details of the cycle strategy will be secured through the section 106 agreement which is welcomed and TfL would wish to be party to its approval in conjunction with Haringey Council.

Travel Planning

No event day travel plans have been submitted with this application. As travel plans were secured with the 2010 consent, the applicant should clarify whether these would be updated as this would be expected. A draft stadium travel plan should be provided for TfL to review as our role in managing much of the public network in the area will be important in ensuring that spectators are well informed of their travel options and encouraging modal shift away from private vehicle use and peak times on public transport.

Non event day impacts – residential, hotel, serviced apartments etc

TfL provided pre application advice on the non event day element on the scheme in September 2015.

Baseline assessment

The baseline data has been updated using video surveys undertaken in July 2015 and have observed that traffic flows are 25% lower than expected with the PM peak 50% lower than assumed in the 2010 assessment. TfL does not have any Automatic Traffic Count data at this location and has obtained the DFT data that has been used in this assessment and confirms that the data is valid.

TfL's traffic flow forecasts for 2021 and 2031 shows a trend increase in peak car trips of 1.5% between 2012 to 2021 and a 3% reduction from 2021 to 2031, equating to an overall reduction in car traffic of 1.5%. Freight traffic levels are expected to fall in the AM peak between 2012 and 2031 however the PM peak will increase significantly by 27% during this same time period. It should be noted that freight traffic represents approximately 20% of traffic flow. These figures provide general trends and should not be used explicitly as they are dependent on different assumptions with varying levels of confidence for each.

The northern development is fully completed and occupied. However we note that the Sainsbury's supermarket is only trading at the level of the much smaller store that it replaced. A possible reason for this is that the current demographic of the area does not meet the target demographic for this type of foodstore. With the planned quantum of new development in the Tottenham area, this is likely to change in the future and the retail store would eventually meet trading expectations. On that basis TfL requests that the store trips included in the future baseline are those calculated in the 2010 assessment.

General approach

The applicant should provide a multi-modal split including all modes of public transport for all land uses proposed. Currently, only the residential and serviced apartment assessment includes an assessment on all modes of transport.

Only the peak hour assessment has been provided however TfL will require the all day trips for validation purposes. This will highlight any peak anomalies. The applicant should provide a total trip generation figure for a weekday and weekend which incorporates all proposed land uses.

Residential

A multi-modal trip generation has been undertaken for the residential element of the proposals. TfL is satisfied that the residential trips, in isolation, will not have an impact on the capacity of the local bus network. The applicant has not assessed how many of the trips boarding at Northumberland Park and White Hart Lane then subsequently interchange onto Victoria Line. RODS 2014 data shows that 39% of boarders at Seven Sisters in the AM peak were from Network Rail services, which equates to 14% of the southbound line loads into Finsbury Park. It is clear therefore that interchange from London Overground services could have an impact on train capacity and this will need to be assessed.

To derive the vehicular trips the applicant has used comparator sites associated with the Emirates Stadium project in Holloway and in Highbury. Any survey data that has been collected from those schemes should ideally be made available to TRICS so it can be compared to other sites within London. TfL's preferred method would be for person trip generation which is then disseminated by hour and mode and to use data that is already in TRICS or can be submitted for use in the TRICS database for reason of future scrutiny.

Video surveys for the three largest parking areas at certain Holloway developments have also been undertaken. 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, however the parking utilisation is closer to 0.55 spaces per unit. At Holloway, the car driver trip generation per unit is 0.14 two way trips per day. Per allocated parking space this equates to 0.28 trips and as above it would be beneficial to see this calculation in a multi-modal context. The applicant has therefore assumed a total trip generation of 3.5 2-way trips per day which equates to a car driver modal split of 4%.

The applicant states that 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. TfL has assumed this data has originated from the 2011 census. The equivalent Islington statistics combine to show car use for journey to work trips at 9.9% of all journeys. The applicant concludes that the daily car trip generation in Islington is thus 40% of the journey to work percentage (4% surveyed at the Holloway sites compared to 9.9%). The applicant then assumed a similar relationship in Haringey and have proposed a 8.9% mode share which is significantly lower than the car trip rate for a car owning household in the new development which would be 0.67 per unit with a car mode share of 19.1%.

TfL recommends ward data is used, if census data was to be used then there are uncertainties as the time of travel or the extent of travel for non-work reasons. If the car travel to work is accepted as a proxy for other reasons to travel during the peak, then TfL suggests applying that percentage direct to the

person trip rate. For the Northumberland Park ward this is 23% and in Highbury West it is 8%. If it is accepted that the surveyed Holloway sites have a modal split of 4% (half that of the residing ward) then a car share of 11.5% could be considered an equivalent assumption for this development.

The applicant assumes that the daily car trips will be generally very similar to those sites surveyed in Holloway. TfL does not accept this assumption, though we do accept that this development will have a lower car use than census data shows. TfL is concerned that the adopted approach is overly complex and a simpler approach using TRICS validated data and the ward census data should therefore be adopted.

Tottenham Experience and non-event day attractions

The non-event day attractions and associated annual visitor numbers are predicted as follows:

- 81,180 – conference facility
- 120,000 – museum, stadium tour and store ('Tottenham Experience')
- 96,600 – sky walk
- 100,000 – extreme sports venue

The visitor numbers originate from work undertaken by Quad which has included reviewing data for similar facilities. Commercial / corporate events in the stadium will be busier in the autumn and spring, with social events peaking in November to January. The Tottenham Experience and Sky Walk will be busiest during the school holiday periods. It is also expected that these attractions will become established as international tourist attractions, so visitor numbers will follow London's seasonal trend. To account for seasonality a 'busy day' has been assessed which has increased the main traffic forecast by 25% above the average as assessed across a year.

It is expected that the extreme sports venue will be utilised all year and the applicant has not taken into account any trip discounting i.e. those visitors who choose to combine a Tottenham Experience and Sky Walk.

The applicant has calculated the trips for the 'Tottenham Experience' using Chelsea FC's average of 160,000 visitors per annum (p/a) in the last 5 years and Arsenal's visitor numbers of 120,000 last year. This is considered reasonable.

The extreme sports centre trips have been derived from those observed at climbing wall venues within London with that located in Bermondsey attracting 100,000-180,000 visits p/a and that located in Stoke Newington attracting 150,000 visits p/a. It is understood that the climbing wall is planned to be the tallest in the world and therefore TfL queries why the proposed visitor numbers are lower than the comparison sites, when they would be likely to exceed

them. We also note that a diving tank is proposed and would therefore assume that as this is currently a unique offering to London, visitor numbers would be even higher.

With regards to the Sky Walk and conferences / banqueting, the visitor numbers were taken from feasibility studies undertaken on behalf of the applicant. It would be useful to understand the assumptions / methodologies adopted by these studies before a conclusion can be made on their appropriateness.

As noted above the applicant considers that a busy day would generate a 25% increase in traffic to the site. It would be beneficial to understand why this figure has been assumed. The applicant should consider other similar attractions and how their annual trips vary between their maximum and average as this would provide an indicative uplift which can be applied.

The applicant should confirm how the modal split assumptions have been made and a comparison would be to look at census travel to work data and this can be reversed to see how those who work in the local ward travel there. The modal split for a work and leisure trip is unlikely to vary greatly.

TfL queries why during the hours of 8am - 9am there would 83 departures from these venues as this is not something that would usually be expected. This could suggest an over estimation of person peak trips or relate to a specific land use. The visitor traffic attraction discussed above is based on estimates of patronage. Staff travel will depend on shift patterns and visitor demand. TfL suggests employee travel needs to be added to understand the full picture.

Flexible community / office use

The applicant proposes 3,897sqm of flexible B1, D1, D2 floorspace, however because the end occupier is unknown the applicant has chosen not to do an assessment and instead proposes to submit a transport statement at reserved matters stage. The land uses applied for includes a wide variety of potential occupiers including offices, schools and places of worship. These are all potentially high trip attractors and therefore TfL considers that a robust assessment should be undertaken at this stage. On that basis, the applicant should consider what the worst case occupier of this space could be and undertake a trip generation exercise.

Health centre, hotel, serviced apartments

The applicant has provided a multi-modal impact assessment but has only disseminated the public transport trips into bus trips and therefore it is not clear how many visitors will be using London Underground or rail services. Furthermore, the conclusions do not seem realistic. For example, with regards to the hotel and serviced apartments the applicant has predicted there won't be

any weekday peak hour bus trips (even for those using the bus to access other public transport services). In addition, no walk only trips are predicted for the hotel however there are notably more walking trips associated with the serviced apartments even though this land use would be a quarter of the size. It is understood that the assessment has used trip rates agreed for the 2010 application however the survey sites would be at least five years old and probably even more and therefore more up to date surveys would be preferable. In addition, where trip rates are presented as zero for a mode a manual adjustment would be reasonable, especially when the proximity of a Cycle Superhighway and a high frequency bus corridor are considered.

The applicant has not assessed the coach or taxi demand associated with the hotel development or serviced apartments and this will need to be provided.

Highway impact

As highlighted previously, the baseline traffic flows should include the northern development trip generation as originally predicted. The all day flows should also be provided to allow TfL to validate the peak trip numbers. Furthermore, based on TfL's comments on the applicant's vehicular trip generation assessment it is considered that these numbers could have been underestimated.

Car parking

It is not clear exactly what quantum of parking is proposed as the table which includes the car parking figures has not been included even though it has been referenced. The TA states that 243 spaces are proposed across two basement levels and this equates to a provision of 0.42 spaces per unit however the TA also states that car parking is forthcoming at a ratio of 0.47 spaces per unit which would equate to 275 spaces. This discrepancy should be clarified.

Irrespective of the overall quantum, this provision would include electrical vehicle charging points in line with London Plan policy which is supported. 27 Blue Badge spaces are also included. The applicant should note that the London Plan Housing SPG requires each wheelchair accessible unit to have access to a dedicated Blue Badge bay and assuming that 10% of the units will be wheelchair accessible this would equate to a requirement of 59 Blue Badge spaces. The applicant should demonstrate how these could be accommodated within the proposals.

The London Plan states that all development in areas of good public transport accessibility should aim for significantly less than one space per unit. Therefore, while a further reduction would be supported it is accepted that the proposals are broadly consistent with this policy and it is welcomed that the ratio has been reduced from the consented development.

For the hotel use, 53 spaces will be provided at basement level however it is not clear how many will be allocated as Blue Badge. This is an increase from the consented scheme and will need to be justified considering that the London Plan requires parking for hotel use that are located in areas of good PTAL to be limited to operational needs only.

The applicant proposes to introduce a non-event day visitor car park within Worcester Avenue including Blue Badge parking to the north and south. This will cater for visitor parking demand for the health centre, Tottenham Experience, stadium conferences and residential visitors. It is understood from pre-application discussions that this will equate to 56 Pay & Display bays. To allow TfL to understand the capacity utilisation of this car parking the applicant should provide a daily profile of car trips and an accumulation survey.

Cycle parking

No cycle parking is proposed to cater for the Stadium or Tottenham Experience as staff cycle parking is already provided at Lilywhite House. Before TfL can consider this acceptable the applicant should confirm what the maximum number of staff employed on site at any one time would equate to and confirm how many spaces are provided at Lilywhite House. In addition, the distance of these spaces from areas of employment will need to be clarified as TfL would not support spaces which require staff to walk long distances to their workplace once their bikes have been parked.

No short stay visitor spaces are proposed for the Tottenham Experience and this will need to be provided. As the use class is *sui generis* TfL would recommend that the London Plan standard for D2 land use class is used as a starting point and this requires 1 space per 100sqm of floorspace. In this instance this would equate to 73 spaces.

For the hotel land use the applicant proposes 12 spaces at basement level and TfL assumes that this is staff parking. On that basis short stay visitor spaces will also be required and this would equate to five spaces to be provided within the public realm. The spaces will be accessed via a ramp shared with vehicles. It is recommended that the gradient of the access ramp should not exceed 5% (1 in 20); however, short sections (up to 100m) can be steeper. The design of this entrance should also consider the fact that cyclists should not require to dismount. This is both an accessibility requirement for those using cycles as mobility aids as well as a practical recommendation. Furthermore, it is recommended that these spaces are located closer to the core as this will improve their accessibility and convenience.

12 spaces on Worcester Avenue are proposed however it is not clear how these will be allocated between short stay and long stay. TfL would expect any long stay staff spaces to be provided within the building as this will enhance their security. The standards are based on staff numbers and therefore this

needs to be clarified so this provision can be assessed against the policy requirements.

For the extreme sports facilities 16 spaces are proposed on Park Lane. Again it is not clear how this will be allocated between short stay and long stay. As above any staff parking should be within the building. Irrespective this provision is inadequate as the London Plan requires short stay spaces to be provided at 1 space per 100sqms or in this instance 21 spaces. Long stay spaces are based on staff numbers and therefore this needs to be confirmed.

872 spaces are provided for the residential units and this falls just short of the London Plan requirement of 882 spaces. Short stay spaces will be required at 1 space per 40 units which equates to 15 spaces. The long stay spaces will be located within four different storage areas located at ground floor. Access to three of the areas will be via double doors and TfL would recommend that these are push button controlled. The largest cycle storage area is accessible either by lift and a narrow corridor or via Tower C's external lobby.

If lifts are used, they must be large enough to take all types of cycle. The LCDS recommends 1.2m by 2.3m as a minimum, with a minimum door opening of 1.0m. Ideally, lifts serving basement cycle parking should not be the same lifts that serve access to the residential units.

A corridor width of at least 2 metres is also recommended in order to allow for two people pushing cycles in opposing directions to use the facility or to the possibility that one or both cycles could be a larger model (such as a cargo cycle or adapted cycle). Right-angled turns should also be avoided.

No provision has been outlined for the flexible land use. TfL would expect the applicant to demonstrate that space is available to accommodate the maximum provision required from the range of land uses that could occupy this floorspace. A condition should then be sought which will require the delivery of the appropriate number of cycle spaces required upon occupation when the occupier (and therefore land use) is known.

All staff employed on site need to be provided with access to shower and changing facilities. Due to the size of the site these facilities should be provided across the whole site and close to cycle parking to ensure that they are convenient.

Taxis

It is not clear what the taxi demand will be as the taxi trips have been grouped with private vehicular use and it is requested that these are separated. In addition, private hire vehicle demand should also be provided. It is welcomed that a taxi rank is proposed on Park Lane however until this information is provided TfL is unable to comment on its suitability. As per the major event day

impact, more discussion is required with TfL to establish an appropriate facility which caters for these proposals.

Coaches

It is not evident what the coach demand for the hotel and non event day attractions will be. The London Plan requires one space per 50 hotel rooms or in this instance, four spaces. While it is accepted that this could represent an over provision in this particular case, the applicant should clarify what parking capacity is available on site.

Cycling and walking

Please see TfL's comments above regarding the cycling and walking infrastructure relevant to major events as TfL considers these applicable to both.

Delivery and servicing

The TA does not appear to include any information on the delivery and servicing requirements for the development or how this will be accommodated on site. Considering the nature of the proposals TfL would expect there to be a high number of freight trips associated with servicing and this will need to be accommodated appropriately to minimise any impact on the local highway network and without jeopardising the safety of pedestrian and cyclists.

Construction

The applicant predicts that construction traffic associated with the stadium will increase by 33% compared to the consented proposals however this can be reduced to only a 3% increase with use of a nearby construction compound. This equates to a peak construction traffic period of between May and June 2017 of 75 one way trips per day.

With regards to the southern development it is assumed that construction activity will be 3x greater than assessed in 2010. The peak construction traffic would occur from mid 2019 – late 2020 and equate to 13 one way trips per day.

In addition to the comparison of trips to the consented scheme it is requested that the applicant provides the uplift in construction trips from the baseline scenario. In addition, vehicular routings should be provided so TfL can understand their relationship with CS1 and an assessment of local junctions should be undertaken.

Given the scale of the development, a framework Construction and Logistic Plan (CLP) is required. The CLP should include the cumulative impacts of

construction traffic, likely construction trips generated, and mitigation proposed. Details should include; site access arrangements, booking systems, feasibility of using nearby mooring facilities, construction phasing, vehicular routes and scope for load consolidation or modal shift in order to reduce the number of road trips generated.

Travel planning

It is understood that the Travel Plans associated with the consented development will be updated and new ones added for the different aspects of development. These will need to be provided to TfL for assessment prior to consent of any planning permission.

TfL would expect that Haringey Council will secure, enforce, monitor, review and ensure the funding of the travel plan through the Section 106 agreement to ensure conformity with London Plan policy 6.3 'Assessing transport capacity'.

Summary

To summarise, TfL will need to work closely with the applicant to ensure that the impact assessment is sufficiently robust as there are concerns that the trips have potentially been underestimated. More discussion would then follow to identify necessary mitigation and ensure that the scheme is designed appropriately to cater for the expected uplift in trips. In addition, amendments to the proposed cycle parking, car parking and scheme layout would all be required.