Transport and Accessibility Strategy

Overview

Key Objectives

Maximise the number of trips by walking and cycling, ensure excellent access to and increased capacity on public transport as well as managing the demand for freight and deliveries whilst minimising unessential motorised travel to mitigate traffic impacts and congestion on the road network;

Ensure interventions are put in place to accommodate increased travel demand from development and that these interventions do not have any unacceptable impact on the transport network or wider environment; and

Ensure a holistic approach is taken to walking, cycling and public transport that delivers a high quality public realm and improves local connectivity.

10.1 This chapter sets out what improvements to the transport network will be necessary to support development. These include improvements to the public realm to encourage walking, improved cycle facilities and increased capacity on the public transport and road networks. This chapter is informed by a Strategic Transport Study, a review of which can be found on the authorities' websites.

Context

10.2 The OA is a transport dominated site with a mix of transport infrastructure adjoining or running through and under it. The local transport facilities play an important role in connecting Earl's Court to the rest of London and the UK as a whole but these connections also create significant local severance across the area particularly for pedestrians and cyclists, which impacts on local quality of life and accessibility to goods, services and employment.

10.3 As is the case in most of London there is an extensive pedestrian footway network along existing local streets and roads. However there are some areas where the quality of this network needs improving. This, along with the severance caused by the rail lines and Exhibition Centres, creates a barrier to north-south and particularly east-west pedestrian and cycle movement through the OA. This isolates the OA, reduces the attractiveness of walking and cycling and restricts access to local public transport.

10.4 The OA is served by three London Underground stations; Earls Court, West Brompton and West Kensington. These stations provide access to the District and

Piccadilly Lines. West Brompton is also served by the Overground network and is a strategic interchange as designated by the Mayor's Transport Strategy providing a key interchange between orbital and radial rail services. The edges of the OA are thus well served with a high Public Transport Accessibility Level, but the centre has a low score of 2, on a scale of 0 (little or no access) to 6b (most excellent access).

10.5 The London Underground lines serving the OA are some of the most congested in London, with crowding levels in excess of four people per square metre in some sections of both the District and Piccadilly Lines in the AM peak period. Significant increases in capacity are planned and funded for the District and Piccadilly Lines as part of the London Underground upgrades. The District Line upgrade is planned to be complete by 2018 and will increase capacity by 24%. There is no definite date for the upgrade of the Piccadilly Line, which would provide a capacity increase of 24%, although it is expected to be complete prior to 2031. Crossrail is planned to open in 2018, which will release capacity on the Central Line, which in turn will draw passengers from the Piccadilly Line, thereby releasing some limited capacity.

10.6 All services on the West London Line currently suffer from a high level of crowding during the AM peak period with all northbound services and southbound Southern trains services having crowding levels in excess of four people per square metre. This level of crowding will remain the same in 2031, despite significant capacity and frequency enhancements. In addition, crowding will increase to over three people per square metre on all southbound services to West Brompton.

10.7 Significant parts of the highway network are currently operating at capacity with a number of traffic delays at junctions in and around the OA, including at all four corners of the site, during both peak periods as well as the weekend. These are illustrated in Figures 10.4 and 10.5 overleaf.

10.8 The A4 and the Earl's Court One Way System have a key role in the maintaining the performance of the strategic highway network. This also impacts on the ease and attractiveness of pedestrian and cyclist movement, residential amenity, access to bus services and the townscape of the areas through which they run, including the OA.

10.9 The OA currently includes 2,500 car parking spaces. On-street in RBKC there is a mixture of residents' and pay and display parking with limited spare capacity. In LBHF the available parking for visitors is greater because dual use parking bays are provided.

Policy Context

10.10 The Mayor's London Plan (2011):

- 'Strategic Approach' (Policy 6.1).

10.11 LBHF's Core Strategy (2011):

- 'Strategic Site and Housing Regeneration Area – FRA 1'; and
- 'Transport' (Policy T1).

10.12 RBKC's Core Strategy (2010):

- 'Earl's Court Exhibition Centre' (Policy CA7);
- 'Earl's Court' (Policy CP10 and associated Vision);
- 'Improving Alternatives to Car Use' (Policy CT1); and
- 'New and Enhanced Rail Infrastructure' (Policy CT2).

Figure 10.2 Crowding on the London Underground network 2007(left), 2031(right)

Figure 10.3 Crowding on the London Overground and National Rail Network, 2007(left), 2031(right)

Figure 10.4 traffic delay in the AM peak hour (2008 - 2009)

Figure 10.5 traffic delay in the PM peak hour (2008 - 2009)

Transport Capacity

Key Principle TRN1:
Any development proposals should demonstrate by way of robust Transport Assessments that the cumulative impacts of development on the transport networks is acceptable.

10.13 This chapter sets out the transport impacts of, and interventions and further work required to support a development scenario that includes 5,560 homes and 12,165 jobs.

10.14 Two higher transport scenarios were considered in the first draft of the SPD:

- 8,286 homes and 24,050 jobs; and
- 10,647 homes and 31,895 jobs.

These scenarios were both discounted due to their impacts to the transport networks and not considered further in this draft. The first of these scenarios could not be supported given the increases in vehicle delay on the A4. The second scenario resulted in unacceptable impacts to both the highway and public transport networks.

Key Principle TRN2:
Development should be supported by robust Transport Assessments that set out phase by phase what the cumulative impact of development will be and how it will be mitigated at each phase.

10.15 Any applications for development in the OA should demonstrate, by way of robust Transport Assessments, that phase by phase the impacts of development are properly mitigated and can be accommodated on the transport networks. Appropriate controls will need to be agreed to ensure development is not implemented until capacity improvements and other mitigations are provided.

Walking and Cycling

Walking

Key Principle TRN3:
All streets within the OA should be designed and built to adoptable standards and offered to the Highway Authority for adoption.

Key Principle TRN4:
All streets within the OA should be accessible to all with appropriate gradients where changes in level are experienced, generous footway widths and accessible crossing facilities. The streets should provide safe and direct north-south and east-west movement for pedestrians and cyclists and integrate well with the surrounding streets.

10.16 Development should provide a coherent network of streets that opens the OA up to pedestrians and cyclists, is accessible to all users and allows quicker access to the public transport network. By doing this Public Transport Accessibility Levels in the centre of the OA will be increased from level 2 (moderate) to 6a (excellent). The neighbourhoods surrounding the OA will also feel more connected with each other and to the new communities within the site itself. Appropriate controls will need to be agreed to ensure development is not implemented until capacity improvements and other mitigations are provided.

10.17 All new streets created within the OA should be built to adoptable standards and will be offered for adoption to the Local Highway Authorities. Adopting the streets would ensure that design, construction and future maintenance will be of the highest standards and it will secure public access in perpetuity.

10.18 A route for pedestrians and cyclists above the alignment of the West London Line could create an alternative route to Warwick Road, where footfall is already high. Improvements to connections to the north and south of the site at either end of the route should be investigated in order to create links with existing and planned pedestrian and cycle routes in the area. Opportunities for public open space in this location are considered in more detail in the Urban Form Strategy (Chapter 4).

Key Principle TRN5:
Development should provide a coherent pedestrian wayfinding strategy in and around the OA .

10.19 A coherent wayfinding strategy will be required to encourage walking and cycling within and around the OA. This strategy will need to reflect Transport for London's Legible London standards and utilise all opportunities of providing navigational information to pedestrians, such as bus stops and the Mayor's Cycle Hire Scheme docking stations.

Key Principle TRN6:
New development should fund environmental improvements and deliver wider, clearer and higher quality footways on the existing streets surrounding the OA and contribute towards the A4 improvement scheme.

10.20 Development will add significantly to footfall in the area, as shown in Figure 10.6. This shows total pedestrian trips, including existing and forecast additional pedestrian movements within and adjacent to the OA. The distribution of pedestrian trips is based on existing movements in the area and identifies the proportion of new trips likely to be made to each of the stations.

Figure 10.6 Footfall on streets surrounding the OA in 2031, including development footfall

10.21 There is generally sufficient footway width to accommodate the footfall generated by development on the existing streets. However, the clear footway width (i.e. the footway space available for pedestrians once street furniture has been taken into account) will be insufficient in some locations, either because of narrow footways or excessive and poorly coordinated street furniture. In particular, clear footway widths will need to be increased on North End Road around West Kensington station, around the Earl's Court station entrance on Warwick Road and around West Brompton station on Old Brompton Road (see Figure 10.7). Rationalisation and removal of street furniture will help increase clear footway width in these locations.

10.22 The detailed design of the internal network of pedestrian routes within the OA should be attractive and convenient for pedestrians as these will need to be designed to relieve the existing footways as far as possible.

Figure 10.7 Existing locations with sub-standard footway widths on the streets

10.23 The streets surrounding the OA, including North End Road, Warwick Road, Lillie Road, Old Brompton Road, the A4 and Earl's Court Road all require improvements if they are to accommodate higher levels of pedestrian footfall. The development should therefore deliver significant environmental improvements to these streets including repaving and more consistent dropped kerbs. Given the additional footfall added to the A4 by development, contributions will be required towards the A4 improvement scheme, which is being developed by TfL and the boroughs. The treatment of the spaces around the stations will also need to be

improved to provide more coherent interchange between transport modes as well as better pedestrian environments.

10.24 Environmental improvements to the Warwick Road entrance at Earl's Court station will also be essential and should include removal of the existing hoardings. The improvements will need to form part of a coherent urban design response that includes links into a new civic space and accommodates the necessary interchange improvements.

Key Principle TRN7:
New development should deliver new pedestrian crossings and improve existing crossings in order to meet the increase demand from development and significantly improve the pedestrian environment and access into and out of the OA.

10.25 The level of pedestrian footfall set out in Figure 10.6 will also have an impact on pedestrian crossings in the area. The crossing on Old Brompton Road has insufficient width to accommodate the predicted development footfall and will need to be widened. To help relieve the crossing at Warwick Road and reduce congestion within Earl's Court station, new development should refurbish and reopen to the public the existing pedestrian tunnel beneath Warwick Road to allow direct access to the Underground station. A new pedestrian crossing will be necessary on the A4 and should be incorporated into a new junction into the site. The existing crossings on the A4 at North End Road and Warwick Road would be improved by the introduction of straight ahead crossings instead of the staggered arrangements that currently exist. However, such changes, including a crossing at the new A4 junction, are likely to have an impact on traffic capacity and will need to be carefully reviewed to ensure an appropriate balance of users' needs is achieved.

Figure 10.8 Interaction between cyclists and pedestrians
Figure 10.9: Mayor's Cycle Hire Scheme at Soho Square

Figure 10.10 Streets surrounding the OA with poor public realm that would need to be resolved (2011)

Cycling

10.26 If the development proposals are to have an acceptable impact on the surrounding road and public transport networks, cycling should form a key part of the travel choices made by those working and living in the site. Significant investment in cycling facilities, supported by strong Travel Plans, will be vital to achieving higher levels of cycling and are expected to be funded by the development.

10.27 The development is forecast to generate around 600 cycle trips in the peak hours. The creation of a new network of cycle friendly streets within the OA will mean that cycling will be safer and more attractive for all. It should be noted that as the local cycling environment is enhanced, cycling will become ever more attractive and

therefore these forecasts should be regarded as the minimum that could be expected.

Key Principle TRN8:
New development should deliver improved onward connections for cyclists into the streets surrounding the OA.

10.28 One of the most significant improvements required to accommodate cycle trips is better east-west connectivity. All new streets within the OA should be attractive to cyclists and offer maximum permeability with excellent onward connections into existing streets. If road closures or one-way streets are proposed within the site these should allow for the passage of cyclists in both directions. Safe and convenient connections north, under the A4 to Warwick Road and south, under Lillie Road, will also need to be investigated. To the east of the site in particular there are several one-way streets that are designed to discourage vehicles from rat running but that also cause significant inconvenience, making cycling less attractive. In order to accommodate the increased demand from development any new development should identify cycle routes based on the likely origin and destination of trips through the area and fund appropriate improvements, such as allowing cycling in both directions in one-way streets and improvements to junctions and crossings, to make those routes as attractive and convenient as possible.

10.29 All new streets should be designed to ensure 20mph maximum speeds, which will improve their attractiveness for cyclists and pedestrians by making them safer and reducing traffic noise. More detail on this is set out in the Urban Form Strategy.

Key Principle TRN9:
New development should deliver increased levels of cycle parking to London Plan and Local Development Plan standards, particularly at key public transport interchanges, and the Mayor's Cycle Hire Scheme should be extended into the OA.

10.30 Secure and convenient cycle parking should be provided for residents and workers and sufficient showering and changing facilities should be provided in commercial buildings. Visitor cycle parking on the new streets should be plentiful and located close to areas of demand, such as major entrances to buildings, that benefit from natural surveillance. There is already insufficient cycle parking within the existing streets and at the three Underground stations to meet demand and development will increase this demand. Development should address this problem through additional parking within the OA boundary as well as through a thorough review of opportunities, and funding of new facilities, to increase existing parking levels in the area

10.31 The Mayor's Cycle Hire Scheme already extends to the eastern edge of the OA and Phase Three of the Mayor's Cycle Hire Scheme will extend it west, beyond the OA. Docking stations should be provided within the OA with several new docking stations required to meet the likely demand. The cost will be borne by the development.

Public Transport

Rail services

Key Principle TRN10:
New development should deliver physical improvements to all three stations to accommodate the forecast increase in passenger numbers.

Key Principle TRN11:
Development in the OA should not result in excessive crowding or delay on the London Underground or National Rail and Overground networks, compared to predicted levels in 2031.

10.32 Development will add a significant number of additional trips to the rail networks. The figures below represent all development related trips starting or finishing in the OA by public transport, including buses, although the majority will be made by rail.

Table 10.1: Peak hour net additional public transport trips to and from the OA

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10.33 The capacity increases set out in paragraph 10.05 are such that this level of additional loading can be accommodated on the individual lines serving the site. However, due to significant growth in population and employment as well as the demands of development, crowding levels in and around the OA in 2031 are forecast to be at a similar level to today. Crowding on the Wimbledon branch of the District Line is likely to be even higher than it is today and this line will remain the most overcrowded in West London.

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10.34 There are a number of currently unfunded proposals that would, if delivered, provide transport benefits to the OA. In particular this includes the provision of longer trains on the London Overground and Southern Services along the West London Line and the proposed Chelsea Hackney Line, which would offer relief to the Wimbledon branch of the District Line. For robustness the Strategic Transport Strategy did not include any additional capacity from these proposals although the principle of each is supported due to the benefit that they would provide to the area.

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10.35 A static assessment of the impact of development on all three local stations in 2031 has identified that each would require a significant level of investment to be able to operate at a satisfactory level. All three stations would require an increase in gate line capacity, whilst both West Kensington and particularly West Brompton would require enlarged ticket halls, enhanced stairways and lift access. Detailed

requirements for station improvements are set out below. All of these improvements would need to be funded by development and are subject to London Underground operational agreement.

Earl's Court Station

Key Principle TRN12:
New development should provide capacity and environmental improvements to Earl's Court Station, including the reopening of the existing pedestrian tunnel beneath Warwick Road, as part of ensuring the station can accommodate the forecast increase in passenger numbers.

10.36 By 2031 passenger movements into and out of Earl's Court station in the AM and PM peaks will be at least 20% higher than existing movements (2009 figures). Development would add an additional 10% in both peaks.

10.37 The level of additional trips generated by development will put pressure on the existing Warwick Road entrance gate line, which will not be sufficient to cater for demand, and on the eastbound District Line platforms, which will experience an increase in flows along the platform to the Piccadilly Line. The refurbishment and reopening of the existing, but currently unused, pedestrian tunnel under Warwick Road would mitigate these impacts by providing a direct link from the OA to the Piccadilly Line avoiding both the eastbound District Line platforms and the Warwick Road station entrance. Alternative improvements to gate line capacity would otherwise have to be identified. The tunnel would need to contain a ticket gate line and will serve as an additional entrance to the station, reducing the burden of additional trips on the current Warwick Road ticket hall and gate line to such an extent that no additional capacity enhancement would be required at the existing gate line. It would also relieve pressure on the eastbound District Line platforms and the stairwells leading down to the Piccadilly Line escalators. There is adequate concourse, platform and staircase capacity to accommodate the predicted levels of demand. Given the listed status of Earl's Court station, changes should be undertaken sensitively and will be subject to Listed Building Consents.

Key Principle TRN13:
New development should deliver extra capacity at the gate lines, ticket halls and circulation space at West Brompton and West Kensington stations in order to accommodate the development related trips.

West Kensington Station

10.38 At West Kensington background passenger growth for movements into and out of the station are anticipated to increase by 20-30% to the year 2031 in the AM and PM peaks. A similar scale increase is anticipated to be generated by

development. West Kensington station currently has four ticket gates. The predicted background and development growth in demand to 2031 would make five gates necessary and require additional space within the concourse. In order to spread the burden of additional passengers on the existing gate line and concourse, as well as to open up the station to the centre of the OA, a new entrance to the station should be provided at its eastern end. This would remove the requirement for additional gates at the current entrance and better balance pedestrian movement within the station as well as providing a better link into the OA. All staircases and platforms are sufficiently wide to accommodate increased demand.

West Brompton Station

10.39 By 2031, without development, background passenger growth for movements into and out of West Brompton station are forecast to increase by 50% in the AM peak and 90% in the PM peak. Development will add an additional 30% in both peaks. To accommodate background growth the number of gates at the station would need to increase from the current three to six. Seven would be required to accommodate development.

10.40 There is insufficient concourse space within the current station arrangement for the volume of passengers forecast, even without development to 2031. Any new development would have to look at a comprehensive reworking of the station to provide more concourse capacity. Options for this station, as well as West Kensington, will need to be assessed to identify how additional space could be released.

10.41 All platforms can adequately accommodate the extra passenger demand forecast above. The existing staircases at the station do not meet London Underground's minimum standards. As West Brompton station is listed any works must be undertaken sensitively and will be subject to Listed Building Consents.

10.42 West Kensington station is locally listed. The physical constraints of both West Kensington and West Brompton stations, especially considering their heritage designations, make these necessary capacity enhancements challenging and any new development should be able to demonstrate clearly how increased capacity will be achieved.

Deleted: At West Brompton much of the Underground station, including the staircases, is listed and changes should be undertaken sensitively.¶

Deleted: The physical constraints of both West Kensington and West Brompton stations, as well as the heritage considerations at West Brompton, make these necessary capacity enhancements challenging and any new development should be able to demonstrate clearly how increased capacity will be achieved.

Key Principle TRN14:
Step-free access should be provided at West Brompton and West Kensington stations and any new entrance at Earl's Court Station.

10.43 To ensure that the OA is developed in a manner that is accessible to all as well as to cater for the significant additional passengers generated by development in

the OA, it is a requirement that step-free access is provided to both platforms at West Kensington station and to the southbound District Line platform at West Brompton.

10.44 All new station entrances, such as at West Kensington, should be step-free. At Earl's Court station the reopened pedestrian tunnel should be step free at least to the District Line platforms, by providing lifts at the new entrance and extending the current District Line lifts down to the level of the tunnel.

Key Principle TRN15:

New development should fund platform lengthening to accommodate eight car trains on the West London Line platforms at West Brompton, should investigate creating an additional station entrance and fund its implementation if found feasible following the investigation.

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10.45 All London Overground and Southern trains consist of four car trains. Network Rail's London and South East Rail Utilisation Strategy seeks to extend platforms on the West London Line so that they can accommodate eight car trains operated by Southern and six car London Overground trains. This would increase capacity by around 70% and would result in reduced crowding levels on the West London Line which in 2031 with development are otherwise forecast to exceed acceptable levels. Such an increase in capacity would mitigate the impact of development and reduce crowding levels. Though this scheme is currently unfunded, its delivery is a priority for TfL and Network Rail.

10.46 This improvement is particularly necessary given the very high levels of crowding experienced on the West London Line and the additional passengers that the development will introduce to the network. The increased line capacity will also increase the number of passengers accessing the station by at least 5% in both peaks. This would further impact upon the station infrastructure at West Brompton and would require at least one additional gate, bringing the total up to eight.

10.47 In addition to extending the platforms at West Brompton, creating an additional access to the station would help to reduce the pressure on the ticket hall whilst improving access to the Seagrave Road area of the OA. Development of the OA should provide platform extensions at West Brompton station and should investigate creating an additional station entrance and fund its implementation if found feasible following the investigation.

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Key Principle TRN16:

New development should deliver significantly enhanced interchange facilities at all three stations.

10.48 Interchange facilities need to be improved at all three stations. Currently there are cluttered footways, limited and inconsistent way finding, poor access to bus services at West Brompton and Earl's Court, limited cycle parking and in general a poor pedestrian environment that is dominated by vehicle movements.

10.49 The general improvements to the public realm identified as necessary in paragraphs 10.22 to 10.24 will improve the quality of the environment around all three stations. Rationalisation of street furniture will be essential and cycle parking, taxi ranks and bus stops may need to be relocated to the adjoining edges of the site as part of a complete redesign of the spaces so as to provide significantly more space for pedestrian movement without having an adverse impact on access for buses and taxis. Improved crossings and other ways of rebalancing pedestrian needs with those of vehicles will need to be investigated including, for example, the provision of single surface treatments. The design of these will need to be accessible for all and will need to incorporate improved way finding.

Bus Services

Key Principle TRN17:
Additional bus services, routes and stops funded by development will be necessary within and around the OA to accommodate new development trips.

10.50 Between now and 2031 local bus demand will change and bus services will need to reflect demand. Development in the OA will need to contribute to additional bus services to ensure that the additional demand generated can be supported on the bus network during peak hours. The effect of highway congestion on bus journey time reliability will need to be considered to ensure that services remain attractive to passengers.

10.51 There are a number of locations that have poor bus connectivity to Earl's Court. These include the King's Road, Battersea and Vauxhall, Richmond and south west London. Routes that connect the south of RBKC to the north are currently very limited and new services should help to bridge this gap. Any new routes should help to fill these and other gaps.

10.52 There are benefits of both the provision of new and the extension of existing routes to fill the gaps in the network. They will help minimise local capacity problems created by the development as they could be run through the OA, along a north-south route, which would provide a better range of services for future residents. This is especially important given the poor connections to southbound bus services caused by the splitting of routes on the Earl's Court One Way System. Bus services

should be able to travel north-south and east-west but there should be no new connection onto Warwick Road as this link is already well served and impacts on public realm. Any new links here could have significant impacts on the public realm. All changes to bus services as a result of the development will require full mitigation for five years to pay for subsidy of new or additional services until those services become revenue neutral.

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10.53 Developers will be expected to carry out audits of all the bus stops and associated bus facilities in the area, as part of their Transport Assessment. Applicants will be expected to upgrade these where deficiencies exist to ensure the facilities are fully accessible..

10.54 All existing bus stands within the OA should be retained or re-provided on site, and additional space may be required depending on the detailed analysis of bus services undertaken as part of the Transport Assessment submitted in support of development.

Other Services

Key Principle TRN18:
Development should include taxi rank and coach parking facilities within the OA

10.55 There are currently no TfL Public Carriage Office appointed Taxi Ranks within the OA or its hinterland. Taxi rank and drop off facilities including for community transport schemes, will need to be provided to support demand from the OA.

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10.56 There is significant pressure on coach parking facilities in west London. Development should not add to this pressure and therefore sufficient coach parking and drop off facilities will be required within the OA, close to high coach trip generating uses, to meet development demand.

Road network, car parking and freight

Road Network

Key Principle TRN19:
Development traffic cannot be accommodated on the existing road network without significant capacity improvements, which should be clearly identified in development proposals along with appropriate funding mechanisms to ensure improvements are delivered before development demand is introduced.

10.57 Even without development in the OA, traffic levels in the local area are forecast to increase significantly from 2009 to 2031. This is due to both the recent removal of the Western Extension of the Congestion Charging Zone as well as forecast growth in population and employment. The strategic nature of the A4 means it draws significant traffic volumes through the area and is particularly affected by background increases in traffic volumes. In this chapter the '2031 base' refers to forecast traffic levels in 2031 without development. The Strategic Transport Study has assessed the impact of this growth on the road network as well as the additional impacts of OA development. The full extent of the road network that was considered in the local highway modelling is shown in Figure 10.11.

10.58 The strategic transport study estimates that development would increase traffic levels within the OA by around 3% in the AM Peak and 2% in the PM peak . For the local highway network to operate at an acceptable level, this level of growth would require additional highway capacity improvements and modal shift to walking, cycling or public transport. In particular journey time reliability on the highway network should not be unacceptably impacted by development in the OA.

Figure 10.11: The extent of the road network modelled in the transport study

10.59 Development proposals should seek first to mitigate any potentially negative impacts on the highway network by reducing the level of traffic generated rather than through physical interventions to manage traffic. This is considered further in paragraph 10.72. However, in order to ensure a robust assessment was undertaken, the Strategic Transport Study also assessed a number of highway capacity interventions to establish whether they could enable OA development to take place with no reductions in travel demand assumed. The capacity interventions tested included:

- A new north-south route through the site connecting to the A4 and Lillie Road. This would provide access to, and additional road capacity through, the development as well as helping to relieve key routes such as Warwick Road, North End Road, Earl's Court Road and the junctions along the A4 and Lillie

Road. A link, or links, such as this are essential to allow development to take place.

- Significant changes to traffic signal phasing to give more 'green light' time to traffic on the roads surrounding the A4. This creates more capacity on the surrounding roads and is possible because the A4 is currently given significant priority.
- Altering the North End Road / Lillie Road junction from a double mini roundabout to a signalised junction, including banning vehicle movements from North End Road into Lillie Road and vice versa. Any street network within the OA would have to provide alternative turning movements. . This is intended to reduce demand on the junction, creating more capacity for those vehicles still using it.
- Providing a new westbound left turn vehicle movement onto the A4 at the A4/ North End Road junction to run at the same time as the existing right turn eastbound vehicle movement in order to provide additional traffic capacity.
- Alterations to the signal timings at the A4 / Warwick Road junction to accommodate pedestrian crossings in each signal cycle and to remove periods where there are no green signals, which means traffic is given more time to move through the junction.
- Increasing the length of green time at the traffic signals at Old Brompton Road's junctions with Finborough Road and Earl's Court Road, to allow more traffic to pass through the junctions.

10.60 The impact of the capacity improvements set out above is to improve overall network performance, allowing around 15% more traffic to be accommodated. Even with the forecast growth and additional development traffic, average journey times across the local network are comparable to the 2009 base and are significantly improved in comparison to the 2031 base with no capacity improvements.

10.61 However, despite the overall road network performance benefits and the increased capacity primarily brought about by the new link road, this does create some significant variations in performance across the local network. The north-south routes generally experience improved performance and the east-west routes experience decreased performance.

10.62 North End Road, Warwick Road and Earl's Court Road experience reductions in journey time and delay due to the extra road capacity provided by the north-south route and some re-phasing of traffic signal timings. Traffic on these north-south routes moves faster and more smoothly, despite overall increases in traffic flow as some demand flows through the OA. This is demonstrated in Figures 10.12 to 10.15. The figures show a pattern of increasing journey time from the 2009 base to the 2031

base and then a reduction in journey times once the interventions are added. These occur despite the addition of development traffic.

Figure 10.12 Earl's Court Road/Warwick Road AM Peak Hour Average Journey Times (measured in seconds)

Figure 10.13: North End Road AM Peak Hour Average Journey Times (measured in seconds)

Figure 10.14: Earls Court Road/Warwick Road PM Peak Hour Average Journey Times (measured in seconds)

Figure 10.15: North End Road PM Peak Hour Average Journey Times (measured in seconds)

Key Principle TRN20:
Development proposals should include deliverable and funded road network improvements that reduce delays on the A4 to 2012 levels, while not having unacceptable impacts on the surrounding road network.

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10.63 In comparison to the impact on the north-south routes, it is clear that development, even with the highway capacity improvements tested in paragraph 10.60, would result in a deterioration of performance in terms of journey time, vehicle delay and queue lengths on the main east-west routes through the area. On the strategically important A4, journey times increase in the AM peak by around 40 seconds westbound and 60 seconds eastbound in comparison to the 2009 base. Eastbound traffic also experiences worsened journey times in comparison to the 2031 base. In the PM peak the overall increases in traffic volume are greater and the journey times therefore increase more significantly. Both directions also see a worsening in comparison to the 2031 base. These delays are due not only to the rebalancing of traffic priority at the junctions as explained above, but also to the introduction of a new junction on the A4.

Figure 10.16: A4 Corridor AM Peak Hour Average Journey Times (measured in seconds)

Figure 10.17: Old Brompton AM Peak Hour Average Journey Times (measured in seconds)

Figure 10.18: A4 Corridor PM Peak Hour Average Journey Times (measured in seconds)

Figure 10.19: Old Brompton PM Peak Hour Average Journey Times (measured in seconds)

10.64 On Old Brompton Road journey times in the AM peak remain broadly unchanged in comparison to the 2031 base, but are increased from the 2009 base. In the PM peak the delays are greater at around 100 seconds eastbound and 210 seconds westbound in comparison to the 2009 base. The increase from the 2031 base is more modest, though still significant, at around 90 seconds in both directions. The greater impact in the PM is due to the larger overall increase in background traffic volume between 2009 and 2031.

10.65 The information outlined above demonstrates that with the interventions tested, development can occur in the OA whilst not impacting on broader network performance, but more locally it would have negative impacts on the A4 and Old Brompton Road. Given that the A4 is a strategic trunk road and part of the Transport for London Road Network (TLRN), such an impact is not acceptable and any development proposals for the OA would need to consider alternative or additional measures to maintain the A4's performance and minimise the impact on Old Brompton Road and would need to demonstrate that this could be achieved through a wide range of mitigation measures within their Transport Assessment. This could include measures such as physical junction improvements, further changes to traffic signal phasing, travel demand management measures and a comprehensive Travel Plan that will promote a shift in behaviour towards sustainable travel choices. These will all need to be secured and funded by the developer. A detailed assessment of the highway network will need to be undertaken as part of any Transport Assessment.

10.66 Improving the capacity of the road network to allow it to accommodate development traffic is essential and some methods of doing that have been set out above after being tested in the Strategic Transport Study. However that assessment did not consider the impact of additional traffic volumes on air quality, residential amenity or on levels of queuing on any new north-south routes within the site. Such impacts are likely to have a negative impact on the environment within and around the OA, will compromise the ease of movement through the site and will create a less pleasant environment for walking and cycling. Given the dual concerns of increased delay on the A4 and the general environmental implications of increased traffic volumes, any development proposals will need to be supported by a comprehensive package of measures to reduce travel demand. This will include parking restraint as set out in paragraph 10.74.

Key Principle TRN21:

Development should not worsen traffic conditions to unacceptable levels on existing streets and a review of local traffic management arrangements should be undertaken to address this and provide funded mitigations where necessary.

10.67 Development has the potential to worsen traffic conditions on existing streets. A review of local traffic management arrangements will be necessary and this should include a funded package of mitigations where necessary.

The Earl's Court One Way System

Key Principle TRN22:
New development should investigate improvements to the Earl's Court One Way System, including to the pedestrian environment, minimise the impact on Old Brompton Road and should fund a package of measures as identified in the investigation.

10.68 This SPD does not seek to achieve significant reductions in traffic on the Earl's Court One Way System via new north–south routes through the OA. An assessment of the potential for using a new north–south route within the site to relieve the Earl's Court One Way System of through traffic, which could allow for two-way operation to be introduced, was undertaken. This found that a north – south route could reduce traffic on Warwick Road by up to 18% and on Earl's Court Road by up to 10%. To achieve this, traffic is diverted along Old Brompton Road and Lillie Road where traffic levels would more than double in the PM peak hour. Accommodating this traffic would require a major new junction on Lillie Road as well as probable road widening along Lillie Road that could not be constructed without third party land acquisition. Furthermore the level of traffic reduction achieved on the Earl's Court One Way System would not be sufficient to introduce two-way operation. This SPD does not therefore seek to achieve significant reductions in traffic on the Earl's Court One Way System via the north–south route through the redevelopment of the OA. However, the alignment of any north-south routes should have regard to RBKC's long term ambition to return Earl's Court One Way System to two way operation.

10.69 RBKC will continue to work with TfL to improve the Earl's Court One Way System. This SPD requires significant improvements to the pedestrian environment in and around the Earl's Court One Way System as set out in paragraph 10.23.

Key Principle TRN23:
All junctions from the OA on to the existing road network and road links across the OA should be assessed to ensure they have no unacceptable impacts on the existing road network in terms of vehicle capacity, road safety and urban design.

10.70 New north-south connections through the OA are essential to the development of the OA by providing access to the heart of the site, additional road capacity and relief to existing parallel roads. The connection of a route onto the A4 and connections on Lillie Road should be configured so that the impact on the existing highways is minimised. The exact layout and function of the routes and junctions should be agreed through the planning application process and must be supported by Road Safety Audits.

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10.71 An east-west route linking North End Road to Warwick Road is essential to improve permeability through the site for pedestrians, though not for vehicles. A vehicle route from Star Road has been assessed and does not create additional congestion on North End Road. A vehicle access at Warwick Road has the potential to create conflict with pedestrians using Earl's Court station and to compromise the quality of the proposed new public space. If such an access is included in development proposals the road safety and urban design impacts would need to be carefully assessed in a detailed Transport Assessment and it would need to be demonstrated that vehicle access is acceptable.

Car Parking

Key Principle TRN24:
Car parking levels should be minimised in order to restrain car trips, except for parking for car club vehicles, which are encouraged in order to provide an alternative to private car ownership and use.

10.72 As set out in paragraph 10.59 development proposals should seek first to mitigate any potentially negative impacts on the highway network by reducing the level of traffic generated rather than through physical interventions to manage traffic. Measures to reduce the volume of car use such as car-free development, the use of car clubs, excellent provision for cyclists and other travel demand management measures will be vital. Clear incentives will need to work with parking restraint in commercial Travel Plans. These will need to work alongside physical improvements to the network.

10.73 In general new off-street parking should be minimised and the overall parking requirements for the OA should be considered in the context of total parking, including on- and off-street provision. General public car parks will not be acceptable. In line with the Mayoral priority and borough policies to promote the use of electric vehicles, provision should be made for electric car charging points, both within new buildings and on-street. Some dedicated motorcycle parking should be provided. Blue badge parking for residents and visitors should be provided in line with the London Plan and local guidance.

10.74 One way of minimising car use is to ensure limited car parking is provided. Given the large scale of the development even relatively constrained parking levels of one car parking space for every 2000m2 of commercial floorspace and 0.4 spaces per residential unit means 1500 spaces. This level of parking was assumed in the Strategic Transport Study, which as outlined in paragraph 10.65

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resulted in some unacceptable impacts on the highway network. In addition further traffic would reduce air quality and general residential amenity. Development in the OA should therefore provide parking at well below 0.4 space per residential unit. Car free development is encouraged with the exception of blue badge and car club parking.

Key Principle TRN25:
Development proposals should be supported by an on-street parking strategy.

10.75 The likely demand for on-street visitor parking generated by the development has been assessed and is in the order of 200 vehicles. This parking demand is largely from workers within the new commercial uses on site. In order to minimise this, and minimise the impact of any additional parking demand that remains, development proposals will need to be accompanied by a review of existing controlled parking zones as part of an on-street parking strategy that is compatible with the general objective of reducing traffic. This strategy would consider amendments to existing controlled parking zones and the need for new zones in LBHF. Development would need to fund any necessary alterations.

10.75 No new residential units will have eligibility for parking permits issued by RBKC or for existing controlled parking zones in LBHF.

Freight

Key Principle TRN26:
Development proposals should be supported by substantial measures to minimise the impact of freight, including during the construction period.

10.77 An onsite local delivery centre should be investigated as part of the new development. The centre would act as a central collection point for deliveries into the OA that could then be distributed to the local final delivery point by electric vehicle, bicycle or walking. It could also act as a holding point for deliveries for local businesses and residents who are not at home to receive the delivery. This has been proven elsewhere to reduce deliveries by up to 70%, with resulting savings in emissions and congestion. Such a centre should be able to receive 24 hour deliveries, thereby removing freight vehicles from the highways in peak periods.

10.78 Delivery and Servicing Plans and Construction Logistics Plans should be included with any planning applications.

10.79 The provision of a freight rail transfer facility for construction materials and the removal of spoil should be investigated as part of the development proposals. If this is not proposed by development the applicant will have to demonstrate why such a facility is not feasible. The facility would reduce the impact of heavy vehicles on the surrounding area and reduce the environmental impact of construction.