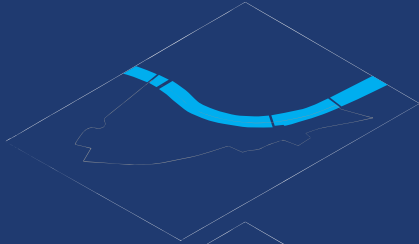
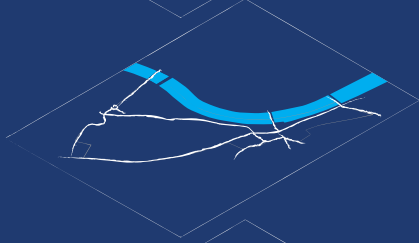


Chapter 6

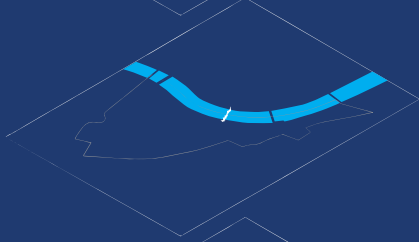
Transport Strategy



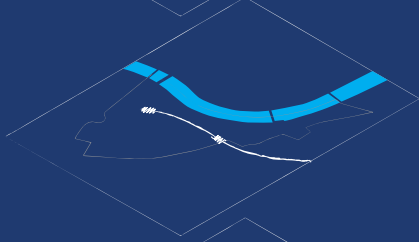
retention of river freight facility



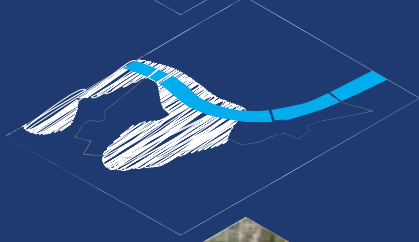
improved bus/cycle connections



new pedestrian bridge



northern line extension



poor connectivity (low PTAL)



aerial image

Key principles

- To outline the aims and objectives of the VNEB transport study
- To understand the likely impacts on public transport and highway networks as a result of the development scenarios set out in the development capacity study
- To demonstrate the need for new transport services and infrastructure
- To identify the key strategic infrastructure required to support development within the OA
- To identify the optimum transport packages and set out recommendations to support the preferred development scenario.

6.1 Policy context

The London Plan seeks to ensure integration between transport and development. This is encouraged through patterns and forms of development that reduce the need to travel especially by car as well as improving public transport, walking and cycling accessibility for areas of greatest demand and for areas designated for development and regeneration including the Central Activities Zone and Opportunity Areas.

High density development with high trip generation characteristics is only considered acceptable in locations which have good access to public transport and where the existing levels of transport capacity are sufficient to absorb the impacts of that development.

In addition to the transport goals set out within the Mayors Transport Strategy (2010) there are a range of supporting policies set out within the London Plan aimed at delivering the Mayor's transport vision.

London Plan policy 6.1 focuses on the need to integrate transport and development through a range of approaches such as reducing the need to travel, especially by car and improving the capacity and accessibility of public transport, walking and cycling.

In addition to this Policy 6.2 states that at a strategic level the Mayor will work with partners to increase the capacity of public transport in London by securing funding for and implementing the schemes and improvements set out in table 6.1 of the plan. This includes an extension of the Northern Line from Kennington to Battersea to support the regeneration of the VNEB Opportunity

area, tube station congestion relief schemes through a targeted station capacity enhancement programme and further Vauxhall gyratory improvement works to improve facilities and conditions for pedestrians and cyclists, and to smooth traffic flow.

All new major developments are assessed by the GLA, TfL and the boroughs against the relevant planning policies to ensure that they meet the above criteria or provide adequate mitigation or transport improvements to allow the development to proceed.

At borough level there are a number of policies which support the growth of the OA including significant transport infrastructure and accessibility improvements, including Lambeth Core Strategy policies PS4 and PN2 and Wandsworth Core Strategy policy PL11(d).

It is important to note that TfL has no capital allocations for new infrastructure or improvements to public transport services, which may be considered necessary to enable growth within the OA.

TA4 Transport and movement context sets out an overview of the existing transport situation in the OA. While some areas of the OA, such as Vauxhall and Albert Embankment have good access to public transport it is clear that the lack of adequate transport infrastructure in the Nine Elms and Battersea areas coupled with capacity problems on existing services and stations across the whole VNEB area will present a potential barrier to development and sustainable growth within the OA.

6.2 VNEB Transport study

The key strategic objectives for transport and the OA are:

- i. To mitigate the impact of additional traffic and pedestrian trips associated with the development, especially on the highways network and public transport infrastructure; and
- ii. To ensure that the area's economic potential is realised by improving accessibility to the development sites by walking, cycling, public transport, taxi and goods vehicles.

In order to inform the development of the OAPF, a strategic transport study was undertaken by TfL. Following the publication of the draft OAPF further analysis was undertaken to refine the original outputs in line with the recommendations of the OAPF, particularly in relation to the preferred development scenario.

The aim of the transport study was to identify the impact of the original five development scenarios as set out in the development capacity study (TA8) on the public transport and highway networks. Further work has concentrated on the preferred development scenario.

The study also investigated a range of possible transport packages/ interventions against each of these development scenarios, identifying an optimum transport solutions package for each.

The transport study and subsequent analysis involved five key work streams:

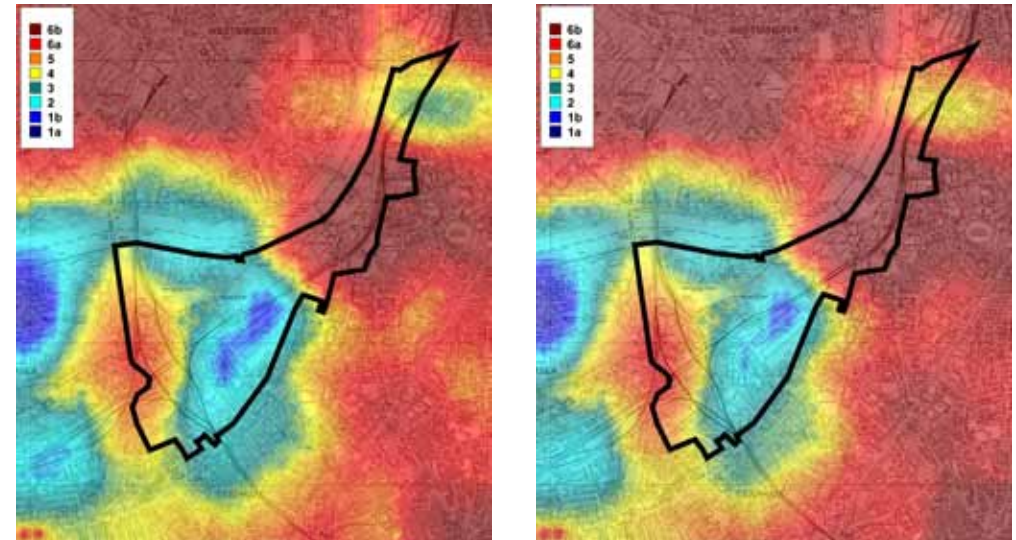
1. Travel **demand forecasting** for each development scenario using the London Transportation Studies (LTS) model as a base
2. High level strategic public transport (RAILPLAN) and highway assignment (SATURN) **modelling**
3. Definition of a range of high level **transport packages/initiatives** to support the range of OA development scenarios established by GLA for the Planning Framework
4. Development and use of a high level two-stage **appraisal** process to assess the transport initiatives against study-specific, central Government and TfL objectives
5. **Consultation** with key stakeholders; TfL Businesses, the London Boroughs of Lambeth and Wandsworth and key landowners in the OA.

Committed and proposed transport schemes

All transport schemes and system changes that are committed in the TfL business plan were included in the 2016 and 2026 base cases for the transport study. These include schemes such as Crossrail, suburban train capacity increases as part of the National Rail High Level Output Statement (HLOS), planned London Underground improvements and bus frequency increases across the network. Some of the committed schemes such as improvements to the Victoria Line and capacity enhancements on South West and Southern Trains will provide benefits for the OA through increased frequency and capacity,

however given the existing levels of demand it is anticipated that any new capacity will be filled quickly.

As illustrated in Figure 6.1 the public transport accessibility level (PTAL) changes very little if all the above schemes are implemented. PTALs are more sensitive to the geographic coverage of public transport infrastructure than to changes in existing service levels, and the committed schemes do not add any new coverage in the OA.



(Source: VNEB OA Transport Study, TfL (2009))

Figure 6.1 PTAL comparison map 2006 - 2026

Development Scenarios and OA Trip Forecasts

Following publication of the consultation draft OAPF, further work was carried out to assess the transport impact of the preferred development scenario. The methodology used to do this was identical to that used to assess the original five scenarios, with the exception of the removal of borough balancing. The approach now taken has been agreed with the local authorities and aligns with that being taken in a number of other opportunity areas across London.

Table 6.1 illustrates the change in trips to/from the OA in the AM peak period as a result of the preferred development scenario. It shows that the increase in the number of trips is broadly even into and out of the OA and that public transport has by far the highest mode share, accounting for over 50% of the additional trips, followed by walking and cycling with 30% and car with 20%.

Table 6.1 Change in trips (AM peak) into/out of the OA associated with the preferred development scenario

	Car	Public Transport	Walk and Cycle	Total
In	3,500	10,000	6,500	20,000
Out	3,500	11,500	7,500	22,500
Total	7,000	21,500	14,000	42,500

6.3 Transport impacts without new transport infrastructure (2026)

Impact on Public Transport – Flows

Figure 6.2 illustrates that as development density increases, passenger flows on National Rail, London Underground and London Buses generally increase, with a significant increase on routes through Vauxhall.

The higher density scenarios involve an intensification of employment uses in the OA, centred on key sites. This leads to significant increases in inbound as well as outbound morning peak public transport trips to and from the OA, increases in patronage particularly on services through Vauxhall Interchange and to a lesser extent at Waterloo and Victoria Stations.

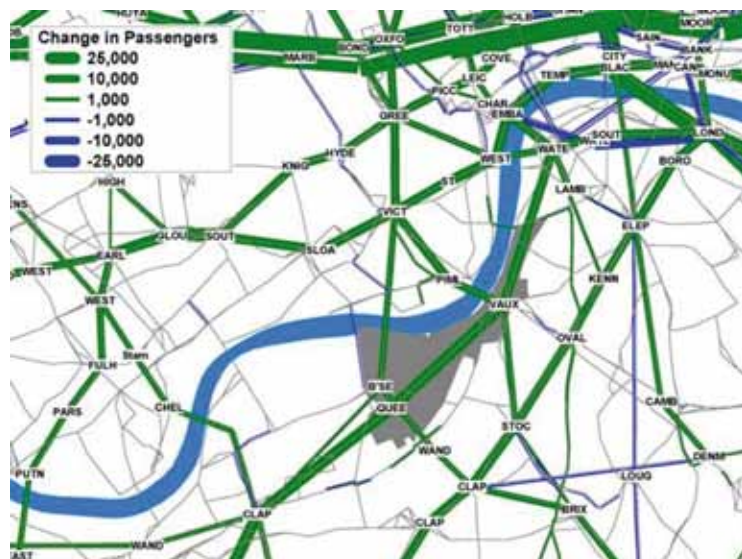
The substantial increase in employment density related to the preferred development scenario in particular gives rise to large increases in bus, rail and underground patronage in and around the OA.

Impact on Public Transport – Levels of Service

In relation to the impacts of increased development on public transport morning peak Levels of Service the study considers that:

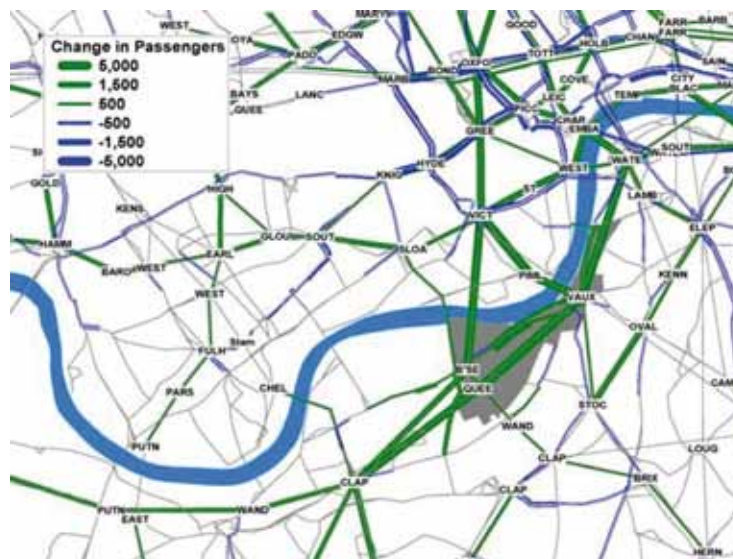
- There would be significant increases in patronage on bus services as a result of OA development, focused on services that currently use Vauxhall bus station.
- Underground and rail crowding ratios remain generally constant when considered against increasing development scenarios, although pressures at key National Rail and London Underground stations such as Vauxhall and Battersea Park increase considerably.
- There would be no discernable changes in crowding levels on the surrounding rail network, however the section between Clapham Junction and Battersea Park experiences a significant increase.

The apparent low impact on levels of service, particularly on the underground and rail network can be explained as a result of the committed transport improvements and the already high levels of crowding experienced on the network.



2008 to 2026 reference case

(Source: VNEB OA Transport Study, TfL (2009))



2026 reference case to preferred development scenario

Figure 6.2 Public transport volume changes, morning peak (7-10am) comparing 2008 to 2026 reference case + preferred development scenario

Impact on Station Characteristics and Performance

The key stations within the OA such as Vauxhall Underground and Vauxhall National Rail station already experience problems in terms of capacity and congestion particularly during the AM and PM peak periods. When considered alongside the proposed OA development scenarios and assuming no transport interventions further to those already committed these problems are likely to intensify.

Of all the stations within the OA, Vauxhall Underground station is forecast to experience the greatest increase in passengers. The preferred development scenario results in similar overall passenger numbers at Vauxhall interchange to that associated with the original scenario 5 and would result in demand exceeding escalator capacity during the morning peak hour. It would also further increase the number of passengers alighting at the underground station which would push demand further beyond capacity during the morning peak hour.

TfL has developed congestion relief plans for Vauxhall Underground station aimed at improving gate line and ticket hall capacity as well as step free access. This is now a committed and fully funded scheme in the TfL business plan and works are expected to commence in 2013 and complete in 2015. The 2026 reference case assumes that these improvements are in place.

Figure 6.3 demonstrates that the additional flows associated with the preferred development scenario would result in increasing capacity issues caused by insufficient escalator capacity at the Vauxhall underground station.

London Underground has advised that increasing escalator capacity at Vauxhall is likely to be a very significant and costly engineering challenge. The viability of such a project is therefore uncertain and is compounded by the risk of adding to capacity problems on the Victoria line at this point - prior to it reaching the strategically more important parts of the Victoria Line between Victoria and Kings Cross St Pancras.

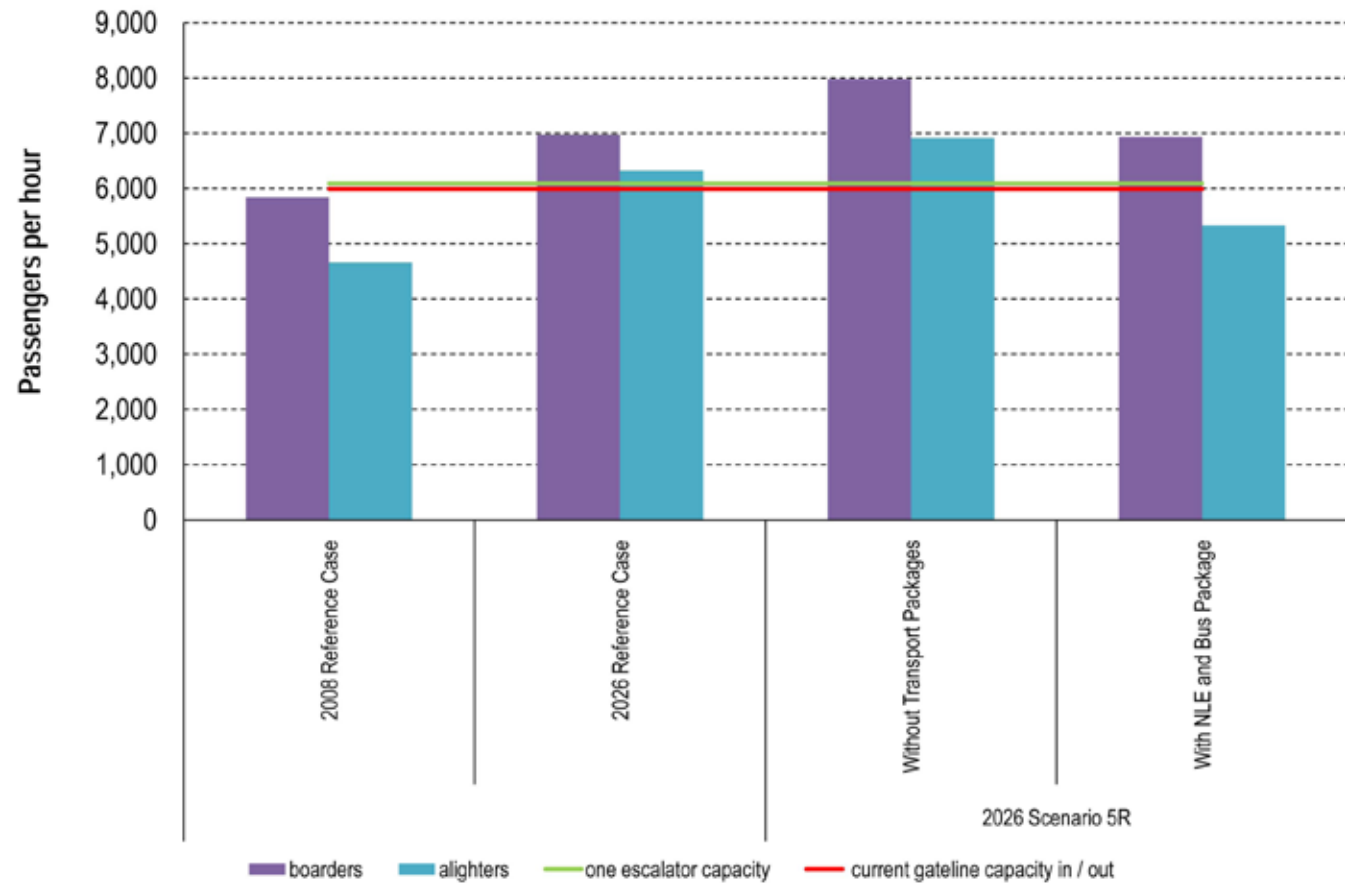


Figure 6.3 – Vauxhall underground Station: Victoria Line Boarder and Alighters (am peak hour)

(Source: VNEB OA Transport Study, TfL (2009))

In relation to Battersea Park Station, the preferred development scenario roughly triples the existing total demand. This suggests that the station will experience significant pressures if demand is not managed, constrained or enhancements made to the station. A key concern is the narrow stairways and platforms, in particular platform 4.

The pattern of demand at the station shifts between 2008 and 2026, with the number of boarders increasing significantly and a drop in the number of alighters.

Station capacity analysis for all the main stations within the OA has been undertaken; the key findings are summarised in Table 6.2. This illustrates the characteristics and performance of each of these stations (2026 plus the preferred development scenario).

Station	Characteristics and performance
Vauxhall (NR)	The 2026 Reference Case forecasts an increase in the number of boarding passengers on platforms 7/8, which will result in increased congestion and potential for conflict with alighting passengers on the staircases. The overall change as a result of the development scenarios is forecast to be low.
Vauxhall (Underground)	<p>Improvements to the interchange are required with the current demand flows. There are planned LUL measures to increase gate-line capacity to match escalator capacity as the station is currently constrained during the morning peak. Work is scheduled to commence in 2013 and complete in 2015. In the 2026 reference case, it is important that all three escalators are in service as the projected number of boarding and alighting passengers is forecast to be in excess of the capacity of a single escalator.</p> <p>The preferred development scenario would result in total escalator capacity being significantly exceeded over the peak hour, due to a considerable increase in alighting passengers.</p> <p>This is likely to lead to regular gateline/station closures at the busiest times.</p>
Battersea Park	Battersea Park would see a doubling of boarding and alighting passengers in the preferred development scenario from the 2026 reference case. The concentration of operations on platforms 3 and 4 would increase pressure on the stairs to platform 4. This would be further worsened by the overall increase in passengers using the London bound platform and the higher proportion of boarders would worsen conflict with alighting passengers, especially at the stair-head where space is limited. Network Rail has considered improvements to the station including a possible second station entrance, but funding is not identified in its investment programme.
Queenstown Road	A significant increase of over 30% from the 2026 reference case in the number of people boarding services at Queenstown Road in the preferred development scenario would be matched by a doubling of alighting passengers. Overall passenger numbers remain relatively low and no significant problems are anticipated, but this will need to be kept under review as the station is in a generally poor condition.

Table 6.2 – Station Characteristics and Performance (2026 + Development Scenarios)

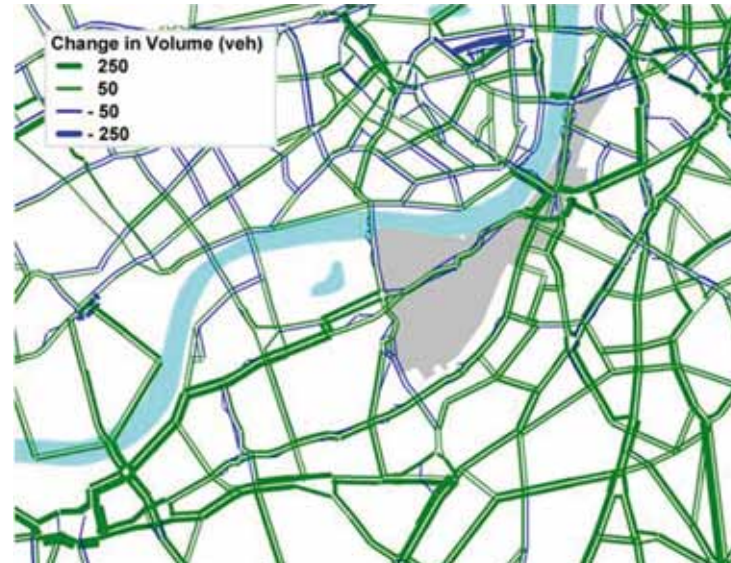
Impact on Highways – Change in flows

When considered alongside the forecast no development (2026) situation, the strategic highways model developed as part of the transport study and updated to reflect the preferred development scenario indicates that a steady increase in highway traffic volume changes will occur as a residential and employment density increases (Figure 6.4).

The key arterial routes running through the OA and connecting to the bridges experience the greatest current and future traffic volumes, with increases exacerbating existing problems at Vauxhall, Chelsea and Lambeth Road Bridges and key junctions within the OA.

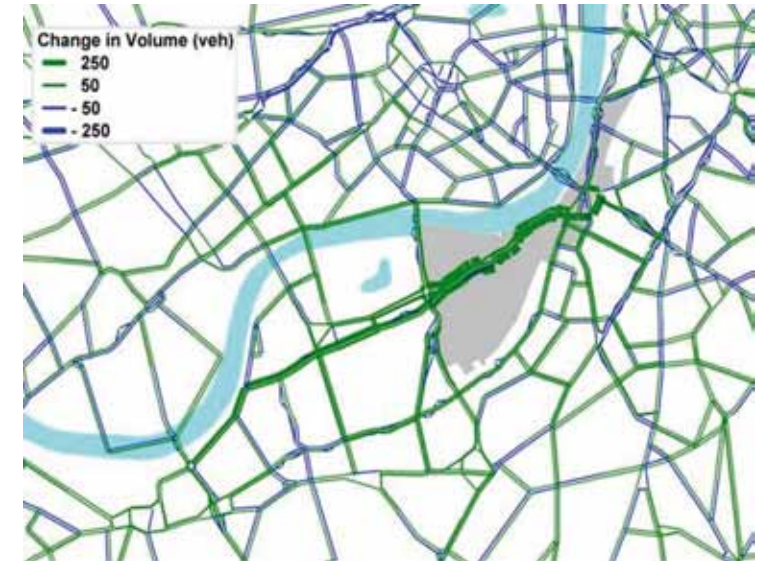
The Vauxhall gyratory experiences the greatest current and forecast volume of traffic in the OA. With preferred development scenario levels of traffic, highways modelling indicates that the current junction capacity may be inadequate which, if unmitigated, would lead to increased congestion on major routes into the Vauxhall area which itself would lead to re-routing of traffic along parallel routes and local borough roads.

The potential impacts that have been identified highlight the need for a restraint based approach to car parking for all land uses. This will help to reduce unnecessary car journeys and encourage the use of more sustainable modes such as public transport, cycling and walking. There will also be a need to undertake selective junction



2008 to 2026 reference case

Figure 6.4 Highway Traffic Volume Changes- Morning Peak Hour (8-9am), comparing 2008 to 2026 Reference Case, and preferred development scenario
(Source: VNEB OA Transport Study, TfL (2009))



2026 reference case to preferred development scenario

6.4 The need for new services and infrastructure

The Transport Study identified a range of transport packages in relation to each of the five development scenarios. These packages were comprised of four key strategic transport interventions, and include:

London Underground

A number of improvements to the underground were considered including:

- Bakerloo Line extension from Elephant and Castle to the OA
- Waterloo and City Line extension from Waterloo to the OA
- Northern Line (Charing Cross branch) extension from Kennington to the OA

All these options would have the effect of improving OA linkage to other parts of the CAZ and wider central London. Following initial investigations the Bakerloo and Waterloo & City Line extensions were ruled out as they were considered unfeasible in terms of providing the most direct and cost effective link.

The Northern Line Extension (NLE) proposal is the preferred option due to the fact that it:

- offers the most direct link to central London particularly to Waterloo and the West End;
- provides a good level of access to the City of London via interchange at Kennington and Waterloo and is now supported by the boroughs and majority of developers in the area.

The NLE also has the following benefits over other underground extension and light rail transit options:

- it reduces demand and provides relief to Vauxhall underground station
- it reduces use of the Victoria line by in the order of 3-4,000 trips northbound and 2-3,000 trips southbound (a 4-6% reduction on the Stockwell – Victoria section of the line)
- it is the only option that provides relief to Battersea Park station through a reduction in boarding passengers in the AM peak

A number of Northern Line Extension alignments and station options have been considered. Following extensive public consultation and detailed option analysis, the route from Kennington to the Battersea Power Station site via an intermediate station in Nine Elms (as illustrated in figure 6.5) is now supported as the preferred route alignment. The main benefit of this route option is that it serves the areas of the OA which currently



Figure 6.5: Preferred Northern Line extension route alignment

experience the lowest levels of access to public transport. Furthermore, a station in the Nine Elms area would not only serve this part of the OA but would bring benefits for existing communities and also bring some relief to Vauxhall Station.

Further discussion and analysis regarding the location of the intermediate station is ongoing. Based on the preferred route alignment, a total of eleven station locations were initially identified. Further assessment

reduced this to three possible options as shown on figure 6.6. TfL has completed an additional assessment on these three options (March 2012). This recommends that options three and four should be considered further; however, the potential impact on the highway network and construction and deliverability issues need further investigation. Both options could allow for an integrated master plan that would deliver the wider public realm aspirations for the OA. However, option four

presents a solution which potentially enables better integration with the development of surrounding sites including Banham's, Covent Garden Market and Sainsbury's.

The NLE will be taken forward through a Transport and Works Act Order application. This work is being led by TfL and supported by Lambeth and Wandsworth Councils. An application is expected in early 2013.



- Option 2
- Option 3
- Option 4

Figure 6.6: Northern Line extension intermediate station location options

Enhanced and new bus services and new routes

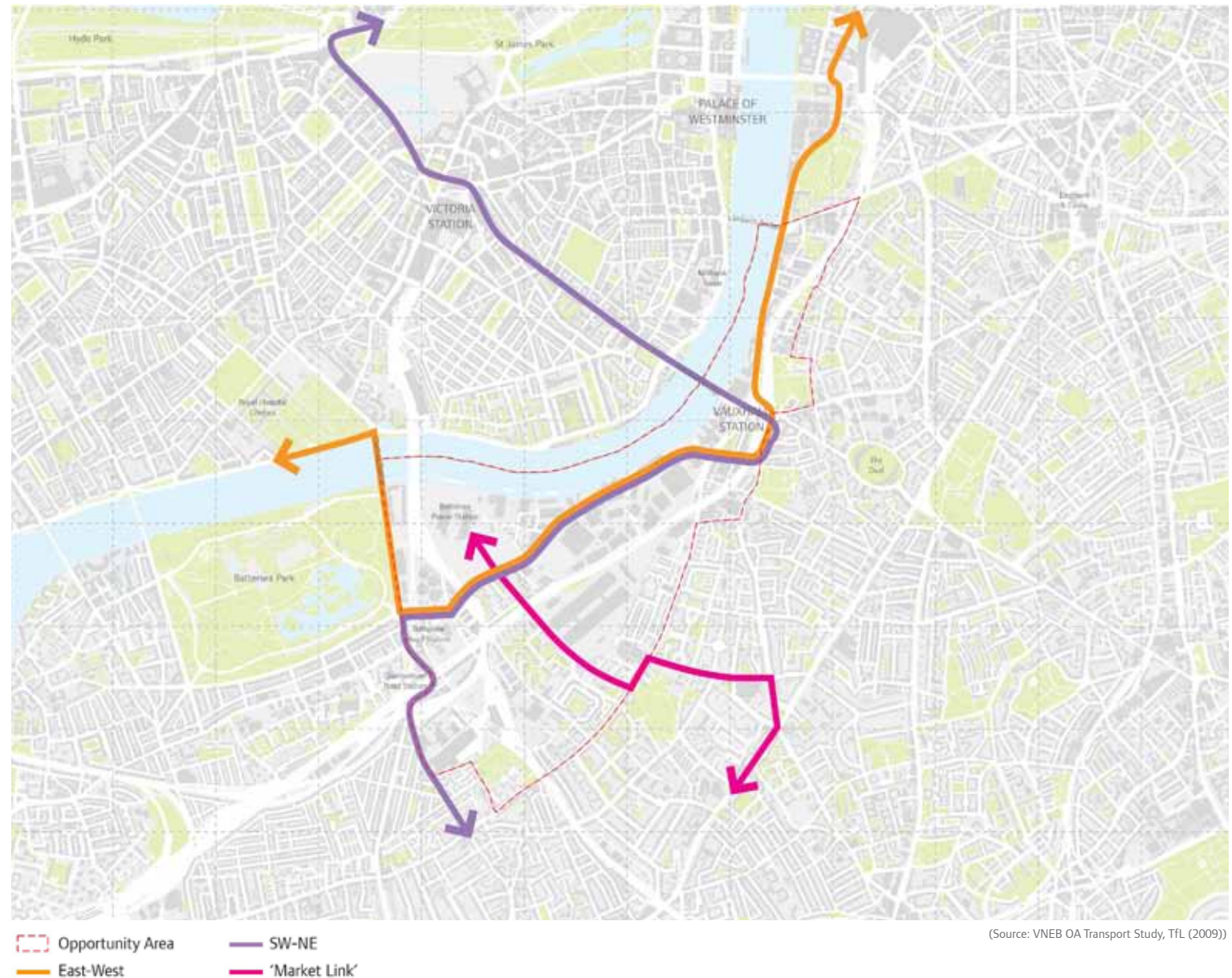
A high level package of bus service improvements including service-level increases and new routes serving the OA has been identified. This includes increased service levels of up to 20% on existing bus routes to serve the OA. One of the new/ extended routes considered is identified on Figure 6.6 as the 'Market Link'; this proposes a link from the OA with Stockwell to the south-east.

The details of all these new and enhanced routes are subject to further investigation and agreement.

Light Rail Transit

Initially, a spur running from Battersea Power Station, along Nine Elms Lane via Vauxhall and Albert Embankment and linking into the previously proposed Cross River Tram route to the south of Waterloo was considered as a potential option to provide better connectivity to the OA.

However, given the likely impacts of a LRT/tram option on highway capacity and constraints in terms of passenger capacity, potential impacts on interchange at Vauxhall and a lack of running and depot space this initiative was not taken forward.



(Source: VNEB OA Transport Study, TfL (2009))

Figure 6.7 – Indicative new and enhanced bus routes and services

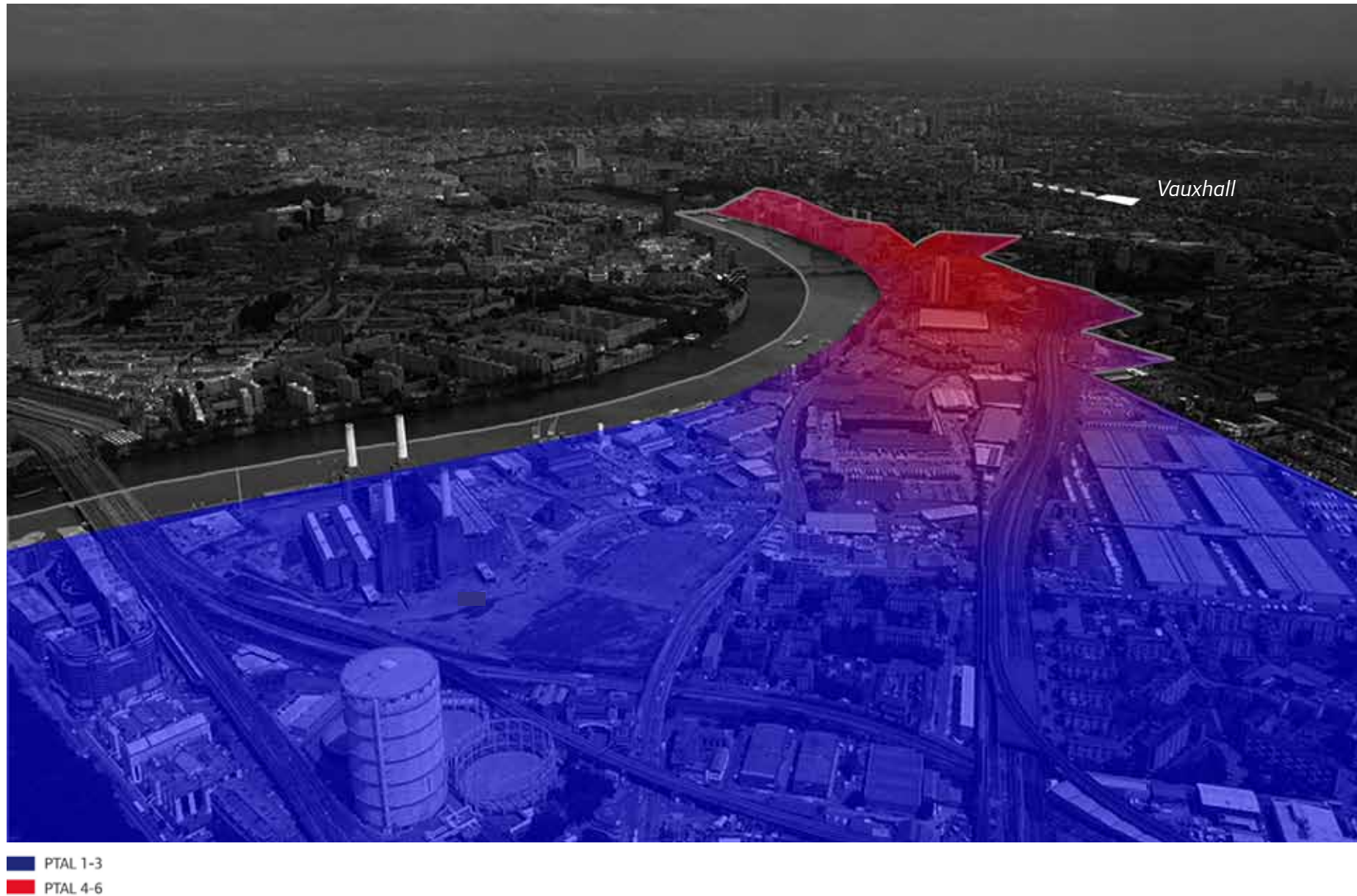


Figure 6.8: PTAL before Northern Line extension

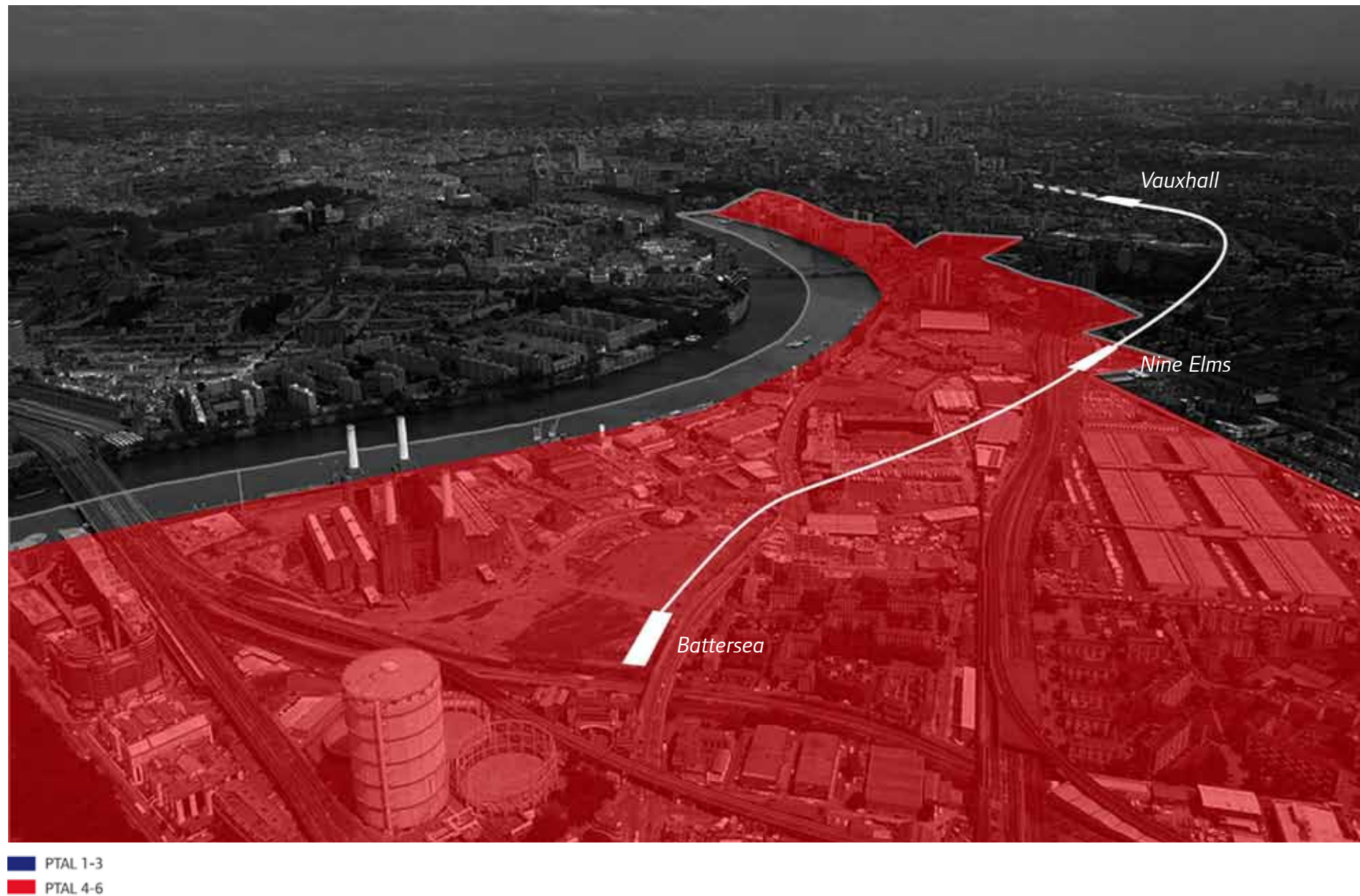


Figure 6.9 – PTAL after Northern Line extension

Pedestrian and Cycle Bridge

Cross River Partnership's (CRP) Vauxhall Battersea Development Framework (2003) considered the concept of a pedestrian bridge linking Battersea/Nine Elms to Pimlico. This now forms part of the wider public realm strategy promoted within the OAPF. It is proposed that the pedestrian and cycle bridge will link Nine Elms Lane with Grosvenor Road enhancing cross-river links between the Nine Elms and Pimlico areas, including Pimlico Underground Station.

Whilst it is difficult to assess the full impact of a pedestrian and cycle bridge in terms of number and distribution of trips, it could attract a significant number of pedestrian and cyclists. Demand would increase commensurate with population changes in the OA, and overall the bridge would bring significant wider benefits in terms of public realm improvements and through encouraging more walking and cycling in the area.



Figure 6.10 Proposed location of pedestrian and cycle bridge

Supporting Transport Interventions

In addition to the four strategic transport interventions identified above and which have been tested and modelled as part of the transport study, there are a number of other transport schemes which have been identified and which would bring significant transport benefits for the OA area in the short to medium term. These include:

- Improvements to Vauxhall Underground and Network Rail stations including congestion relief, capacity and step free access improvements.
- Capacity enhancements to Battersea Park National Rail Station
- Vauxhall gyratory pedestrian, cycle and public realm improvements
- Highways and public realm improvements throughout the OA – delivered by individual developments in accordance with the Public Realm Strategy
- Potential highway improvements outside the OA
- Improved access and infrastructure for cyclists
- Improved river services

Transport study: key conclusions

Table 6.3 identifies the key conclusions of the transport study in terms of the infrastructure requirements for each of the development scenarios tested. In addition the study concludes that:

- development levels equivalent to development capacity scenario 3 or higher would require more than the 'bus-only' public transport interventions;
- all development scenario/transport package combinations, except those including the NLE, would result in increased public transport passenger congestion at Vauxhall, in particular at Vauxhall Underground station;
- the NLE would provide significant relief to this congestion; and
- traffic increases arising from all levels of OA development would put increased pressure on the Vauxhall gyratory and other local and strategic roads within the OA.

There was an emphasis on bus initiatives, especially in the lower-density development scenarios and underground schemes in the higher-density scenarios. Bus improvements are included in each transport package.

The initial public transport and highways modelling results were also reviewed to assess the existing transport problems in the OA for 2008 and 2026. The identified transport network deficiencies include:

- capacity constraints on the Underground Victoria and Northern lines;
- performance of Vauxhall bus, National Rail and Underground stations;
- lack of capacity at National Rail stations in the OA;
- capacity of bus services in the OA; with the exception of Vauxhall a relatively low level coverage in the OA by bus services, compared to other parts of central London; and continued highway capacity issues (similar to 2008 levels).

A range of additional supporting transport measures will be required as part of an integrated approach to transport improvement in the OA.

6.5 The preferred development scenario: transport recommendations

The preferred development scenario

The transport study concluded that in order to support the preferred development scenario, a package of transport measures including new and enhanced bus services and an extension to the Northern Line from Kennington to Battersea via Nine Elms will be required. This is the only transport package considered capable of providing the necessary capacity on the network without overloading Vauxhall underground station and causing significant congestion on the road network.

In order to support the required improvements to transport capacity, accessibility and connectivity within the OA and to ensure development and transport is fully integrated, a series of recommendations is set out below.

OA Scenario	Land Use/Density	Required transport Infrastructure
1 - 2	Low – medium density housing	Improved interchange and passenger throughput No justification for new major infrastructure
3	High density housing	Enhancements to existing bus services, new bus routes Significant improvements to interchange and passenger throughput at Vauxhall Underground, NR and bus station
4 - 5	High density housing and major retail development	As described above An extension of the Northern Line from Kennington to Battersea Power Station with an intermediate station in the Nine Elms area.

Table 6.3 – Transport packages

Recommendations A - Strategic & High capacity Interventions

The key public transport improvements required to support the preferred development scenario are the Northern Line Extension and a phased improvement to bus services and connections throughout the wider OA.

Table 6.4: Underground & Rail

Recommendation	Priority (Low/Medium/High) Low (L) Medium (M) High (H)	VNEB DIFS Estimated Gross Cost after deducting mainstream funding (2010)	VNEB DIFS Amount sought via Tariff (2010)
Northern Line Extension from Kennington to Battersea, via an intermediate station in the Nine Elms area (estimated private sector delivery cost)	H	£563.8m *	£563.8m

* This is the estimated private sector delivery cost. The public sector delivery cost is estimated at around £900m, which includes 35% optimism bias and an allowance for inflation.



Figure 6.11 – Interchange

(Source: TfL)

Table 6.5 Bus services and supporting infrastructure

Recommendation	Priority (Low/Medium/High) Low (L) Medium (M) High (H)	VNEB DIFS Estimated Gross Cost after deducting mainstream funding (2010)	VNEB DIFS Amount sought via Tariff (2010)
20 % capacity increases on bus routes serving the OA	H	£50m	£42.5m
New bus routes: NW-SE bus routes e.g. Extension of P5	H	Included in sum above	Included in sum above



Figure 6.12 – Buses

(Source: TfL)

Recommendations B - Supporting Transport Interventions and improvements

A range of additional supporting transport measures will be required over the plan period and should be phased and delivered in line with development to provide increased capacity and accessibility to accommodate growth and mitigate the incremental impacts of development.

Table 6.6: Bus services and supporting infrastructure

Recommendation	Priority (Low/ Medium/High) Low (L) Medium (M) High (H)	VNEB DIFS Estimated Gross Cost after deducting mainstream funding (2010)	VNEB DIFS Amount sought via Tariff (2010)
New/Improved bus stops/ standing at Western end of OA	H	£75,000	£0
Where appropriate land to be made available/ safeguarded for bus standing/stopping provision	H	-	-
Continue to improve the quality of bus interchange at Vauxhall both between bus routes and between all transport modes	H	-	-
Maintain the existing capacity of Vauxhall Bus Station. Develop measures to improve transport interchange and connections with the wider Vauxhall and Opportunity Area.	M	-	-

Table 6.7: Underground & Rail

Recommendation	Priority (Low/ Medium/High) Low (L) Medium (M) High (H)	VNEB DIFS Estimated Gross Cost after deducting mainstream funding (2010)	VNEB DIFS Amount sought via Tariff (2010)
Congestion Relief, ticket hall and gate line works and improvements to Vauxhall Underground Station	H	£18m	£5.4m
Step free access at Vauxhall Underground Station	H	-	
Improvements to Vauxhall Station NR Station in line with the NSIP and DfT's Access for All programmes	H	£2.7m	£1.3m
Increase train capacity and platform lengthening	M	£8m	£0m
Improvements to Battersea Park Station to facilitate increases in demand from new development e.g. second station access point/ ticket hall.	H	£14m	£14m
Queenstown Road - Improve the quality and accessibility of the station both internally and externally.	M	£500,000	£300,000
Improved Interchange and Integration at existing and new underground and rail stations with the existing transport network and wider public realm, including signage.	M	-	-

Walking

In order to meet the Mayor's targets in relation to walking and to conform with London Plan policies, a step change in

the quality of the pedestrian environment throughout the OA is required. The following recommendations should be read in conjunction with the public realm strategy for the OA.

Table 6.8: Walking

Recommendation	Priority (Low/Medium/High) Low (L) Medium (M) High (H)	VNEB DIFS Estimated Gross Cost after deducting mainstream funding (2010)	VNEB DIFS Amount sought via Tariff (2010)
Pedestrian and Cycle bridge linking Nine Elms and Pimlico	H	£30m	£24m
Improvements to Vauxhall Gyratory and Albert Embankment	H	£19m	£11.6m
New and enhanced walking routes/ connecting the OA to the River	H	£17.4m	£5.2m
5.5 metre footways where achievable, to allow for movement, planting, street furniture and activity	H	-	-
Reduced street clutter and high quality materials	H	-	--
Integration of the OA with the Legible London way finding scheme	M	£750,000	£0
Upgrades to the Thames River Path, Strategic Walk Network to enabling links between central London and Battersea Park	H	£15.5m	£1.55m



Figure 6.13 - Legible London

(Source: TfL)

Cycling

In order to meet the Mayor's targets in relation to cycling and to conform with London Plan policies, there is a need to improve conditions and facilities for cycling throughout the OA.

Table 6.9: Cycling

Recommendation	Priority (Low/ Medium/High) Low (L) Medium (M) High (H)	VNEB DIFS Estimated Gross Cost after deducting mainstream funding (2010)	VNEB DIFS Amount sought via Tariff (2010)
Improved cycle routes throughout the OA, including through the Linear Park and Riverside Walk and along Nine Elms Lane	H	-	-
Improvements to Vauxhall Gyratory and Albert Embankment	H	£19m	£11.6m
4 metre wide bus lanes to accommodate cyclists - where achievable	H	-	-
Consolidation of cycle signage	M	-	-
New developments to fully integrate and where necessary facilitate enhanced cycling routes and infrastructure, including Cycle Superhighway proposals,	H	-	-
All developments to provide cycle parking in line with London Plan standards	H	-	-
Safe, secure and sheltered station cycle parking to be developed for Vauxhall and other stations in the OA	H	-	-
Extension of the Barclays Cycle Hire scheme into the OA. Cycle hire facilities to be introduced at strategic locations and in line with new developments within the OA	H	£1.6m	£400,000



Figure 6.14 -High quality cycle lanes.

(Source: TfL)

River

Table 6.10: River transport

Recommendation	Priority (Low/ Medium/High) Low (L) Medium (M) High (H)	VNEB DIFS Estimated Gross Cost after deducting mainstream funding (2010)	VNEB DIFS Amount sought via Tariff (2010)
New piers to be provided within the OA at appropriate locations i.e. at Battersea Power Station	M	£2m	£0
Extension of river services to serve the OA	M	-	-
Promotion and use of river to focus freight and construction purposes including new developments and major infrastructure projects such as the NLE and Thames Tideway Tunnel.	H	-	-



Figure 6.15 – River Services

(Source: TfL)

Travel Planning Demand Management

Table 6.11: Travel planning

Recommendation	Priority (Low/ Medium/High) Low (L) Medium (M) High (H)	VNEB DIFS Estimated Gross Cost after deducting mainstream funding (2010)	VNEB DIFS Amount sought via Tariff (2010)
Demand Management measures	M	£2m	£0
Demand Management Staffing OA wide	M	£2.5m	£2.5m

Highways

The level of development proposed under RS5 has the potential to generate a large number of vehicular trips and considerably increase traffic levels within the VNEB area. There is very limited scope to significantly increase traffic capacity on the highway network, and therefore measures such as restraint based car parking provision and

travel planning are key to ensuring vehicle journeys are reduced and peak periods are avoided as far as possible. This also highlights the importance of significantly enhancing the public transport network, both through short term measures such as bus service enhancements and longer term improvements such as the Northern Line Extension and station upgrades.

Table 6.12: Highways recommendations

Recommendation	Priority (Low/ Medium/High) Low (L) Medium (M) High (H)	VNEB DIFS Estimated Gross Cost after deducting mainstream funding (2010)	VNEB DIFS Amount sought via Tariff (2010)
Nine Elms Lane, Vauxhall Gyratory and Albert Embankment to continue to provide strategic vehicle access routes through the OA	H	-	-
Rationalise/reduce the number of new accesses/signalised junctions from the TLRN to key development sites is a key priority	H	-	-
Nine Elms Lane to be considered as a single entity i.e. Developers to work together with TfL to develop highways models required to support future planning applications	H	-	-
Albert Embankment Highways and public realm improvements	M	£7m	£5.6m
Nine Elms Lane Highways and public realm improvements	M	£12m	£6m
Vauxhall Gyratory Highways and public realm improvements	H	£12m	£9.6m
Highways improvements outside the OA (to mitigate OA impacts)	L	£5m	£0

Recommendation	Priority (Low/ Medium/High) Low (L) Medium (M) High (H)	VNEB DIFS Estimated Gross Cost after deducting mainstream funding (2010)	VNEB DIFS Amount sought via Tariff (2010)
Stewarts Road Improvements including Thesally Links	M	£3.6m	£0
Deliver a step change in the quality of the TLRN pedestrian environment and public realm by developing a coherent overall strategy for the OA, in line with the TfL Streetscape Guidance	H	-	-
Low levels of car parking should be provided to limit impacts on highway capacity, encourage modal shift and support sustainable travel patterns. Car free development will be sought in areas with high PTAL levels. TfL expects an average ratio of 0.25 across the OA.	H	-	-

Table 6.13: Taxis and Coaches

Recommendation	Priority (Low/ Medium/High) Low (L) Medium (M) High (H)	VNEB DIFS Estimated Gross Cost after deducting mainstream funding (2010)	VNEB DIFS Amount sought via Tariff (2010)
New developments, especially those with characteristics which are high taxi demand/ generators such as offices, embassies and hotel and leisure uses should make adequate provision for taxis	H	-	-
Opportunities for strategic taxi hubs to be investigated i.e. at Vauxhall Station and any future interchange at Battersea Power Station.	M	-	-
Existing levels of coach parking and layover to be retained within the VNEB area. Where sites are redeveloped all efforts should be made to provide alternative temporary and permanent coach parking areas.	M	-	-
Possibilities for a Coach (long distance services) stop in the Vauxhall area to be investigated.	M	-	-



Figure 6.16 – Taxis

(Source: GLA)

Freight

The relocation of freight uses and potential for retention of freight activity within the OA is being considered by LDA and LB of Wandsworth in the public realm and access strategy for Stewarts Road industrial area

currently being undertaken. In addition the planning framework recommends a further business relocation strategy specifically looking at transport, logistics and distribution uses in the OA (see land use strategy in chapter 5).

Table 6.14: Freight

Recommendation	Priority (Low/Medium/High) Low (L) Medium (M) High (H)	VNEB DIFS Estimated Gross Cost after deducting mainstream funding (2010)	VNEB DIFS Amount sought via Tariff (2010)
Investigate measures to support 24 hour access to wharves	M	-	-
To maximise the use of the river and rail to deliver construction materials for new developments in the OA	M	-	-
Future delivery and servicing needs of existing and new uses, must be addressed to cover out-of-hours deliveries, home deliveries etc.	M	-	-
Landowners and stakeholders to work together to provide Construction Consolidation Centres where possible, in order to improve efficiency and minimise the impact of construction vehicle journeys	M	-	-



Figure 6.17 – Freight facility

(Source: TfL)

6.6 Progress to implementation

Since the draft OAPF was published a number of key milestones have been achieved:

1. Policy support for the NLE in both the Mayor's Transport Strategy and London Plan.
2. In principle support from central government for the NLE, subject to a commitment from a developer by April 2013 (Chancellors statement, 2011)
3. Following public consultation and further assessment Route 2 (see figure 6.5) has been agreed as the preferred route for the Northern line Extension
4. It is confirmed that TfL with the support of the local authorities and landowners will lead on the preparation and submission of a Transport Works Act Order. Depending on a funding strategy being identified submission is expected in 2013.
5. A report on the wider economic benefits of the NLE was completed in January 2012. This concluded that when considered alongside conventional transport benefits, the wider economic benefits raised the benefit cost ratio of the NLE 'very significantly.' Furthermore, the study identifies an additional £1.6 to £7.9 billion of growth to the UK economy which could be generated as a result of the NLE.
6. Station improvements to both Vauxhall Underground and Vauxhall National rail station are confirmed. LU congestion relief and step free access is due to commence in 2013 and complete in

2015. Network Rail station enhancement and step free access works are now being delivered and due to be complete by end 2012.

7. The new St Georges Wharf Pier opened in 2011 and is now operational allowing riverboat services to serve the OA.
8. The first phase of Barclays Cycle Hire scheme opened in 2010, Albert Embankment and Vauxhall are served with a number of docking stations. The cycle hire network will be expanded further into the OA in line with new development and the wider phase 3 expansion.
9. Cycle Super Highway Route 5 (Lewisham to Victoria) Is currently in development and is due to open in 2013.
10. Further work to take forward the recommendations of the Public Realm and Highways Modelling Study has been undertaken and work is continuing with the boroughs.

6.7 Conclusions

This chapter has summarised the findings of the VNEB transport study and has recommended that in-order to enable and support a revised scenario 5 development a package of strategic transport measures, supported by a series of more local transport improvements will be required to support growth and development of the OA.

These include:

- A optimum package of bus service enhancements including the introduction or extension of bus routes
- An extension to the Northern -Line, from Kennington to Battersea Power Station, with an intermediate stop in the Nine Elms area
- Improvements to the National Rail, Underground stations and interchange facilities at Vauxhall and Battersea Park stations
- A step change in the walking and cycle environment both within and to/from the OA and ensuring improved legibility and connections
- An approach to development which reduces the need to travel by car/reduces the number of private vehicle trips within the OA
- Improving conditions for taxis, coaches, freight and river services within and to/from the OA
- Private investment to enable these improvements to be secured and delivered in line with the future development of the area

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