



Investigation into the Development of a Framework for the
Identification and Appraisal of Infrastructure Interdependencies with
Application to Critical UK Infrastructure:
Case Study Report for Infrastructure UK.

Phase 2

Desk Study Report of Northern Line Extension

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Disclaimer

This report comprises a review of publicly available documents relating to the proposed Northern Line Extension project. The views and recommendations expressed in this report are those of the author and do not represent Government policy.

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1 Executive Summary

1.1 Introduction

The Northern Line Extension (NLE) project comprises the extension of the Charing Cross branch of the London Underground's Northern Line from Kennington to Battersea and the creation of two stations at Nine Elms and at Battersea. The latter will thus become the new southern terminus of the Charing Cross branch.

This project is considered to be a key element in the package of measures supporting the planned regeneration of the Vauxhall, Nine Elms, and Battersea (VNEB) area, namely one of the major Opportunity Areas (OAs) in central London. The London Plan has identified the potential for a comprehensive renewal and intensification of the VNEB OA, in order to restore the degraded environment, promote the development of mixed use residential neighborhoods, and strengthen links with the rest of Central London.

On the basis of the above, it is evident that there is a *strong* interdependency between the NLE project (the line-haul plus its stations) and the proposed related development of the OA. On the one hand, a large-scale development of this area may be achieved only with a concomitant intervention aiming to significantly enhance the currently poor level of public transport accessibility in the area. On the other hand, this massive transport project may be justified only on the basis of its spawning new related sustainable residential, commercial and leisure developments in compliance with prevailing plans and policies.

On the basis of their costs and the wide range of impacts which the NLE and the proposed related development of the OA are likely to produce, going far beyond the physical asset that will be delivered, and the complex dynamics surrounding their development cycles, these projects together may be deemed a megaproject.

1.2 The aim of the report

The report that this Executive Summary alludes to (see main body of this document) seeks to identify the main features of this megaproject and thereby provide a case study with which to inform the development of the proposed Interdependency Planning and Management Framework (IPMF) being developed jointly by the University of Bristol and UCL (Rosenberg *et al*, 2014).

On the basis of the public domain documents reviewed here by the OMEGA Team, the report:

- provides a clear definition of the key characteristics of the NLE;
- analyzes the social and geographical context of the project, namely the VNEB OA;
- describes the regeneration projects proposed for the OA and the various infrastructures required to support this development;
- identifies and reviews the relevant national, regional and local planning and policy documents framing the NLE project and the planned regeneration of VNEB OA;
- defines the spatial boundaries of the NLE within which the analysis will be carried out;
- identifies the main NLE and VNEB OA stakeholders together with what is understood to be their agenda/objectives; and

- highlights possible strategic interdependencies between the NLE (as the line-haul plus its stations) and the other infrastructure projects included within the boundary of the megaproject (inclusive of the opportunity area).

1.3 The Vauxhall, Nine Elms, Battersea Opportunity Area

The Vauxhall, Nine Elms Battersea (VNEB) area is identified in the London Plan as one the most important Opportunity Areas (OAs) in Central London (Mayor of London, 2011). The area consists of 0.75 square miles of land to the south of the river between Chelsea and Lambeth bridges and is bisected by the borough boundary between the London Borough of Lambeth and London Borough of Wandsworth.

The VNEB OA incorporates the sites of the Vauxhall, Nine Elms, Albert Embankment, Battersea Power Station, Stewarts Road, Patmore Estates, Spring Gardens and Queenstown Road. The overall character of the OA is predominantly industrial to the south and commercial to the north, currently accommodating approximately 6,500 residents and over 26,000 jobs.

The Vauxhall, Nine Elms Battersea Opportunity Area Planning Framework (VNEB OAPF) developed by the Greater London Authority (GLA, 2009 and 2012) indicates that the OA:

- suffers from a high degree of physical severance owing to strategic roads accommodating fast-moving traffic, elevated heavy rail infrastructure and industrial zones bisecting the area;
- lacks open space and social infrastructure;
- is characterized by a high level of social deprivation; and
- has a relatively poor level of public transport accessibility.

Accordingly, the London Plan identifies the potential for a comprehensive renewal and intensification of the VNEB OA area in order to restore the degraded environment and strengthen links with the rest of Central London. Specifically, the GLA report supports the delivery of a high density mixed use development with 16,000 new homes and 15,000 – 20,000 new jobs through:

- the establishment of two growth poles - one at Battersea Power Station and the other at Vauxhall;
- the delivery of a new mixed use residential neighborhood at Nine Elms;
- the provision of new open space, including a green link from Battersea Park to Lambeth Palace and a linear park in the heart of Nine Elms, complemented by an improved riverside walk and high quality public realm; and
- the creation of a sustainable 'place' with new transport and social infrastructure plus strategic flood mitigation measures.

75% of this new development is likely to take place in the Battersea Nine Elms area in the form of completely renewed high density and mixed use neighborhoods. Consistent development is also envisaged in the Vauxhall area in the form of tall, high density mixed use buildings. Overall, less new development is planned in the other parts of the OA. The planned redevelopment of the VNEB OA is expected to be completed by 2031. The total population in the area is predicted to be between 24,300 and 25,500 (GLA, 2009 and 2012).

The NLE project is viewed as a potential key 'agent of change' catalyst to the development of the Vauxhall, Nine Elms, Battersea (VNEB) Opportunity Area (OA) since a large-scale development of this

zone may be achieved *only* with a significant improvement of the public transport accessibility and capacity in the area. It is also evident that in order to support the development in the OA and satisfy the needs of the new residents, a wide range of additional economic and social infrastructures and services will be required. The interventions to promote the redevelopment of the area include, additionally to the NLE:

- a range of rail, bus, cycle, pedestrian and highway improvements to deliver a step-change in transport provision;
- infrastructure utilities such as gas, electricity, potable water, waste, telecommunications, and surface water management facilities; and
- social care facilities, early years, primary and secondary education facilities, sport and recreation facilities and flood mitigation measures.

1.4 The Northern Line Extension Project

The key features of the proposed NLE project include:

- the extension of the Charing Cross branch of the NL from Kennington to Battersea via Nine Elms (the railway will be approximately 3,150m long northbound and approximately 3,250m long southbound);
- a new station at Nine Elms which would serve the development sites on the eastern side of the Nine Elms Opportunity Area, as well as the existing local communities;
- a station at Battersea to act as the new southern terminus of the Charing Cross branch (the proposals allow a potential future extension beyond Battersea) which, by comparison, would serve the office, shopping and residential developments proposed for the Battersea Power Station site;
- two permanent shafts at Kennington Green and Kennington Park to provide ventilation, cooling and emergency access if required; and
- two temporary shafts at Radcot Street and Harmsworth Street and, as an alternative, possible 'gallery tunnels' to enable works to stabilise the ground in preparation for the new tunnels to be built.

The project was initially promoted from 2007 to 2011 by Treasury Holdings (the former developers of the Battersea Power Station site) with support from Transport for London (TfL). Treasury Holdings went into administration in late 2011 and project's promotion was subsequently taken over by TfL with partial funding to be provided by the new owners of Battersea Power Station (Malaysian Developer SP Setia and conglomerate Sime Darby).

According to TfL (2013), by enabling the sustainable regeneration and development of the VNEB OA, the NLE will contribute to:

- supporting future economic development and population growth;
- enhancing the quality of life for all Londoners;
- improving transport opportunities for all Londoners;
- increasing the safety and security of all Londoners; and
- reducing transport's contribution to climate change by reducing the carbon footprint.

A range of studies has been undertaken to make the case for the NLE. These include:

- **The 2008 Steer Davies Gleave Study:** This was undertaken for TfL as a preliminary Feasibility Study. It presented a Business Case for the project and concluded that an extension of the NL is feasible and, amongst different public transport initiatives, would be the *best* practical means for creating the level of accessibility required to unlock the development aspirations.
- **The 2009 Sinclair Knight Merz Study:** This was also carried out for TfL to inform the elaboration of the VNEB OAPF, and concluded that an intensive redevelopment of the OA would require a massive public transport improvement - and that amongst different transport initiatives an extension of the NL appeared to be the best option.
- **The 2010 Steer Davies Gleave Study:** This undertook a multi-criteria assessment of four different route options for the NLE and concluded that an extension to Battersea with a new mid-station in the Nine Elms area would be the best alternative.
- **The 2012 Volterra Study:** This independent study of the economic impacts of the scheme carried out by Volterra Partners indicated that the NLE project had the potential to yield substantial wider economic benefits (WEBs) for the area.

Over and above these studies:

- the results of a first series of public consultations on the possible route options for the NLE (held in the summers of 2010 and 2011) showed overall support for an extension of the NL to Battersea with a new station at Nine Elms (TfL, 2012a); and
- in the autumn 2012, another consultation exercise (providing the public with the opportunity to view and comment on the NLE proposals as a whole) illustrated that the majority of the respondents considered the extension to be a good idea (TfL, 2012b; Accent 2013).

On 30th April 2013 TfL submitted its application for a Transport and Works Act Order (TWAo) which, if granted, will give TfL the permission to build and operate the extension. The TWAo application marks the start of a statutory consultation period ending on 18th June 2013, during which comments (positive or negative) on the NLE proposal may be submitted to the Secretary of State for Transport. Depending on the nature and number of comments received, the Secretary of State will decide if a public inquiry is required. If an inquiry is necessary, the appointed inspector will hear both sides of the case and make a recommendation to the Secretary of State to either grant (with or without changes) or reject the application.

It is anticipated the whole process will take about 18 months from the date of the application to the Secretary of State's decision. The final decision on the TWAo application is expected in autumn 2014. If planning approval is obtained and a funding package is in place (i.e., £1 billion in finance from the GLA) the construction of the NLE *could* begin in 2015 with the two new stations opening in 2020.

According to Transport for London (2013) the project will cost overall £998.9m at 2012/13 prices. This includes the costs of five additional trains which will be required to operate the service.

Once operational, trains from the Charing Cross branch will serve the NLE with an initial frequency of around 16 trains per hour (tph), increasing to a potential 28 tph by 2031. There will be a 5-6 minute journey time between Kennington and Battersea stations.

The capacity of the NLE with 28 tph would be around 60,000 passengers over the 3 hour morning peak period. Steer Davies Gleave (2008 and 2010), by comparison, estimates the total demand for the NLE (in terms of total passengers boarding and alighting) in 2031 at 15,200 passengers and the operating cost will turn out to be approximately £9.8m per year.

1.5 Major development projects in VNEB OA and infrastructures required

Currently there are a number of significant development proposals in the vicinity of the NLE project. Some, which are essentially regeneration projects, involve international stakeholders as in the specific cases of the Battersea Power Station (involving a Malaysian consortium of investors consisting of SP Setia Berhad, Sime Darby Berhad and the Employees Provident Fund) and the US Embassy which is moving from Grosvenor Square to south of the River Thames and will be a major catalyst for the regeneration of Nine Elms on the South Bank. It has been reported that both the Netherlands and the Chinese governments are also considering moving their embassies into the area.

To support the development in the OA a wide range of social and economic infrastructure will be required. These have been investigated on the on basis of the population estimates and the probable demographic profile of new residents and reported upon in the *Vauxhall Nine Elms Battersea Development Infrastructure Funding Study* (Roger Tym & Partners et al., 2010) carried out as part of the VNEB OAPF.

With reference to social infrastructure this study envisages that:

- affordable housing, on sites in Lambeth (with the exception of the areas surrounding the proposed station at Nine Elms), at a level of 40% affordable housing. In the Wandsworth part of the OA, by comparison, 15% affordable will normally be considered;
- education facilities, where 4-form entry school in Wandsworth and a 2-form entry school in Lambeth, as well as 2-form of pre-school entry in Wandsworth plus 1-form pre-school entry in Lambeth will be required;
- two health centres of five and six general practitioners respectively are likely to be required within the VNEB OA;
- childcare, youth facilities, adult learning and employment skills services, and community and voluntary sector organisations, to be accommodated by two multi-use community facilities, one in each borough. Additionally, Wandsworth Council has also identified a need for a new library to serve the Wandsworth part of the OA;
- two police team bases are likely to be necessary;
- public spaces will be provided through the delivery of a high-quality continuous riverside path (from Lambeth Palace Gardens to Battersea Park), a new green link (from Lambeth Palace to Battersea Park) and strategic river links running north to south across the site.

Concerning economic infrastructure, a broad range of transport, gas, electricity, potable water, waste, telecommunications, and surface water management facilities have also been identified by the *VNEB Development Infrastructure Funding Study* as necessary to support growth at the VNEB OA, as follows:

- anticipated interventions in the energy sector include the development of a low carbon district heating network, the creation of a new primary electricity primary sub-stations and the enhancement of gas supply network within the OA;

- overall there should be a demand of 18,000 new telephone lines in the area to serve the proposed development;
- it is anticipated that the existing water distribution network will have to be reviewed so that each part of the development can be supplied with potable water, while to accommodate the additional wastewater flows the pumping station will have to be upgraded.

The works for the construction of the Thames Tunnel (which will run approximately 32 kilometres through the heart of London and up to 75 meters beneath the River Thames, broadly following the path of the river and capturing the flows of storm sewage from 34 sewer overflow points along the River Thames) are also likely to affect the OA sites (Heathwall Pumping Station and the Albert Embankment) involving 1.5 – 2 hectares of land up to 2020 (GLA, 2012).

The Transport Study by Sinclair Knight Merz (2009) supports a package of other supporting transportation interventions including: new and enhanced bus services, new bus stops, improvements to existing bus stations, improvements in transport interchange facilities and connections with the wider Vauxhall and Opportunity Area, the enhancement of the quality and accessibility of the existing Vauxhall Underground and Vauxhall National rail stations, the improvement of the interchange and enhanced integration at existing and new underground and rail stations with the existing transport network, plus the improvement of the quality of the pedestrian environment and cycling routes throughout the OA.

According to estimates contained in the VNEB Development Infrastructure Funding Study, transport sector interventions will incur major costs (approximately 81% of total costs), while parks and open space will represent the second highest cost (at approximately 8.5% of total costs). The third highest cost is education. The Report suggests there is likely to be a funding gap of around £88 million.

1.6 The policy, planning and regulatory frameworks for the NLE

The NLE project (as proposed) is considered consistent with a number of relevant national, regional and local policies, plans and government pronouncements. The documents reviewed (i.e. *The Autumn Statement* (at the national level), the *London Plan* and the *Mayoral Transport Strategies* (at the regional level) as well as the *Vauxhall Nine Elms Battersea Opportunity Area Planning Framework* and the Local Development Frameworks of the Boroughs of Lambeth and Wandsworth at the local scale) suggest support for the NLE project as summarized below:

- **The Autumn Statement of 2011** prepared by HM Treasury supported the NLE and proposed the creation of an enterprise zone for the VNEB area which, in turn was envisaged to provide the necessary powers for raising funds to help to fund the construction of the NLE from business rates in the area.
- **The subsequent Autumn Statement 2012** confirmed that up to £1bn of borrowing from the Public Works Loan Board would be available to the Greater London Authority (GLA) (for TfL use) to finance the construction of the NLE. This is to be paid back through a combination of incremental business rates and contributions received by the boroughs from local developers under Section 106 obligations and Community Infrastructure Levy regimes.

- **The Mayor's Transport Strategy** (Mayor of London, 2010) identified the VNEB as an area where improving accessibility is "*of particular concern*". The NLE was recognized by this document as a project to be privately funded to support developer-led growth in the VNEB.
- **The London Plan** (Mayor of London, 2011) recognizes that the VNEB "has scope for significant intensification and increase in housing and commercial capacity" but that "to deliver the area's full development potential will require major transport investment". The Plan puts forward two important and significant policy changes for the VNEB OA. The first is the extension of the Central Activities Zone (CAZ) south of the River Thames to include the VNEB Waterloo and London Bridge/Bankside OAs. The second is the removal of the Strategic Industrial Location (SIL) designation from the central part of the OA as defined in the Mayor's Industrial Capacity Supplementary Planning Guidance (SPG) to the London Plan, published in March 2008. The combination of these two policy shifts with sustained development activity in the OA has been a catalyst creating the momentum to produce the OAPF.
- **The VNEB OAPF** (GLA, 2009 and 2012) describes the area and identifies current issues relating to the public realm, connectivity and legibility which need to be addressed. It also considers development capacity and associated social infrastructure and open space requirements. Finally, the framework introduces specific strategies for transportation, tall building development, energy, waste, wharves and water. The Report reiterates that a large-scale redevelopment/regeneration of the kind proposed may be achieved *only* with an associated improvement in public transport accessibility and capacity and on the basis of the findings from the Transport Study carried out by Sinclair Knight Merz sustain the delivery of the NLE from Kennington to Battersea via Nine Elms as a key transport intervention.
- **The Lambeth Core Strategy** (London Borough of Lambeth, 2011) and the **Wandsworth Core Strategy** (London Borough of Wandsworth, 2010), *both* recognize that the major opportunities for regeneration and development within the OA support the scale of growth identified in the OAPF, confirming that new infrastructure such as extensions to the Underground network are critical to this growth.
- Additionally, **the National Planning Policy Framework (NPF), The Planning Act of 2008, and The Climate Change Act of 2008** *all* at the national scale, reinforce the *Mayor's Economic Development Strategy* at the regional scale and the *Development Scheme* of the London Borough of Southwark at local scale, and promote indirectly the extension of the NL

1.7 The stakeholders

A long list of NLE and related development area stakeholders has been compiled from the reports reviewed. This list includes parties involved in the NLE line haul and station developments and those stakeholders *not* directly involved in the NLE itself but whose interests have been linked with the related planned development of the VNEB OA.

These megaproject stakeholders have been classified according to their geographical association (i.e., their local, regional, national or international level of involvement) as well as by whether they are from the public sector, the private sector or civil society. From the number of technical report as well as planning and policy documents that have been reviewed it has also been possible identify the different stakeholders' agendas and priorities. The list of key stakeholders involved in this megaproject has been cross-checked against the TWAO application published on 30 April, 2013 indicating all the parties

that have been involved in the consultation processes on the NLE. The complete list of stakeholders as reported in the TfL's Consultation Report has been included in Appendix 5 of this report.

1.8 Identification of possible NLE interdependencies with respect to the definition as provided by the Frontier Economics Report

According to the framework proposed in the Frontier Economics Report (HM Treasury and Infrastructure UK, 2012), to map infrastructure interdependencies it has been possible to distinguish the following types of interdependencies entailed by the NLE project:

- **Intra-system interdependencies**

These relate to interdependencies across parts of the transport system (NLE and other public transport services as well as NLE and other transport infrastructure improvements). The *Transport Study Report* carried out by Sinclair Knight Merz to inform the development of the VNEB OAPF 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. Additionally, a range of other supporting transport measures will also be necessary. These includes new bus stops, improvement of the existing bus stations, improvement of the transport interchange and connections with the wider Vauxhall and Opportunity Area, enhancement of the quality and accessibility of the existing Station Vauxhall Underground and Vauxhall National rail stations, improvement of the interchange and integration at existing and new underground and rail stations with the existing transport network, enhancement of the quality of the pedestrian environment and cycling routes throughout the OA.

The nature of this intra-system interdependency is likely to be physical (interchange and integration), digital (signaling systems) and organizational (TfL, London Underground, Railways Companies, Buses Companies - Decisions relating to one part of the transport infrastructure system may have implications for other parts of the infrastructure system). Whilst some of these interdependencies are documented, their full appreciation including consideration of attendant risks and opportunities is currently under-developed in the planning and appraisal frameworks adopted for the NLE & VNEB OA.

- **Inter-system interdependencies**

These are interdependencies between one infrastructure system (transport/NLE) and another (regeneration).

It is evident that there is a strong interdependency between the NLE project and the proposed development of the OA. On the one hand, a large-scale development of this area may be achieved only with a concomitant intervention aiming at enhance public transport accessibility and capacity. On the other, this massive transport project may be justified only on the basis of new residential, business and leisure neighborhoods.

The nature of this inter-system interdependency is likely to be physical (redevelopment projects around the stations), and organizational (TfL and other major landowner and developers – with the decisions relating to one infrastructure system (transport) having important interdependencies with other sectors (real estate, social infrastructure). Whilst some of these interdependencies are documented, their full appreciation including consideration of attendant risks and opportunities is currently under-developed in the planning and appraisal frameworks adopted for the NLE & VNEB OA.

1.9 Conclusions: Analysis of NLE against OMEGA Centre lessons

Framing the NLE project and the related urban regeneration schemes *together* as a megaproject, the planning and appraisal stages of the NLE project and the related regeneration schemes have been reviewed against a set planning and appraisal criteria distilled from a selection of key findings and lessons learned from a five-year international study of decision-making in the planning, appraisal and delivery of mega transport projects involving 30 case studies in ten countries in the developed world undertaken by the OMEGA Centre (OMEGA Centre, 2012).

Notwithstanding the numerous highly competent studies undertaken to date in association with the proposal to build the NLE project, an examination of the OMEGA findings suggest that a number of noteworthy omissions exist in the NLE planning and appraisal processes *if* one is to consider it a 'megaproject' that is critically dependent on (as it is) the success of related urban regeneration schemes and the effectiveness/efficiency of the independencies of other supporting infrastructure networks. This more 'open-systems' perspective of project planning and appraisal - which looks well beyond the 'closed system' of the rail link and its stations and which takes on board the 'agent of change' agenda it aspires to, warrants (it is contended) a policy-led multi-criteria analysis (PLMCA) framework that facilitates the transparent prioritizing and contextualizing of trade-offs amongst different key stakeholders regarding decisions about resourcing and costing the project, as well as determining where costs and benefits ultimately fall over time, space and institutionally. A policy-framework of this kind clearly needs to be sensitive to what market forces deem viable. At the same time it needs to be cognizant of critical planning and regulatory measures. We contend that the overarching UK government vision of sustainable development - expressed through international, national, regional and local policies, plans and legislation – should provide the leadership of such a PLMCA framework operationalized by policies and functional performance indicators.

Whilst both the technical and the policy documents reviewed provide a clear indication of the aspired after 'agent of change' function envisaged by the construction of the NLE line haul and its stations - namely to provide a step change improvement in transport connections in Battersea, Nine-Elms and South Lambeth in order to unlock the development potential of a number of urban regeneration opportunities within the VNEB OA - the appraisal process of the NLE project itself has been conducted on the basis of too narrow an economic analysis. The line haul is essentially treated as a closed system thereby preventing the use of a more holistic integrated planning and appraisal framework that better identifies the full extent of the broader costs, benefits, risks and opportunities, both of a monetizable and non-monetizable nature, associated with the VNEB OA. This needs to be done by considering the technical, social, economic, environmental and institutional interdependencies between the line haul and the associated regeneration schemes and related infrastructure dependencies. We further conclude that:

- The appraisal process of the NLE has been based exclusively on the line haul with the assessment of different route options being conducted *without* adequate consideration of the many other infrastructures required to support the development of the VNEB OA.
- The project appraisals undertaken rely predominately on Cost Benefit Analysis (CBA), with the major proportion of social benefits identified for the scheme being made up of travel time savings, decongestion and crowding relief on the NL, whilst the economic costs are restricted to direct capital expenditure, renewal and operation expenses concerning the line haul and stations only. The wider costs and benefits associated with the regeneration of the VNEBOA including the

required social infrastructure and the associated risks and opportunities, and identification of “winners” and “losers” (over time, space and institution) have *not* been adequately included in the appraisal or consultation exercises.

- The *raison d’être* of the NLE is the delivery of a high-density development within the VNEB OA that has been assumed as the ‘favored’ option by the GLA, while low development hypothesis or downside economic scenarios have *not* been taken adequately into consideration during the project appraisal. This places at risk the robustness of the selected route option when compared with other potentially viable transport options.
- The definitive route of the extension has, furthermore, *not* been challenged sufficiently during the appraisal process. The avoidance of any connection with other London Underground lines such as the Victoria line, together with the limited attention given to the adoption of more robust and adaptable strategies to cope with possible deviations from traffic forecast demands (for example), or the sudden withdrawal of major investors, may limit the long-term resilience of the project.
- It appears that *only* the Battersea Power Station developers and possibly the American Embassy have been able to really influence this megaproject, while the remaining stakeholders have merely been asked to provide an opinion exclusively on the route options once that the extension had been already selected as the preferred transport solution. International evidence in Scandinavia suggests that *early* consultation with key project stakeholders can reduce the opposition to projects further down the line and thereby avoid incurring additional costs that opposing appeals, for example, can generate.

2 Introduction

2.1 IUK Project: Overall study objectives and phases

HM Treasury and Infrastructure UK have commissioned the University of Bristol (UoB) and University College London (UCL) to undertake a study to develop a framework for the identification and appraisal of infrastructure interdependencies with specific application to particularly critical infrastructure in the UK.

The study which commenced in August 2012 has been undertaken in two phases:

- **Phase 1**, completed in December 2012, entailed an extensive literature review of current approaches to the planning and appraisal of UK infrastructure, highlighting the implications of interdependency management, and providing a broad analysis of the business cases for a range of different infrastructure projects. This has led to the development of a preliminary Interdependency Planning and Management Framework (IP&MF) based on the Treasury's presumed "stewardship of a continuum of infrastructure, systems thinking, and multi-criteria assessment principles" with UoB developing a matrix-mapping approach to interdependency planning and management, and UCL presenting the case for employing a policy-led multi-criteria analysis approach to critical infrastructure development, referred to as the OMEGA PLMCA Framework.
- **Phase 2**, which commenced in February 2013, seeks to apply the IP&MF to three infrastructure projects currently under development, namely the High Speed 2, the Lower Thames Crossing, and the Northern Line Extension (NLE), with a view to arriving at a 'Maturity Framework' for the earlier developed IP&MF intended to ensure that "any proposed project will be formally assessed against all its interdependent relationships with other critical infrastructures." The practical application of the IP&MF will require, it is envisaged, a series of workshops with the main stakeholders involved HS2 projects and desktop studies in the case of the NLE and Lower Thames crossing. In particular, it was decided that UCL would focus on the practical application of the IP&MF (informed by the broader concerns identified by the OMEGA PLMCA Framework) to the NLE project.

2.2 Phase 2: OMEGA Centre Team contribution

A brief summary of the OMEGA Phase 2 tasks is reported in the Table 1. A breakdown of the tasks from the OMEGA Phase 2 TOR as related to this report are as follows:

- **Sub-task 5.1:** the write-up of the synthesis of the main features of the NLE project
- **Sub-task 5.2:** the listing of the main stakeholders with a review of their interests in the NLE project and development agendas
- **Sub-task 5.3:** the detailing and review of the most relevant policies, plans and regulations (at all levels) impacting on the NLE project
- **Sub-task 5.4:** the listing of the likely interdependencies as identified in the earlier Study tasks as informed by both the OMEGA lessons and case studies and UoB N² framework where appropriate.

Table 1 Summary of OMEGA Phase 2 Task List

PHASE 2 OMEGA TASKS	MAIN OUTPUT
Task 1: Undertake desktop review of the NLE project	Definition of the main features and boundaries of the NEL project and identification of the main stakeholders
Task 2: Conduct analysis of policy, planning and regulatory frameworks impacting NLE project	Identification of the most relevant local, regional, national and trans-national policies for NLE project
Task 3: Examination of resonance of OMEGA lessons and case study findings to the NLE project	Formulation of primary planning and appraisal interdependency considerations and development of an OMEGA policy-led MCA framework potentially applicable to the NLE project
Task 4: Preparation and execution of NLE project stakeholder interviews	Moved to UCL Enterprises (CTA) Project as Agreed
Task 5: Preparation of desk study report	Synthesis of main findings of the previous phases and listing of the likely interdependencies as identified in the earlier Study tasks
Task 6: The perspective of pension fund investors on NLE and PLMCA/N ² frameworks (Chris Lewin)	Findings from the application of a PLMCA Framework to the perspective of pension fund investors for the identification of positive and negative interdependencies concerning potential investment opportunities
Task 7: Maturity Framework Development: Integration of UoB N ² approach and the OMEGA PLMCA approach	Development of a hybrid IP&MF incorporating the UoB N ² approach and the OMEGA PLMCA Framework

This report seeks to identify project background information, key project stakeholders and policies relevant for this purpose in order to inform the development of the IPMF. However this document also seeks to indicate broader stakeholders and their objectives/policies and highlight possible strategic interdependencies which may also have significant bearing on the NLE project. In this way the document seeks to inform the preparation of Task 7, Maturity Framework Development where the N² methodology and the OMEGA PLMCA Framework are further developed. This is an important step as findings from the OMEGA Centre suggest the emergent opportunities and threats posed by megaproject development cycles are most effectively

identified, managed and exploited through a shared and transparent problem analysis. This enables so as to identify an identification of a full set of potential issues that should be addressed; avoids the premature discarding of options; and clearly underlines the conflicting values that a given project will generate. It also facilitates the consideration, explicitly and equally, of all the different kind of costs and benefits (both quantifiable and non-quantifiable) produced by any possible initiative from a particular stakeholder perspective.

Section 3 below presents an overview of the NLE Project (as a line-haul system plus stations) and as a megaproject (that also incorporates related major urban regeneration areas), and identifies the key project documents held in the public domain in response to OMEGA Task 1.1 and OMEGA Task 1.2. The full list of public sector documents reviewed by this report is listed in Appendix 1.

Section 4 considers the VNEB OA regeneration project and identifies all the infrastructures necessary, besides the NLE, to deliver such a development. This section draws extensively on the VNEB OAPF elaborated by GLA in 2009, as a draft document and whose final version was published in 2012. In the VNEB OAPF supported the delivery of a high density mixed use development with the creation in particular of two growth poles at Battersea and Nine Elms and the involvement also of international stakeholders. As part of the OAPF, both a *Transport Study* carried out by Sinclair Knight Merz (2009.) and a *Development Infrastructure Funding Study* carried out by Roger Tym & Partners et al (2010) were commissioned. The former indicates that to support the development, additionally to the NLE, other transport interventions were necessary. The latter identified a broad range of economic and transport infrastructures to satisfy the needs of the expected population growth in the VNEB OA. Section 4 summarizes these findings and present also an estimate of the costs to deliver the NLE and the other infrastructures

Section 5 is a review of the relevant local, regional, national and international planning and policy documents framing the NLE project and the proposed development of the VNEB OA in response to OMEGA Task 2. The list of all planning and policy documents which has been analysed are reported in the Appendix 2.

Section 6 presents an analysis of key NLE stakeholders and their objectives in fulfilment of OMEGA Task 1. Stakeholders/objectives associated with either physical or broader interdependencies are differentiated where possible, as are any key individuals listed who have been identified as representing such organisations concerning NLE matters.

Section 7 is an Examination of resonance of OMEGA lessons and case study findings to NLE project as per OMEGA Task 4 whilst **Section 8** presents the conclusions from the Study.

3 The Vauxhall, Nine Elms and Battersea Opportunity Area and the Northern Line Extension Project

3.1 Introduction to the projects

The OMEGA Centre TOR focuses upon the collation and analysis of material concerning the main features, stakeholder interests and relevant policy documents of the Northern Line Extension Project and related urban regeneration projects concerning the identification, planning and management of project interdependencies (as defined in Appendix 6). Initial research into the project has revealed that the fundamental objectives of the NLE project are directly interlinked with the development of the Vauxhall, Nine Elms Battersea (VNEB) Opportunity area. Hence, it is very evident that there is a strong interdependency between the NLE project (as the line-haul and its stations) and the proposed development of the OA (which together make up a far more complex megaproject made up of complex interdependencies). On the one hand, a large-scale development of this area may be achieved *only* with concomitant interventions aiming at enhanced public transport accessibility and capacity. On the other hand, this massive transport project may be justified *only* on the basis of the demand generated by the new commercial, leisure and residential neighbourhoods planned for the VNEB.

This document will therefore from here on consider the NLE as a megaproject consisting of:

- the hardware infrastructure and technological developments concerning the extension of the Northern Line line-haul to the VNEB area and the two stations designated at Battersea and Nine Elms; and
- the urban regeneration developments undertaken within the VNEB area which include significant numbers of new office, residential, retail and leisure developments plus related community facilities, together having significant socio-economic and environmental impact.

3.2 Main features of the VNEB

VNEB is identified in the London Plan (Mayor of London, 2011) as one of the 33 Opportunity Areas (OAs) in London. This site, representing one of the most significant redevelopment opportunities in Central London, covers an area of 0.75 square miles to the south of the river between Chelsea and Lambeth bridges (see Figure 1).

Opportunity Areas are London's major source of brownfield land with significant capacity for new housing, commercial and other development linked to existing or potential improvements to public transport accessibility. Typically they can accommodate at least 5,000 jobs or 2,500 new homes or a combination of the two, along with other supporting facilities and infrastructure

Figure 1 Location of Vauxhall, Nine Elms Battersea Opportunity Area within London



Source: www.nineelmslondon.com

Figure 2 Location of Vauxhall, Nine Elms Battersea Opportunity Area within London



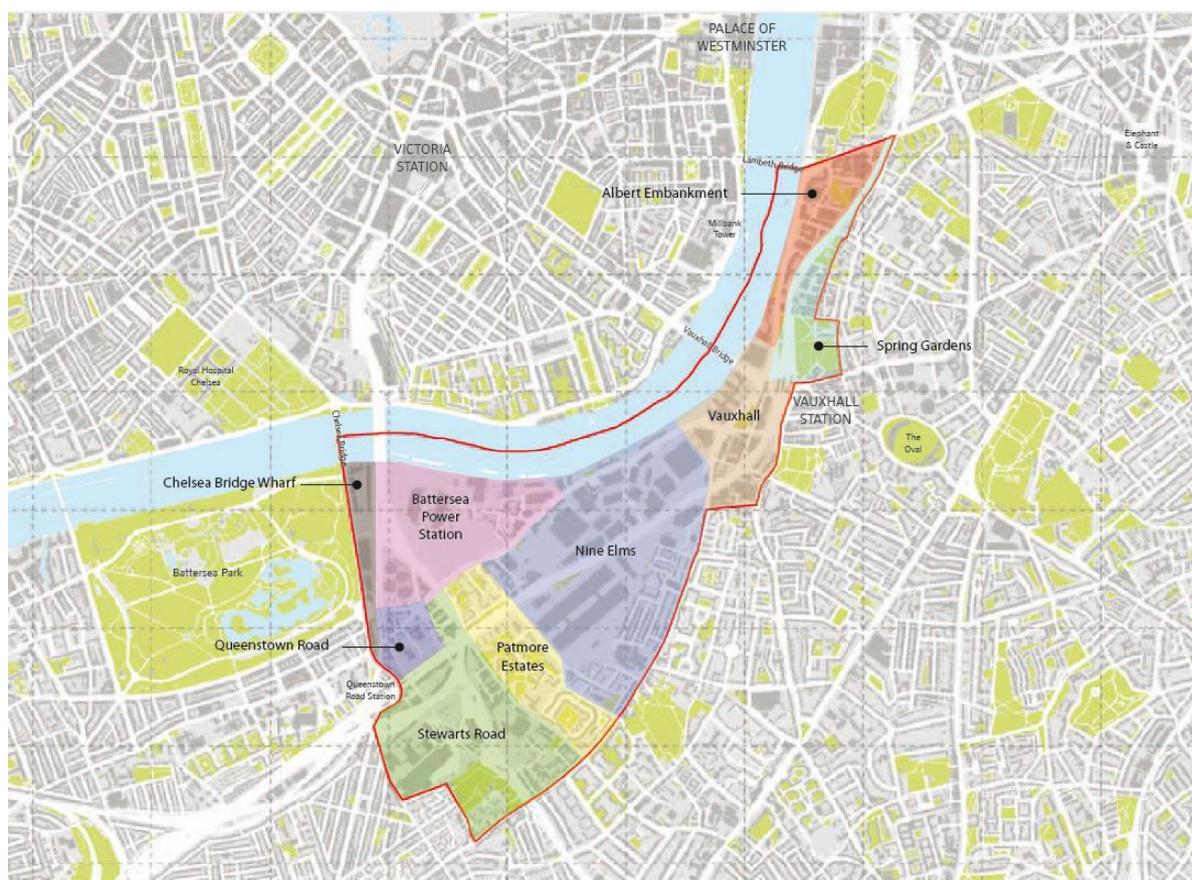
(Source: Mayor of London, 2011)

A range of studies have been conducted with consideration of the VNEB. The following have been identified as key documents that allude to the policy and planning frameworks for the area (see Appendix 1 for a full list reviewed by this report):

- **The London Plan (Mayor of London, 2011):** The London Plan identifies the potential for a comprehensive renewal and intensification of the VNEB OA area, in order to restore the degraded environment and strengthen links with the rest of Central London.
- **The Vauxhall Nine Elms Battersea Opportunity Area Planning Framework (Greater London Authority, 2009 and 2012):** The Opportunity Area Planning Framework developed as draft Report in 2009 and successively published in 2012 as final version by the Greater London Authority for the area looks to the establishment of two growth poles, one at Battersea Power Station and the other at Vauxhall and a mixed use residential neighbourhood at Nine Elms. The objective is thus the maximization of the development opportunity with 16,000 new homes and 15,000 – 20,000 new jobs.
- **VNEB Opportunity Area Transport Study (Sinclair Knight Merz, 2009):** The Transport Study Report carried out by Sinclair Knight Merz (2009) is based on the main findings from the VNEB

OAPF and indicated that an intensive redevelopment of the OA would require a massive public transport improvement. The VNEB OA is bisected by the borough boundary between the London Borough of Lambeth and London Borough of Wandsworth. It incorporates the sites of the Vauxhall, Nine Elms, Albert Embankment, Battersea Power Station, Stewarts Road, Patmore Estates, Spring Gardens and Queenstown Road (see Figures 3 and 4). The overall character of the OA is predominantly industrial to the south and commercial to the north and currently contains approximately 6,500 residents and over 26,000 jobs. Figure 5 illustrates that the most dominant land use in the OA is industrial, office and retail. Residential use is limited to St George's Wharf and an area of social housing located in the south-west of the OA.

Figure 3 Key sites within the VNEB area



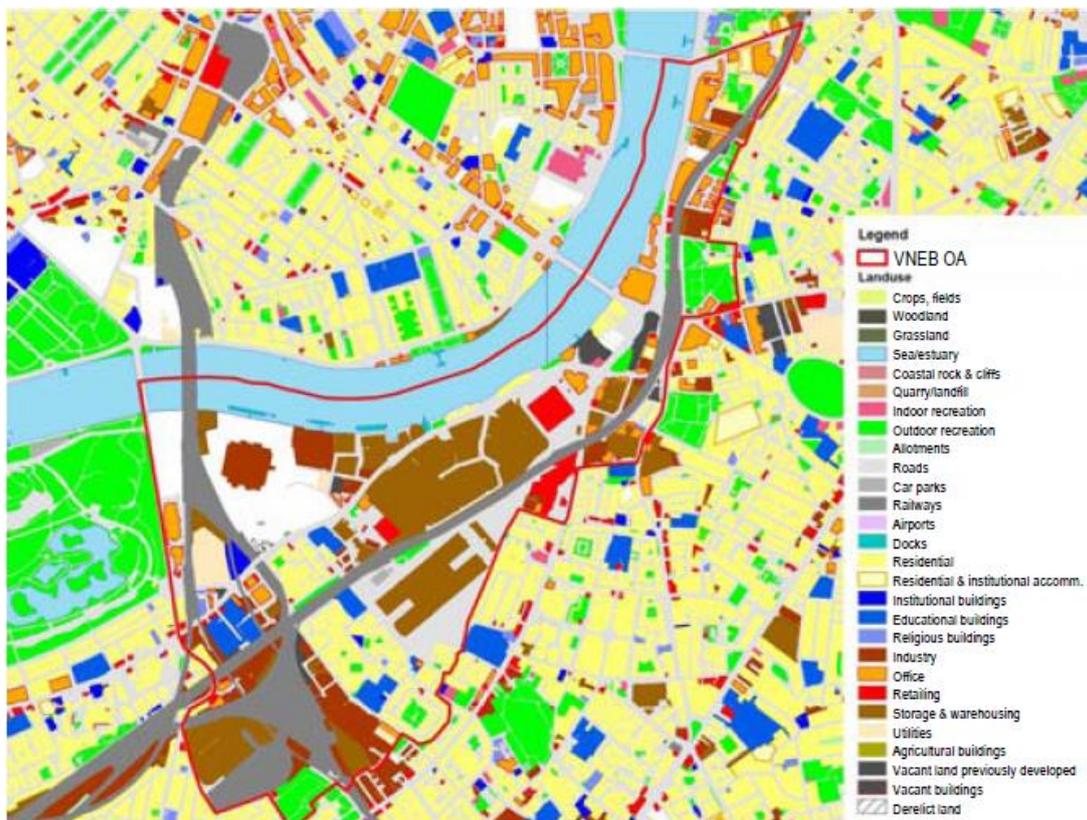
Source: GLA, 2009

Figure 4 Aerial view of the Vauxhall, Nine Elms Battersea Opportunity Area.



Source: GLA, 2009

Figure 5 Land Uses in the VNEB area

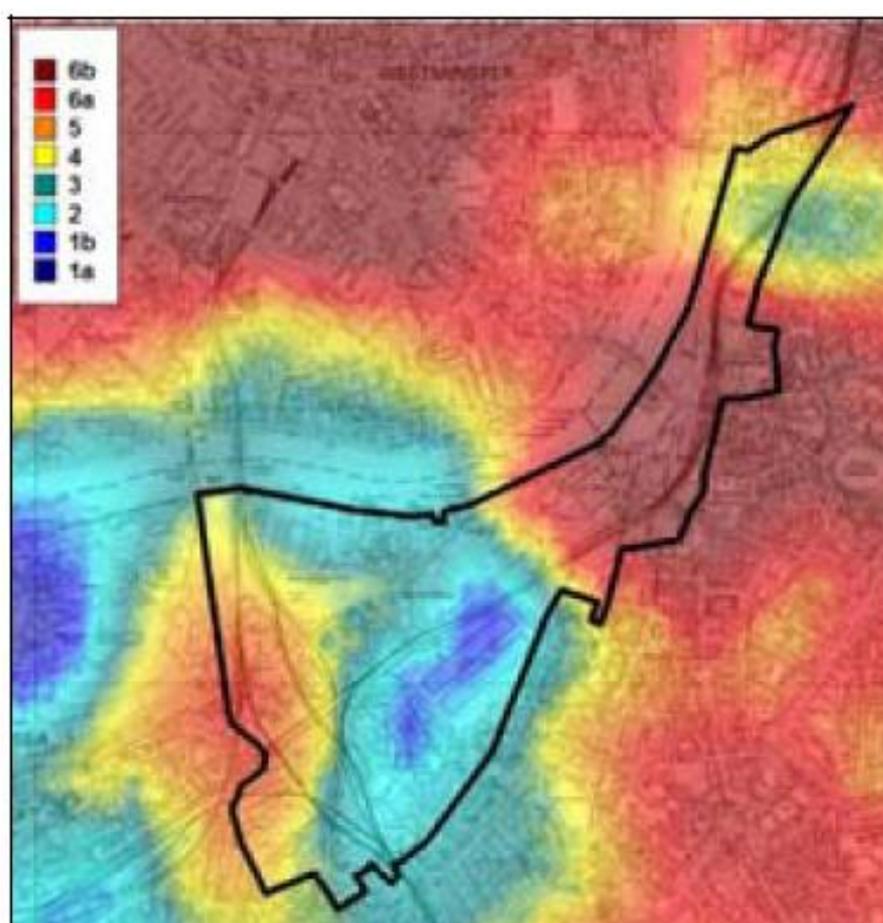


Source: GLA, 2009

The VNEB OAPF (GLA, 2009) indicates that the Opportunity Area:

- historically suffers from a high degree of physical severance due to the presence of strategic elevated roads carrying fast-moving traffic and elevated heavy rail infrastructure bisecting the area and the industrial land uses;
- presents deficiencies in open space and lacks social infrastructure contributing in social terms, to a high level of deprivation, with communities suffering from income, employment, health, education and skills deprivation;
- has a significant mix of transport infrastructure including strategic roads, local roads and more minor accesses, plus Network Rail and Underground services, London-wide and local bus services and numerous walking and cycling routes. However, with the exception of Vauxhall, the OA has a relatively poorly level of accessibility overall as clearly indicated in the public transport accessibility level (PTAL) map of Figure 6. According to the scoring scale used a 1a indicates extremely poor access to the location by public transport, and 6b indicates excellent access); and
- suffers from a number of administrative, policy and fiscal constraints, including primarily a lack of a co-ordinated spatial plan for the area.

Figure 6 Existing public transport accessibility levels (PTALS) of the VNEB area



Source: Sinclair Knight Merz, 2009

3.3 Main features of the NLE

The proposed extension of the Northern Line (NL) has been considered part of a package of transport measures to support the planned regeneration of the above mentioned OA. These include a range of rail, bus, cycling, pedestrian and highway improvements to deliver, together with the NLE project, a 'step-change' in public transport provision, complemented by new social infrastructures such as social care facilities, early years, primary and secondary education facilities, sport and recreation facilities and flood mitigation measures (GLA, 2009 and 2012).

The NLE was initially promoted from 2007 to 2011 by Treasury Holdings, the former developers of the Battersea Power Station site with support from Transport for London (TfL) (see project timeline provided in Appendix 3). Treasury Holdings went into administration in late 2011 and the project's promotion was subsequently taken over by TfL with partial funding to be provided by the new owners of Battersea Power Station through a Section 106 Agreement. The Battersea Power Station site is currently owned by a Malaysian consortium of investors consisting of SP Setia Berhad, Sime Darby Berhad and the Employees Provident Fund.

The key features of the proposed NLE project are as follows (see Figures 7 and 8) (after TfL, 2013)

- the extension of the Charing Cross branch of the NL from Kennington to Battersea via Nine Elms;
- a new station at Nine Elms which would serve the development sites on the eastern side of the Nine Elms Opportunity Area as well as the existing local communities;
- a new station at Battersea as the new southern terminus of the Charing Cross branch (the proposals allow a potential future extension beyond Battersea) which, by comparison, would serve the office, shopping and residential developments proposed for the Battersea Power Station site;
- two permanent shafts at Kennington Green and Kennington Park to provide ventilation, cooling and emergency access if required; and
- two temporary shafts at Radcot Street and Harmsworth Street and, as an alternative, possible 'gallery tunnels' to enable works to stabilise the ground in preparation for the new tunnels to be built.

A range of studies has been undertaken to make the case for the NLE, Key documents have been identified as (see Appendix 1 for a full list of documents reviewed by this report):

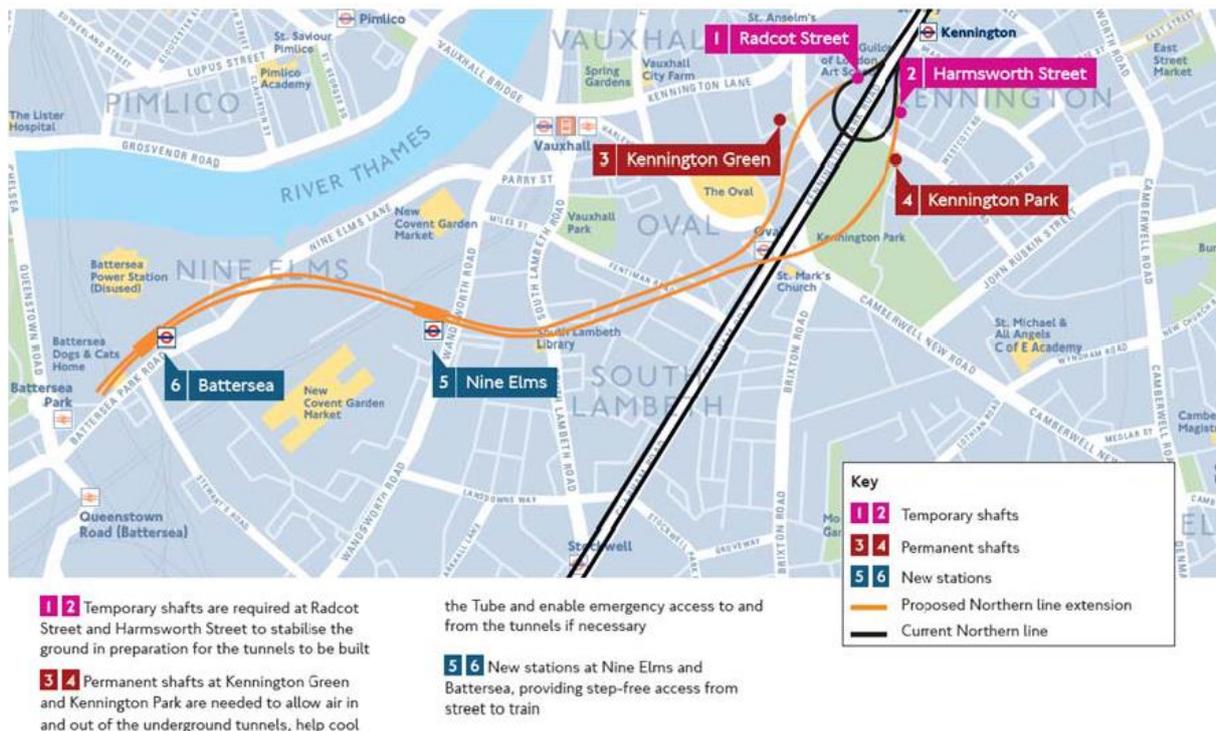
- **Northern Line Extension to Battersea and Nine Elms: Feasibility Study and Business Case Methodology (2008) and Northern Line Extension to Battersea Preliminary Business Case Summary (2009):** Studies undertaken by Steer Davies Gleave (2008a and 2008b), concluded that an extension of the NL is feasible and, amongst different public transport initiatives, would be the best practical means for creating the level of accessibility required to unlock the development aspirations for the VNEB;

Figure 7 The proposed extension of the Charing Cross branch of the Northern Line



Source: Accent, 2013

Figure 8 Key sites of the proposed extension of the Northern Line



Source: Accent, 2013

- **VNEB Opportunity Area Transport Study (2009):** Further studies conducted by Sinclair Knight Merz (2009) indicated that an intensive redevelopment of the OA would require large-scale public transport improvement and that amongst this investment in different transport initiatives an extension of the NL was seen to be the best option.

- **NLE route options Consultation: Treasury Holdings:** A first series of public consultations in the summers of 2010 and 2011 was held with the objective of obtaining a feedback on different possible routes for the extension (see Transport for London, 2012h). Overall more than 60% of respondents supported an extension of the NL to Battersea with a new station at Nine Elms.
- **Northern Line Extension Options: A Multi-criteria Assessment of Route Options (2010):** Steer Davies Gleave (2010) undertook a detailed assessment of the four different route options and concluded that the extension to Battersea with a new mid-station in the Nine Elms area would be the best alternative.
- **Wider Economic Benefits of the Northern Line Extension in the Vauxhall, Nine Elms, Battersea Opportunity Area:** An independent report examining the economic impacts of the OA (Volterra, 2012), indicates that the NLE project could generate substantial benefits to the area, in the forms of new jobs. This is an important observation for an area which is currently characterized by a relatively low employment density. The promise of new housing with the possibility of accommodating new residents that could *not* otherwise be located in the VNEB area is a further attraction. Complemented by an envisaged increase in the accessibility of the area and an improvement of travel time savings for both leisure and business trips, plus the enhancement of the quality of the area by bringing forward higher levels of development will, it is anticipated, drastically increase the taxation revenues from the area on account of this additional development enabled by the NLE.
- **NLE Autumn 2012 consultation – full scheme proposals and key sites:** In autumn 2012, a consultation exercise provided the public with the opportunity to view and comment on the NLE proposals as a whole, in particular the key sites required to build the scheme, before finalising them ready for an application a Transport and Works Act Order (TWAO) to build and operate the extension (see Transport for London, 2012j; Transport for London, 2013; and Accent Market Research, 2013). The consultation involved local residents, representatives from the London boroughs of Wandsworth, Lambeth and Southwark and the Vauxhall Nine Elms Battersea (VNEB) Partnership, environmental groups, local businesses, accessibility groups transport groups and major landowners who will be potentially impacted by the proposals. In general the main comment made by almost half of respondents, was the extension was an idea that they supported.
- **Transport and Works Applications and Objections Procedure, Rules 2006, London Underground (Northern Line Extension) Order:** On 30th April 2013 TfL submitted its application for a Transport and Works Act Order (TWAO) which, if granted, will give to TfL the permission to build and operate the extension. As part of the application full environmental statements including detailed analysis of the impacts on the key sites and disruptions to the local resident during construction of the NLE have been prepared (see Transport for London, 2013). In the key documents accompanying the application TfL (2013) points out that the NLE would be capable of meeting a number of strategic goals as identified by the Mayor of London in the London Plan. According to TfL, by enabling the sustainable regeneration and development of the VNEB OA, the NLE will concur in (1) Supporting economic development and population growth as well as in (2) enhancing the quality of life for all Londoners. Moreover, considering that the Underground is a safe and sustainable transport mode, the NLE not only will (3) improve transport opportunities for all Londoners but it will also (4) improve the safety and security of all Londoners, while (5) Reducing transport's contribution to climate change.

The TWAO application marks the start of a statutory consultation period ending on 18th June 2013, during which comments (positive or negative) on the NLE proposal may be submitted to the Secretary of State for Transport. Depending on the nature and number of comments received, the Secretary of State will decide if a public inquiry is required. If an inquiry is necessary the appointed inspector will hear both sides of the case and make a recommendation to the Secretary of State to either grant (with or without changes) or reject the application.

It is anticipated the whole process will take about 18 months from the date of the application to the Secretary of State's decision. The final decision on TWAO application is expected in autumn 2014. If planning approval is obtained and a funding package is in place the construction of the NLE could begin in 2015 with the two new stations opening in 2020.

As indicated in the Environmental statement Report supporting the TWAO (London Underground, 2013), the construction methodology has not been completely defined yet. However, a summary of the planning and construction activities has been formulated (see Table 2). The Northern line extension is estimated to cost £998.9m in 2012/13 prices.

Key operational features are outlined in Table 3 below. Once operational, trains from the Charing Cross branch will serve the NLE with an initial frequency of around 16 trains per hour (tph), increasing to a potential 28 tph by 2031. There will be a 5-6 minutes' journey time between Kennington and Battersea stations. The capacity of the NLE with 28 tph would be around 60,000 passengers over the 3 hour morning peak period. Steer Davies Gleave (2008 and 2010), by comparison, estimates the total demand for the NLE (Total boardings and alightings) in 2031 at 15,200 passengers and the operating cost will turn out to be approximately £9.8m per year.

As a result of this extension five additional trains will be required to operate the service. The cost of the new vehicles is included in the total project cost. The rolling stock will be provided within the *Deep tube programme* (DTP) originally planned exclusively for the replacement of the trains and signalling on the Bakerloo, Piccadilly, Waterloo & City and Central lines in a more sustainable and cost efficient manner than previously achieved under the PPP contracts.

Siemens has been asked by London Underground to develop a new "train model" for this round of replacement stock. Prequalification for the next-generation train procurement is expected to start soon.

Table 2 Key Planning and Construction Activities

ACTIVITY	INDICATIVE START DATE	INDICATIVE COMPLETION DATE
Nine Elms enabling works	2014-2015	2015
Construction contract - award and mobilisation	2014	2017
Third party infrastructure interfaces	2015	2018
Battersea station and crossover box structure	2015	2018
Nine Elms station	2015	2018
Running tunnel & cross passages	2016	2018
Works at Kennington Green	2015-2016	2018
Works at Kennington Park	2015-2016	2018
tunnels and junctions	2016	2018
Commissioning and handover	2018	2020
Commencement of passenger services	2020	/

Source: Adapted from London Underground, 2013

Table 3 Key features of the NLE Project

NORTHERN LINE EXTENSION	
Commencement of the works (indicative date)	2015
Conclusion of the works (indicative date)	2020
Journey time Kennington - Battersea stations	5-6 minutes
Project cost	£998.9m (2012/13 prices)
Operating cost estimate	£9.8m per year
Capacity in 2020	16 tph – approximately 32,000 passenger (AM 3 hour peak)
Capacity in 2031	28 tph – approximately 60,000 passenger (AM 3 hour peak)
Passenger demand forecast in 2031	15,200 passengers

Source: Adapted from TfL, 2013 and Steer Davies Gleave, 2008 and 2010

4 Analysis of Potential Technical, Economic, Social, Financial and Institutional Interdependencies of the Project

This section considers the planned regeneration of the VNEB OA project and identifies the infrastructures necessary, besides the NLE, to deliver such a development. This section draws extensively on the VNEB OAPF elaborated by GLA in 2009, as a draft document and whose final version was published in 2012.

4.1 The planned regeneration of the VNEB Opportunity Area and the role of private development

In recent years development pressure in the VNEBOA has been increasing. GLA stresses that the greatest barrier to enabling the further development and regeneration of the area is the currently highly constrained public transport accessibility and capacity of the area. Hence, according to GLA a large-scale development of this zone may be achieved only with a concomitant improvement in public transport accessibility and capacity. The GLA undertook a development capacity study as part of the VNEB OAPF in June 2008, which sets out five development scenarios for the OA accommodating varying levels of residential, retail and employment development (see table 4). In particular, the study established three high density development scenarios, which deliver a range of 8,000, 12,000 or 27,000 jobs and approximately 16,000 homes.

Table 4 The five OA development scenario identified by GLA.

Scenario	Description	Employment	Dwellings	Population
1	Low density residential	8,000	4,200	10,200
2	Medium density residential	8,000	8,500	20,700
3	High density residential	8,000	16,000	38,900
4	High density residential + retail	12,000	16,750	40,700
5	High density residential + retail + office	27,000	16,750	40,700

Source: GLA, 2009

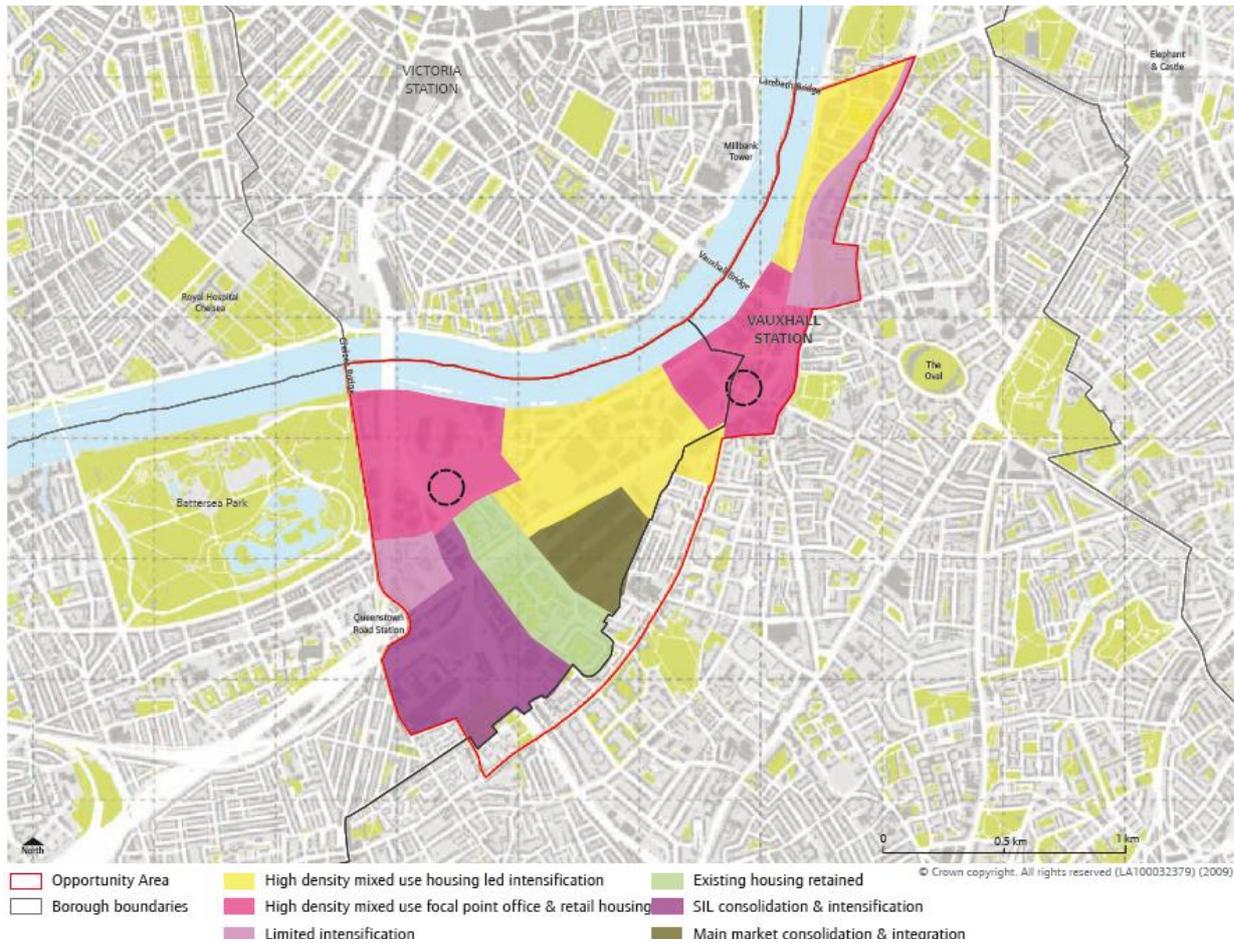
In particular, the planning framework supports the delivery of a high density mixed use development as set out in Option 5. The objective is thus the maximization of the development opportunity with 16,000 new homes and 15,000 – 20,000 new jobs through (see Figures 9 and 10):

- the establishment of two growth poles at Battersea Power Station and Vauxhall;
- the delivering of a new mixed use residential neighborhood at Nine Elms;
- the provision of new open space including a green link from Battersea Park to Lambeth Palace and a linear park in the heart of Nine Elms, improved riverside walk and high quality public realm; and
- the creation of a sustainable place with new transport and social infrastructure and strategic flood mitigation measures.

Currently, there are a number of significant development proposals affecting the area as showed in Figure 11 and corresponding Table 5 below. These regeneration projects involve also international stakeholders as in the specific case of the Battersea Power Station or of the US Embassy who is moving

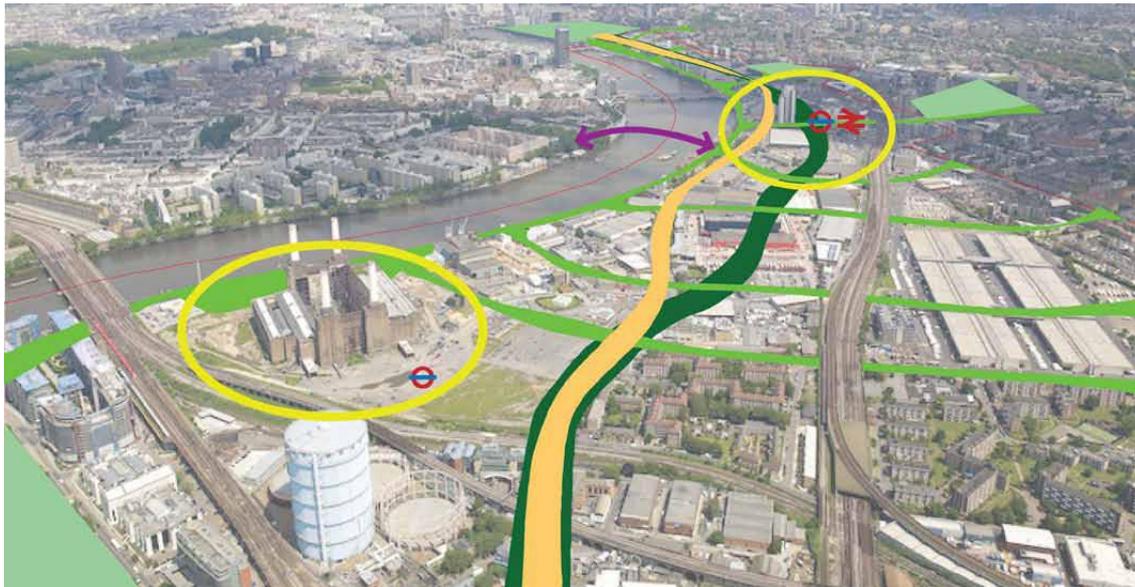
from Grosvenor Square south of the River Thames and will be a major catalyst in the creation of Nine Elms on the South Bank. Additionally, it has also been reported the both the Netherlands and the Chinese governments are considering moving their embassy into the area although at the time of writing these initiatives have yet to be confirmed.

Figure 9 Land Use strategy identified in the OAPF



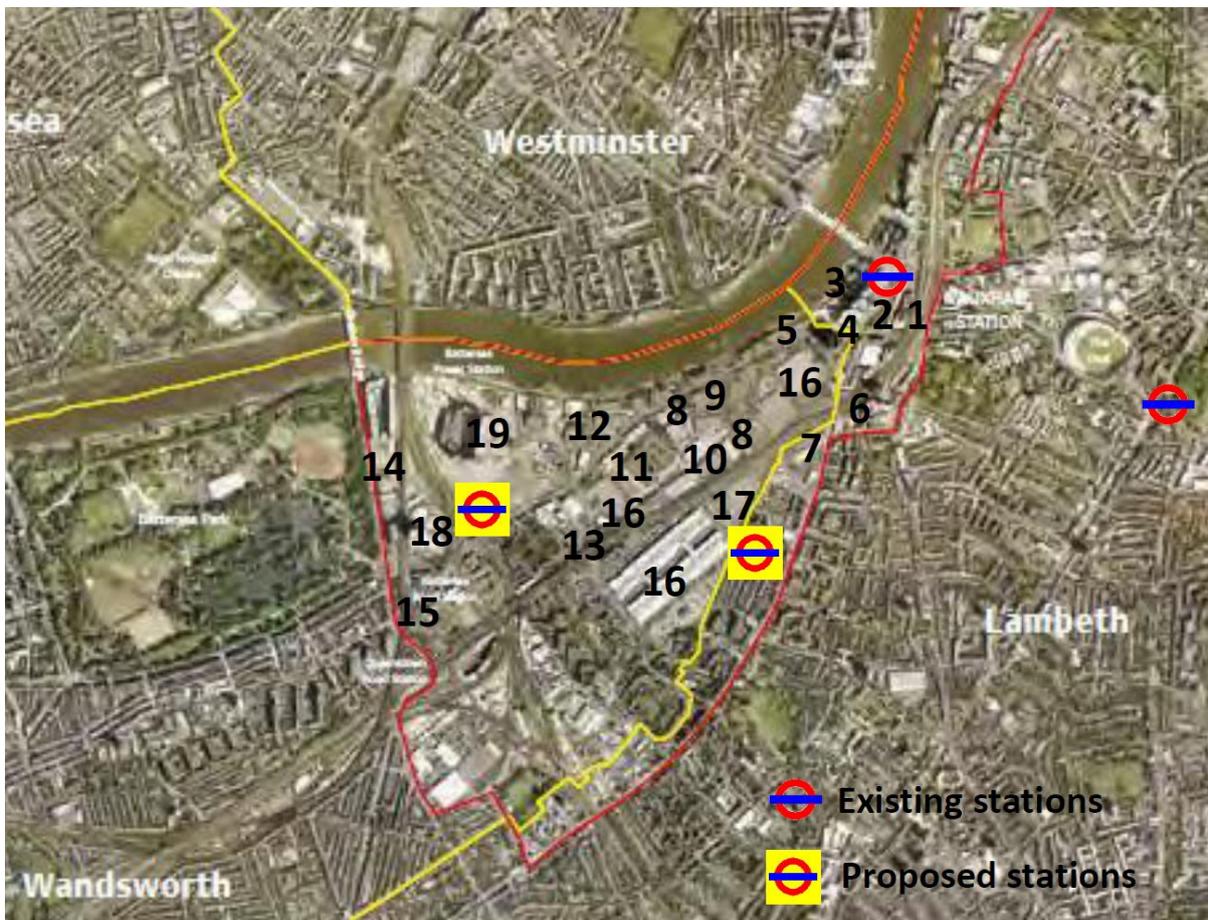
Source: GLA, 2009

Figure 10 Development strategy of the OAPF 2012



Source: GLA, 2012

Figure 11 Major ongoing development projects in the VNEB area



Source: OMEGA Centre 2013

Table 5 Major developments with planning permission approved within the VNEB area

DEVELOPMENT		DESCRIPTION	BOUROUGH	STATUS	STAKEHOLDERS INVOLVED
1.	1-9 Bondway and 4-6 South Lambeth Place London	Redevelopment of the site involving the demolition of the existing buildings and the erection of a 6 storey building providing a hotel with ancillary bar/restaurant facilities along with commercial floor space	Lambeth	Under construction	Salmon Harvester Properties Ltd
2.	Vauxhall Cross - Wendover	Two stunningly designed towers in the heart of Vauxhall providing offices, hotel, homes and retail in the centre of the transport hub with a new Underground entrance located within the public realm.	Lambeth	Application approved (expected starting date 2014)	Wendover Investments Ltd

DEVELOPMENT		DESCRIPTION	BOUROUGH	STATUS	STAKEHOLDERS INVOLVED
3.	St George's Wharf	Erection of one the tallest residential towers in Europe	Lambeth	under construction, scheduled for completion in 2014	Berkeley Homes
4.	Vauxhall Square	Delivering of mixed-use development new homes, bed homeless hostel, offices, a hotel, a multiscreen cinema, along with public square, children's play space and a community pavilion building	Lambeth	Application approved (expected starting date 2015)	Vauxhall Cross Ltd a subsidiary of CLS Holdings Plc
5.	One Nine Elms	residential, office, hotel and retail space	Wandsworth	Planning consent granted 06/2012 (expected starting date 2013)	Green Property Ltd/CIT
6.	Keybridge House	Redevelopment of a building	Lambeth	expected application approved date 2021	British Telecom
7.	Vauxhall Sky Gardens (143-161 Wandsworth Road)	Construction of a residential tower containing also offices and retail spaces	Lambeth	Application approved	Fraser Properties
8.	Embassy Gardens	An entirely new waterside district in central London.	Wandsworth	Construction started	Ballymore Group

DEVELOPMENT		DESCRIPTION	BOUROUGH	STATUS	STAKEHOLDERS INVOLVED
9.	US Embassy	The US Embassy is moving from Grosvenor Square south of the River Thames and will be a major catalyst in the creation of Nine Elms on the South Bank	Wandsworth	Enabling works underway	US Government
10.	Christies Auctioneers Depot, Ponton Road, SW9	Mid-density residential led scheme	Wandsworth	expected application approved date 2020	Christies
11.	Nine Elms Parkside	Redevelopment scheme around a key section of the planned linear park, providing homes, commercial, retail and leisure space, as well as a primary school for the vicinity	Wandsworth	Application approved	Royal Mail Group
12.	Riverlight	mixed-use development accommodation leisure and retail facilities at street level including restaurants, cafes, bars, a crèche and a public art gallery	Wandsworth	Construction started 0	St James Group Ltd
13.	Sleaford Street	mixed use development	Wandsworth	Assume application approved in 2020.	Sleaford Street Management Company & Dairy Crest
14.	Marco Polo House	mixed-use development	Wandsworth	Application approved	Marcus Cooper Group
15.	Patcham Terrace and St Mary's School, Battersea, London SW	Mixed use development including residential. The site	Wandsworth	Construction period commencing in Jan 2014	Network Rail

DEVELOPMENT		DESCRIPTION	BOUROUGH	STATUS	STAKEHOLDERS INVOLVED
		will also be considered for the provision of social infrastructure such as schools, health, and community facilities.			
16.	Covent Garden Market Authority	Provision of modern new market facilities for the existing tenant businesses and a new centre for food and flowers	Wandsworth	Application approved	Covent Garden Market Authority / VINCI and St Modwen (VSM)
17.	Sainsbury's	A landmark re-development including a new larger store, new homes, including affordable accommodation, and the provision of a new underground station forming part of the new Northern Line Extension.	Wandsworth	Application approved 2013	Sainsbury's
18.	Battersea Gasholders	mixed-use development	Wandsworth	Pre-planning – demolition and remediation scheduled for 2012/13	National Grid
19.	Battersea Power Station	mixed-use development	Wandsworth	Application approved. Works are expected to start in 2013	Battersea Power Station Development Company

4.2 Analysis of Infrastructure Requirements for Redevelopment of VNEB OA

The GLA in the *Vauxhall Nine Elms Battersea Opportunity Area Planning Framework* supports an extensive regeneration initiative which aims to deliver 16,000 new homes and new non-residential space that will produce 20,000 – 25,000 new jobs in the OA.

Table 6 summarises the new development planned in the different parts of the OA (based on the Option 5 development scenario, namely the optimum development capacity within the OA). As can be seen from Table 6 almost 75% of new development is expected to take place in the Battersea Nine Elms area in the form of a completely renewed high density and mixed use neighbourhood. Development is also expected in the Vauxhall area in the form of high rise, high density mixed use buildings.

Table 6 Development planned in the different areas (Option 5)

Development area	No. units	Residential (m ²)	Retail (m ²)	Office (m ²)	Industrial (m ²)	Total (m ²)	% of total
Albert Embankment	1,173	82,110	22,500	25,000	10,000	139,610	8%
Vauxhall	2,513	175,910	25,000	75,000	10,000	285,910	17%
NCGM, Patmore	586	41,020	2,500	0	0	43,520	3%
Battersea Nine Elms	12,479	873,530	100,000	255,000	30,000	1,258,530	73%
Stewarts Rd Estate	0	0	0	0	0	0	0%
Totals	16,751	1,172,570	150,000	355,000	50,000	1,727,570	100%

Source: GLA, 2009

The OAPF proposes development of the area in 2 main phases (see Table 7), as follows:

- Phase 1 (2006-16): generally oriented towards residential and retail development; and
- Phase 2 (2017-26): comprising a greater emphasis on commercial/industrial development.

Table 7 Development phasing (Option 5)

Phase	Total gross floor area (sqm)	Residential area (sqm)	Retail area (sqm)	Office area (sqm)	Industrial area (sqm)
Phase 1	921,741	703,780	131,250	46,711	40,000
Phase 2	805,829	468,790	18,750	308,289	10,000
Total	1,727,570	1,172,570	150,000	355,000	50,000

Source: GLA, 2009

As a result of this development the total new population in the area is expected to be between 24,300 and 25,500 people. To support the proposed development and to meet the needs of the new residents a wide range of infrastructure and services will be required. Drawing extensively on the *Vauxhall Nine Elms Battersea Development Infrastructure Funding Study* (Roger Tym & Partners et al., 2010) and the *Vauxhall Nine Elms Battersea Opportunity Area Planning Framework* (GLA, 2009 and 2012) this section

investigates the social and economic infrastructure³ that is considered necessary to support of the growth proposals in the VNEB OA.

4.2.1 Social infrastructure

GLA (2009 and 2012) points out that high quality social infrastructure have a major role to play in supporting growth in the OA. Affordable housing, education, health, community facilities and emergency services are proposed based on the population estimates and the probable demographic profile of new residents. Figure 12 illustrates the potential areas within the OA where new social infrastructure is envisaged to be provided.

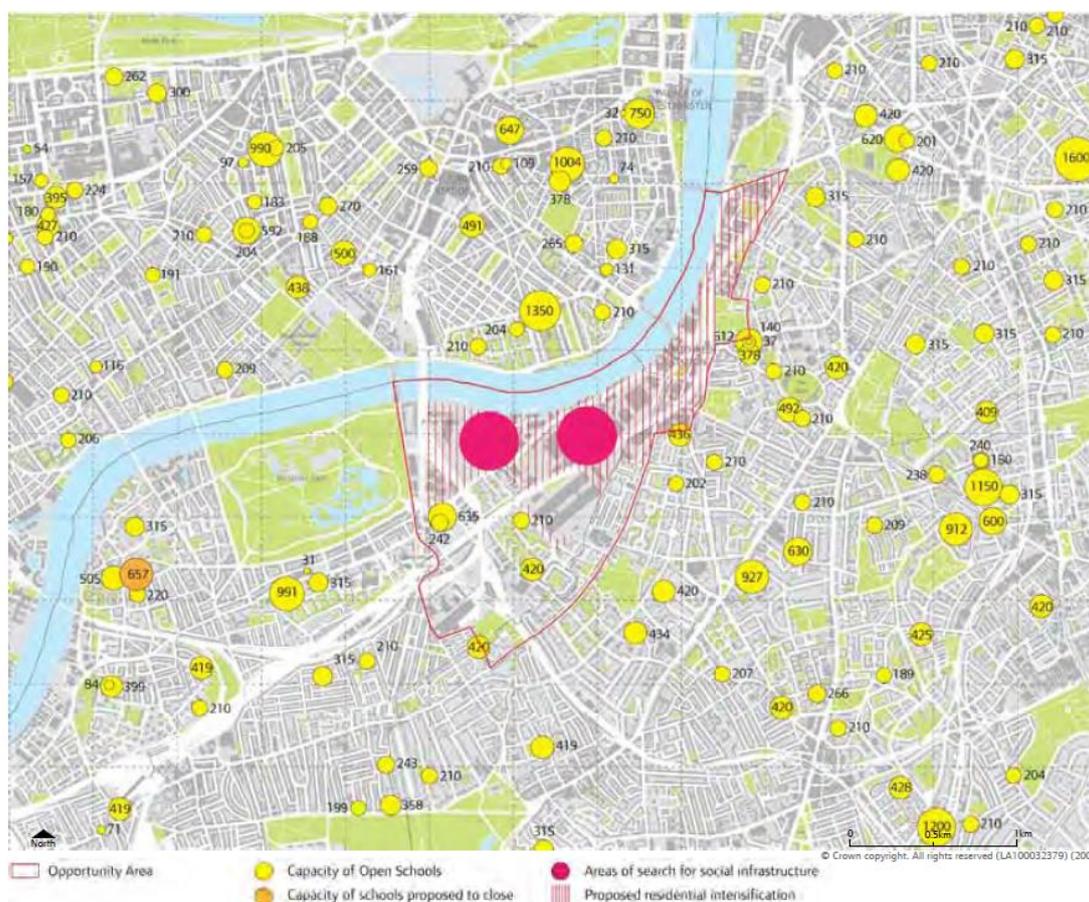
- **Affordable housing requirements:** The VNEB OAPF developed by GLA (2009 and 2012) proposals recommends the creation of two growth poles at Battersea Power Station and Vauxhall, as well as mixed use residential neighborhoods at Nine Elms and at the Albert Embankment – see Figure 9. Taking into account the recommendations of the London Plan the VNEB OAPF seeks to maximize affordable housing provision. On sites in Lambeth, with the exception of the areas surrounding the proposed station at Nine Elms, 40% of total housing is generally expected to comprise affordable housing. By contrast, in the Wandsworth area of the OA 15% of the proposed residential development is expected to be devoted to affordable housing.
- **Education:** In order to support the preferred development scenario a 4-form entry (FE) school in Wandsworth and a 2-form entry school in Lambeth are proposed. Two FE pre-school provision is likely to be required in Wandsworth and one FE pre-school in Lambeth. Expansion of existing secondary schools will also be required.
- **Health:** According to GLA estimates, 11 additional GPs are likely to be requirement in the OA - GLA suggests that these could be provided in two health centres.
- **Community facilities:** In order to provide for childcare, youth facilities, adult learning and employment skills services, and to meet the space needs of community and voluntary sector organisations, two multi-use community facilities (one in each borough) are likely to be needed. In addition, Wandsworth Council has also identified a need for a new library to serve its part of the OA.
- **Emergency services:** Within the OA the provision of two police team bases are considered as essential by the GLA, while to the construction of a police custody centre, a police patrol base and the expansion of the existing fire stations is considered to be a comparatively lower priority.
- **Green and public spaces:** The GLA recognizes that one of the key issues in the OA itself is the lack of green space, particularly in Nine Elms, Stewarts Road areas and around Battersea Power Station. In this regard, the OAPF seeks to:
 - deliver a high quality continuous riverside path from Lambeth Palace Gardens to Battersea Park; and

³ In literature it is possible to find a number of disparate classifications of infrastructure. This section is based on the work of Hansen (1965) who distinguishes between the categories of economic and social infrastructures. According to the author, the former are the infrastructures that support directly economic activities (e.g. roads, highways, railroad, seaports, telecommunications network, etc.), the latter are the facilities that promote the health, education and culture of the population (e.g. schools, hospitals, libraries, museums, etc.).

- develop a new green link from Lambeth Palace to Battersea Park linear park which will act as a unifying element in the OA, providing a focal point and recreational resource for the new community in Nine Elms and the existing communities nearby.

Additionally, the OAPF aims to deliver strategic north-south links to the river across the site and a new pedestrian/cycle bridge across the river, as well as improving the road environment.

Figure 12 Area within the OA where new social infrastructure is proposed



Source: GLA, 2012

4.2.2 Economic infrastructure

The *Vauxhall Nine Elms Battersea Development Infrastructure Funding Study* examines a broad range of utility requirements needed to sustain the projected development in the VNEB OA - namely gas, electricity, potable water, waste, telecommunications infrastructure systems.

As already mentioned, transport needs have been instead analyzed by Sinclair Knight Merz in 2009 as part of the OAPF preparation.

- **Transport Sector**

Moreover, in 2009, as part of the OAPF preparation, Sinclair Knight Merz transport consultants were appointed by the GLA to undertake a Transport Study identifying, modelling and testing a range of different public transport solutions to support to the proposed intensification of development in the area. This study Sinclair Knight Merz examined the five different development scenarios identified by

GLA as a basis for identifying, modelling and testing a range of different public transport solutions (Table 8), providing varying levels of transport improvement, to support the proposed intensification of development.

Table 8 The range of transport initiatives studied by Sinclair Knight Merz

Mode	Schemes	Description
Walk/cycle	Cross river pedestrian bridge	A new pedestrian/cycle bridge across the Thames between Nine Elms and Pimlico
Bus	Service-level increases and new routes serving the OA	Increased service levels on existing bus routes and a number of new routes to serve OA development
LRT	New route from Waterloo to Battersea Power Station	LRT scheme along Albert Embankment and Nine Elms Lane to Battersea Power Station
Underground	Northern Line Extension (NLE)	Four different alignment and station location options to extend the Northern Line from Kennington to Battersea Power Station via Nine Elms or Vauxhall

Source: Sinclair Knight Merz, 2009

The Sinclair Knight Merz study indicated that:

- the three high density development scenarios would require a very significant improvement in public transport provision;
- all the possible transport initiative to support the development, except those including the NLE, would result in increased public transport passenger congestion at Vauxhall and at Vauxhall Underground station, The Report concludes that in order to support the preferred development scenario a package of transport measures, including new and enhanced bus services and an extension of the Northern Line from Kennington to Battersea via Nine Elms, will be required.

Additionally, a range of new supporting transport measures would also be necessary - these include:

- new bus stops;
 - improvement of the existing bus stations;
 - improvement of the transport interchange and connections with the wider VNEB OA;
 - enhancement of the quality and accessibility of the existing station at Vauxhall Underground and Vauxhall National rail station;
 - improvement of the interchange and integration of existing and new underground and rail stations with the existing transport network, and;
 - enhancement of the quality of the pedestrian environment and cycling routes throughout the OA.
- **Energy sector**
 - Electricity

The OA is currently supplied with electricity from primary sub-stations at Montford Place and Moreton Street. The existing electrical distribution system within the OA is owned by EDF, the incumbent distribution network operator in this area. EDF Energy have advised that significant network reinforcement works are needed in order to supply the increased demands for electricity which will

arise from new developments. Whilst it is understood that some reinforcement of the Montford Place sub-station may be possible, EDF have confirmed that a new primary substation will be required somewhere within the OA. To accommodate the new sub-station the VNEB *Development Infrastructure Funding Study* recommends the allocation of opportune space within the Battersea Nine Elms area, as this is where the majority of additional demand will arise. This new facility should have a footprint of 50 x 50m and would have a total capacity of 50-60MW. The early cost estimate for a new primary sub-station according to EDF is £15-20m. According the VNEB *Development Infrastructure Funding Study* the VNEB *Development Infrastructure Funding Study* this strategic infrastructure should be provided and funded by EDF. EDF would typically seek to recover these costs from developers through connection charges associated with specific developments. In practice this means that the majority of these costs might be met by a single developer if capacity in the area is exceeded.

- Gas

The gas supplier for the majority of the OA is the National Grid. The level of development planned will increase the gas demand significantly, particularly at the energy centres. Once the energy centre locations are clearer, an early estimate of the gas capacity should be made and a request placed with a licenced gas supplier for a supply at these points. This request would trigger the need for a capacity study, which in turn will determine the costs of the network, metering and any offsite reinforcement works required.

- Heat

In light of the number of policies and strategies impacting on the development of the sites in the VNEB OA in terms of energy (including: the Climate Change Act 2008; the Energy Act 2008; the Renewable Energy Strategy of 2009; the Carbon Plan of 2011; the London Plan of 2011; the Wandsworth and Lambeth Core Strategies) which aim to drastically reduce greenhouse gas emissions, diversifying the UK's energy sources as well as promoting the use of renewable energy across different sectors, the *Vauxhall Nine Elms Battersea Opportunity Area Planning Framework* supports the need for the development of a low carbon district heating network. The VNEB *Development Infrastructure Funding Study* sustains that while, initially, the scheme would supply low carbon heat to developments in the heart of Nine Elms, Battersea Power Station and the New Covent Garden Market, there will be a potential for an expansion towards north into Albert Embankment as well as towards the more industrial areas of the OA to the west.

GLA recommends that the number of points of low-carbon heat supply to this district heating network should be minimized to enable savings in terms of space and cost. Ideally two key sites should be secured within the OA for energy generation assets. The most appropriate locations identified for the energy centre(s) are seen to be Battersea Power Station and the New Covent Garden Market. With this in mind, the majority of new developments should only have a district heating connection with no heating plant of their own. The VNEB *Development Infrastructure Funding Study* assume to be £20m the costs for the heating network. According to the GLA, these assets would ideally be owned by a single energy company (ESCO), a special purpose vehicle (SPV), with responsibility for designing, building, funding and operating the scheme and supplying heat throughout the area. The ownership of the SPV could include the developers themselves as well as the Boroughs and other project sponsors.

For the planned low carbon district heating network GLA also advocates connections to existing buildings, as well as links with other district heating schemes in the surrounding areas - enabling trading of heat between the schemes. Concerning the latter, a district heating scheme is planned in the Waterloo and South Bank area, one further connection is to the Pimlico District Heating Undertaking located on the north bank of the Thames and currently serving more than 3,000 residential units on the Churchill Gardens Estate, approximately 50 commercial premises, 2 schools and a health centre. This scheme which is owned by City West Homes (formerly the Housing Department of Westminster Borough Council), is already connected to the OA via existing heating pipes installed in a tunnel beneath the Thames. The pipes emerge on the Battersea Power Station site, where heat was originally derived for this scheme (Battersea B was commissioned in 1951 - the station opened a combined heat and power system — the Pimlico District Heating Scheme — which piped hot water under the River Thames to a development of some 3,200 flats). GLA thus suggests that, in the redevelopment scheme of the Battersea Power Station site, space should be secured for heat exchangers and pumps, in order facilitate the transfer of heat across the river.

- **Telecommunications sector**

The provider for telecommunications is expected to be BT Openreach. The overall demand for new telephone lines to serve the proposed development has been calculated by PBA to be in the order of 18,000. BT will cover the majority of the cost of off-site reinforcement works.

- **Water sector**

- Potable water

Responsibility for the supply of potable water to the OA lies with Thames Water. Future supplies of potable water in the OA does not appear to be a problem since there is already sufficient spare capacity to serve the development in and around the OA. However, the existing water distribution network will need to be adapted according to the needs of each new development in order to be supplied with Potable Water. The sensitive Thames Water ring main constrains the site for the Eastern station and crossover

- Waste water

Thames Water is the sewage undertaker for the London Area. It can be assumed that the foul drainage network within the OA, the pumping station and the pumping main will all need to be upgraded to accommodate the additional flows generated by the proposed new development. Thames Water will fund the necessary upgrade works.

- Thames Tideway Sewer Tunnel

The proposed Thames Tunnel will capture the flows of storm sewage from 34 sewer overflow points along the River Thames. The tunnel will run approximately 32 kilometers (20 miles) through the heart of London, and up to 75 meters beneath the River Thames, broadly following the path of the river. Its proposed route is likely to affect the sites around Heathwall Pumping Station and Albert Embankment involving 1.5 – 2 hectares of land in the period up to 2020. The main construction site is shown by Figure 13.

- **Waste sector**

The Western Riverside Waste Authority (WRWA) is a statutory body responsible for the disposal of household, commercial and industrial waste delivered to it by the London Boroughs of Hammersmith and Fulham, Lambeth, Wandsworth and the Royal Borough of Kensington and Chelsea. WRWA owns the Cringle Dock waste transfer station that is located within the OA. There is another waste transfer station owned by WRWA located at Smugglers Way in Wandsworth. WRWA has let a contract to Cory International for the disposal of waste and this runs to 2032.

There is no primary infrastructure required as part of the OA and no cost is therefore attributable.

Figure 13 Main construction site near Heathwall Pumping Station for Thames Tideway Tunnel



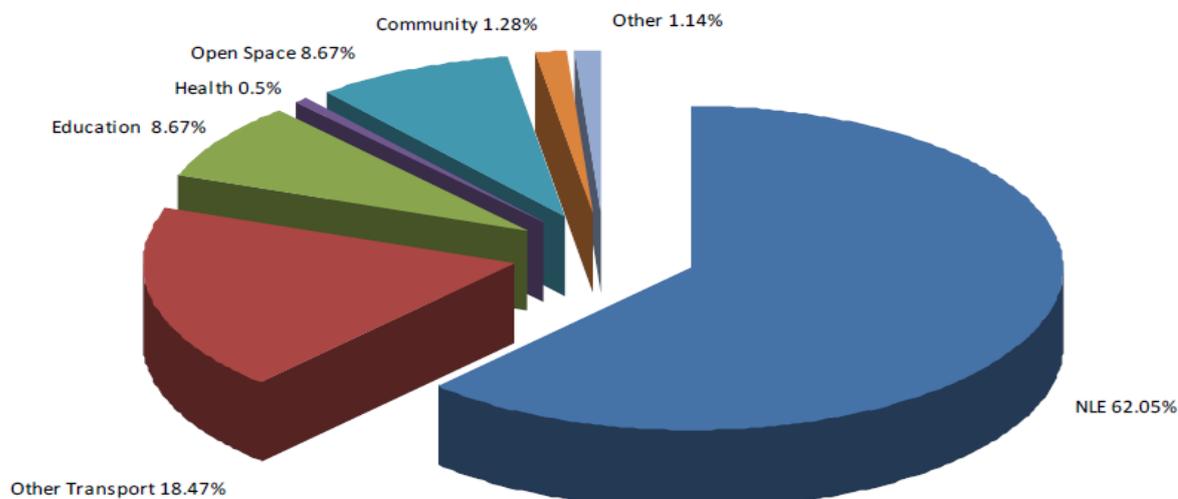
Source: GLA, 2012

4.2.3 Project costs, financing and funding

The *Vauxhall Nine Elms Battersea Development Infrastructure Funding Study* provides estimated infrastructure cost by category (see Figure 14). According to Roger Tym and Partners et al. (2010), transport dominates the estimated infrastructure costs across the OA (approximately 81% of total costs), with parks and open space representing the second highest cost (approximately 8.5% of total costs). The third highest cost is education. The Report highlights that there is likely to be a funding gap of around £88 million.

The study does not seek to prioritise specific infrastructure projects although it recognizes that some, such as the NLE project, are particularly critical to the redevelopment of the OA. In particular, the Northern line extension is estimated to cost £868m at 2012/13 prices. The project budget includes the five additional trains required to operate the service (see Table 9).

Figure 14 Estimated Infrastructure costs attributable to VNEB development by infrastructure category (%)



Source: Roger Tym & Partners et al., 2010

Table 9 Breakdown of costs for the NLE

Purpose	Amount £
A General	
1 Surveying, drilling and soil sampling	531,769
2 Acquisition of land and rights over land	23,105,372
3 Earthworks (including land reclamation and landscaping)	319,061
4 Fees of professional and other advisers, in connection with the implementation of the project once authorised	20,236,085
B Transport Systems	
1 Tunnels and bridges	289,193,582
2 Highway works, including alterations to and relocation of existing services and statutory undertakers' apparatus	2,127,074
3 Permanent way or other supporting/guiding structures	76,160,566
4 Workshops, depots, stations and other buildings	285,092,193
5 Electrical plant and equipment	43,167,471
6 Signalling and communications	43,167,471
7 Vehicles	68,378,149
8 Alteration, modification and removal of existing works	16,811,263
Total	868,290,056

Source: TfL, 2013

The outturn cost, which includes forecast inflation to this figure, is estimated to be £998.9m, and represents the amount for which financing is sought.

The project will be *funded* by the private sector but *financed* by the public sector. The public sector will raise up to £1bn debt to pay for the up-front costs of construction.

In December 2012, the Chancellor confirmed that up to £1bn of Public Works Loan Board (PWLB) borrowing, supported by a guarantee under the UK Guarantee Scheme, would be available to the Mayor for the NLE.

The private sector will pay the costs of servicing that debt, in the form of:

- developer contributions, raised by the London Boroughs of Wandsworth and Lambeth on the BPS site and across the wider VNEB Opportunity Area under the s106 and Community Infrastructure Levy (CIL) regimes; and
- incremental business rates generated in a new EZ and retained by the Mayor for at least 25 years.

Concerning the former, Wandsworth Council will provide £259.1m, including £200.1m from the sale of the BPS site and £59.0m from other sites, while Lambeth will provide £7.3m. The boroughs' commitments will be captured in a binding legal agreement which is currently under negotiation between TfL, the GLA and the boroughs.

Regarding the latter, the concept of an Enterprise Zone (EZ) for the Vauxhall, Nine Elms and Battersea area was originally given support in the Chancellor's 2011 Autumn Statement, which indicated that the Government would consider establishing an EZ, enabling 100% of the incremental business rates (i.e. business rates that are additional to an agreed baseline) to be retained locally for a period of at least 25 years.

The BPS development is of critical significance to the overall funding for the NLE, contributing the majority of each of: (i) the developer funding (£203m) through a s106 agreement); and (ii) EZ funding (through the business rates paid by the occupants of the commercial developments on their site, of which the Power Station building itself represents about one third).

TfL and the BPS developer entered into a non-binding Heads of Terms in December 2012. The Heads of Terms will be superseded by a binding agreement, known as the Funding and Delivery Agreement (FDA), which like the Heads of Terms, will detail certain conditions precedent, the satisfaction of which will oblige TfL to both construct the NLE and to endeavour to deliver it into operational service by December 2019. These conditions include:

- a minimum commitment from the Developer in relation to Phase 2 (the Power Station building) for funding construction and delivery to TfL's reasonable satisfaction;
- agreement on the form of the security and timing of the payment of the s106 contributions – which aims to secure payment of the full s106 contribution by an agreed longstop date, irrespective of whether the later phases are completed;
- award of satisfactory TWAO powers; and
- a satisfactory funding package being in place to meet the costs of the NLE and completion of the Land and Works Agreement.

5 The Planning and Policy Context for Northern Line Extension

For the purposes of this report a number of relevant national, regional and local planning and policy documents have been considered. A key finding from the review of these documents is that the NLE project appears to be consistent with all levels of planning policy. In particular, the *Autumn Statement* at the national level, the *London Plan* and the *Mayoral Transport Strategies* at the regional level as well as the *Vauxhall Nine Elms Battersea Opportunity Area Planning Framework* and the Local Development Frameworks of the Boroughs of Lambeth and Wandsworth at the local scale.

Other policy documents such as the *National Planning Policy Framework*, the *Planning Act 2008*, the *Climate Change Act 2008* at the national scale, the *Mayor's Economic Development Strategy* at the regional scale and the *Development Scheme* of the London Borough of Southwark at local scale, promote indirectly an extension of the NL.

5.1 National Policy

5.1.1 Department for Communities and Local Government (2012) and National Planning Policy Framework⁴

The National Planning Policy Framework (NPF) aims to integrate and consolidate the policies defined in previous documents entitled Planning Policy Statements and Planning Policy Guidance Notes.

The Framework sets out planning policies for England and indicates how they are expected to be applied. It provides guidance for local planning authorities and decision-makers, both in drawing up plans and making decisions about planning applications. The Framework's underlining purpose is to contribute to the achievement of sustainable development by encouraging local planning authorities to pursue development needs (in terms of homes, jobs and infrastructure) in a way that is consistent with the principles of sustainable development.

There are no specific policies for nationally significant infrastructure projects in the Framework. However, it is acknowledged that major planned infrastructure investments which facilitate growth in allocated regeneration areas necessitate the strongest possible national policy support.

5.1.2 2008 Planning Act (DCLG, 2008)

The Planning Act 2008 is an Act of the Parliament of the United Kingdom intended to speed-up the process of approving major new infrastructure projects such as airports, roads, harbours and energy facilities such as nuclear power and waste facilities. Along with the Climate Change Bill and the Energy Bill, the 2008 Planning Act was considered by the Brown administration to be one of the "three legislative pillars of the Government's strategy to secure long-term prosperity and quality of life for all".

⁴ <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

The Act sets out which types of infrastructure can be considered as 'nationally significant infrastructure projects' (NSIP). For this type of infrastructure projects the following main innovations were introduced:

- policy to be set out in advance in a series of National Policy Statements (NPSs) rather than time being taken to decide whether a particular application is needed during its consideration;
- consultation to be required before an application is submitted, to identify issues and allow changes to be made before they become too expensive and difficult to make;
- consideration of applications to be largely in writing, with no public inquiry, limited opportunities for hearings, and even more limited opportunities for cross-examination;
- fixed timescales to be introduced for considering applications; and
- the stage of ministerial approval of an inspector's report to be eliminated, with the examining body making the decision.

On 13 December 2010, the coalition government introduced the Localism Bill, which made changes to the regime under the Planning Act 2008. It replaced the Infrastructure Planning Commission with a Major Infrastructure Planning Unit of the Planning Inspectorate, and returned decision-making to the Secretary of State. It also allowed the House of Commons to be able to veto National Policy Statements, and made other changes to the Planning Act regime.

5.1.3 HM Treasury (2011), Autumn Statement⁵

In 2011 Government support for the NLE was confirmed in the Autumn Statement with a commitment to create an EZ for the VNEB area. According to HM Treasury, the EZ will provide the necessary powers for raising funds to help pay for construction of the NLE from business rates in the VNEB.

5.1.4 HM Treasury (2012), Autumn Statement⁶

In 2012 the Government confirmed that up to £1bn of borrowing from the Public Works Loan Board would be available to the Greater London Authority (GLA) to finance the construction of the NLE. This will be paid back through a combination of incremental business rates and contributions received by the boroughs from local developers under the Section 106 obligations and Community Infrastructure Levy regimes.

5.1.5 Department of Energy & Climate Change (2008), Climate Change Act 2008⁷

The ACT aims to enable the United Kingdom to become a low-carbon economy. An independent Committee on Climate Change has been created under the Act to provide advice to UK Government on these targets and related policies.

5.1.6 Department of Energy and Climate Change (2011), Carbon Plan⁸

The government drew up the Carbon Plan in December 2011, to move the UK to a low carbon future in order to meet the Climate Change Act targets. This plan sets out how the UK will achieve de-

⁵ http://www.hm-treasury.gov.uk/as2011_index.htm

⁶ <https://www.gov.uk/government/topical-events/autumn-statement-2012>

⁷ <http://www.legislation.gov.uk/ukpga/2008/27/contents>

⁸ <https://www.gov.uk/government/publications/the-carbon-plan-reducing-greenhouse-gas-emissions--2>

carbonisation by making the transition to a low carbon economy while maintaining energy security, and minimizing costs to consumers.

5.1.7 Department for Transport (2010), White Paper: Creating Growth, Cutting Carbon - Making Sustainable Local Transport Happen

This White Paper forms part of the overall UK strategy to tackle carbon emissions from transport. The Department for Transport seeks to encourage sustainable local travel and economic growth by making public transport and cycling and walking more attractive and effective, promoting lower carbon transport and tackling local road congestion. The document aims to provide practical guidance and examples of some of the ways in which local authorities can and are dealing with the transport issues in their areas. It also set out how central Government will provide practical support in this endeavor.

5.1.8 HM Treasury - Infrastructure UK (2010), Strategy for national infrastructure

This strategy is a first step towards providing a more integrated approach to infrastructure development across the five sectors and networks that directly contribute to economic growth (energy, transport, water, waste and communications).

Infrastructure UK has three key objectives:

- enabling long term investment by establishing a Green Investment Bank (GIB) operating on a commercial basis, involving both public and private sector capital;
- ensuring effective long term plans and priorities by developing the National Infrastructure Framework;
- improving delivery of infrastructure by commissioning study and research.

5.1.9 HM Treasury (2013), Planning for economic infrastructure

This report examines government efforts to secure investment in the nation's economic infrastructure, including energy, transport, water, waste, flood defense and communications assets.

5.2 Regional Policy

5.2.1 Mayor of London (2011), The London Plan⁹

The London Plan replaced the previous strategic planning guidance for London issued by the Secretary of State and known as Regional Planning Guidance 3. The regional planning document was first published in its final form on 10 February 2004. It was substantially revised and republished in February 2008 and again in July 2011. As of June 2012 minor alterations are being made to the plan in order to comply with the National Planning Policy Framework (Department for Communities and Local Government, 2012) and other changes in national policy.

The London Plan establishes an integrated social, economic and environmental framework for the future development of London, looking forward 15-20 years. The plan sets out six key objectives:

- to make London capable of meeting the challenges of economic and population growth;

⁹ <http://www.london.gov.uk/shaping-london/london-plan/strategy/download.jsp>

- to make London an internationally competitive and successful city;
- to make London a city of diverse, strong, secure and accessible neighborhoods;
- to make London a healthier and better city for people to live in;
- to make London a city that becomes a world leader in improving the environment; and
- to make London a city with an efficient and effective transport system which actively encourages more walking and cycling and makes better use of the River Thames.

The London Plan encourages Boroughs to prepare and implement Opportunity Area Planning Frameworks to realize their growth potential associated with existing or proposed improvements in public transport accessibility. The Mayor of London stresses, in particular, the importance of relating transport provision to spatial development (“spatial policies cannot be considered in isolation from their links to existing and proposed transport accessibility and capacity”). In regard to the VNEB area, the London Plan recognizes that “this Area has scope for significant intensification and increase in housing and commercial capacity” but that “to deliver the area’s full development potential will require major transport investment”.

In particular, the London Plan has brought forward two important and significant policy changes in the VNEB OA. The first is the extension of the Central Activity Zone (CAZ) south of the River Thames to include the VNEB, Waterloo and London Bridge/Bankside OAs. The second is the removal of the Strategic Industrial Location (SIL) designation from the central part of the OA as defined in the Mayor’s Industrial Capacity Supplementary Planning Guidance (SPG) to the London Plan, published in March 2008. The combination of these two policy shifts with sustained development activity in the OA represents a catalyst for creating the momentum to produce the OAPF.

The NLE is directly supported by Policy 6.2 of the London Plan 2011, which proposes that the Mayor will work with strategic partners to increase the capacity of public transport in London over the plan period by securing funding for and implementing a number of specifically identified schemes including the “Northern line - Kennington to Battersea to support the regeneration of the Vauxhall/Nine Elms/Battersea area”.

5.2.2 Mayor of London (2010), The Mayor’s Transport Strategy¹⁰

The *Mayor’s Transport Strategy anticipates* the Capital’s predicted growth of 1.25 million more people and 0.75 million more jobs by 2031 and supports sustainable growth across London to facilitate this. The document highlights the importance of increasing transport accessibility, along with the need to address congestion on the central London networks. Key proposals include:

- enhancing tube, rail and buses;
- improving interchanges;
- reducing CO2 emissions
- delivering better streets and environment
- improving access to the transport system.

¹⁰ <http://www.london.gov.uk/priorities/transport/publications/mayors-transport-strategy>

In the *Mayor's Transport Strategy* the VNEB is identified as an area where improving accessibility is “of particular concern”. The NLE is identified as a project to be privately funded to support developer-led growth in the VNEB. Alignment between transport and regeneration priorities is considered fundamental to achieve sustainable growth within Central London.

5.2.3 Mayor of London (2010), Mayor's Economic Development Strategy¹¹

This document, which together with the *Mayor's Transport Strategy* and the *London Plan*, provides a coordinated strategy for London and confirms that investment in growth and regeneration is essential for the future of London.

5.1 5.3 Local Policy

5.3.1 Greater London Authority (2009), Vauxhall Nine Elms Battersea Opportunity Area Planning Framework, Consultation Draft¹²

The Opportunity Area Planning Framework (OAPF) for Vauxhall Nine Elms Battersea (VNEB) is a spatial planning document which has been produced in partnership with the Greater London Authority (GLA), London Development Agency (LDA), Transport for London (TfL), London Boroughs (LBs) of Lambeth and Wandsworth and English Heritage. It sets out the strategic policy framework for development within the OA, articulating the key policy directions established in the new London Plan.

The OAPF describes the area and identifies current issues relating to the public realm, connectivity and legibility which need to be addressed. Additionally, it considers development capacity and associated social infrastructure and open space requirements. Finally, the framework also establishes specific strategies for transportation, tall buildings, energy, waste, wharves and water.

The document points out that:

- the OA historically suffers from a high degree of physical severance by strategic roads, elevated heavy rail infrastructure bisecting the area and industrial land uses;
- the OA is deficient in open space and lacks social infrastructure; and
- a high level of deprivation affects the OA, with communities suffering from income, employment, health, education and skills problems.

In recent years development pressure in the OA has been increasing. Currently, there are a number of significant development proposals affecting the area. The Mayor's foreword in the *London Plan* confirms that the area has “huge potential to make a significant contribution to London's economy.”

However, the greatest barrier to enabling the regeneration of the area is its constrained public transport accessibility and capacity (GLA, 2009). The Opportunity Area has a mix of transport infrastructure including strategic roads, local roads, Network Rail and Underground services, London-wide and local bus services and walking and cycling routes. However, with the exception of Vauxhall,

¹¹ <http://www.london.gov.uk/sites/default/files/Economic-Development-Strategy.pdf>

¹²

http://www.wandsworth.gov.uk/downloads/download/622/vauxhall_nine_elms_battersea_opportunity_area_planning_framework

the OA has a relatively poor level of accessibility. Large-scale development of this zone may be achieved only with a concomitant improvement in public transport accessibility and capacity.

The GLA undertook a development capacity study as part of the VNEB OAPF in June 2008. This sets out five development scenarios for the OA accommodating varying levels of residential, retail and employment development. However, the Vauxhall Nine Elms Battersea Opportunity Area Planning Framework supports the delivery of a high density mixed use development as set out in Option 5. The associated objectives therefore are:

- the establishment of two growth poles at Battersea Power Station and Vauxhall;
- the delivery of a new mixed use residential neighborhood and linear park in the heart of Nine Elms;
- the maximization of development opportunities with 16,000 new homes and 15,000 – 20,000 new jobs in the OA;
- the provision of new public transport, highways, public realm, open space, utilities and social infrastructure including a district heat network (DHN), new waste facilities and strategic flood mitigation measures.

Specifically, in terms of public transport, on the basis of the Transport Study carried out by Sinclair Knight Merz, GLA supports a transport interventions package focusing on capacity enhancements to existing bus services, the introduction of new and extended bus services and the delivery of the NLE from Kennington to Battersea via Nine Elms.

5.3.2 Greater London Authority (2012), Vauxhall Nine Elms Battersea Opportunity Area Planning Framework, Final document¹³

In the final version of spatial planning document GLA incorporates some amendments resulting from various consultation exercises but substantially confirms the objective to deliver two growth poles at Battersea Power Station and Vauxhall as well as mixed use residential neighborhoods at Nine Elms and Albert Embankment. These growth poles and new neighborhoods will be connected by a strategic green link from Battersea Park to Lambeth Palace including a new linear park in the heart of Nine Elms. The new mixed use residential areas will be connected to existing communities, the riverside and the rest of London with new public transport infrastructure, cycle routes and pedestrian linkages. The document also points out that the land use, employment, retail and transport strategies will be entirely unachievable without the NLE.

5.3.3 London Borough Of Lambeth (2011), Unitary Development Plan¹⁴

The Unitary Development Plan seeks to achieve major improvements in the quality of life in major areas such as Streatham, Brixton, Waterloo and Vauxhall. The main aim of the Lambeth Community Strategy is to reduce inequality in the Borough. It seeks to address this by focusing on five key targets:

- reducing crime;
- reducing worklessness;

¹³ http://www.london.gov.uk/sites/default/files/VNEB_OAPF_2012_0.pdf

¹⁴ <http://www.lambeth.gov.uk/NR/rdonlyres/A1D816AB-4845-4E36-B67D-E115B3B4F648/0/UnitaryDevelopmentPlanPoliciesSavedBeyond05August201018012011.pdf>

- improving health;
- improving education;
- improving housing and the environment; and
- reducing dependence on the private car and enhancing connectivity, quality and capacity in public transport.

The Core Strategy recognizes the major opportunities for regeneration and development within the OA and supports the scale of growth identified in the then emerging OAPF, confirming that new infrastructure such as extensions to the Underground network is necessary to enable growth.

5.3.4 London Borough Of Lambeth (2013), Lambeth Draft Local Plan¹⁵

The Draft Local Plan retains the overall spatial strategy, vision and strategic objectives of the Lambeth Core Strategy adopted in January 2011. It updates the approach to some strategic policy issues in the light of new evidence and the publication of the NPPF and adoption of the London Plan.

The Draft Local Plan notes that the VNEB OA presents “the most significant potential for commercial development and jobs growth in the borough, alongside their potential to provide new housing”. It also recognizes the importance of improvements to, and investment in, public transport to support the growth and development. Policy T4 makes specific reference to the extension of the Northern Line from Kennington to Battersea as a means to contribute to improved connectivity, quality and capacity of public transport.

5.3.5 London Borough of Wandsworth (2010), Local Development Framework¹⁶

The Local Development Framework comprises a set of development plan documents. Of these, the Core Strategy sets out the Council's vision and its guiding principles for planning in Wandsworth. The key strategic priorities of the Core Strategy are:

- making Wandsworth safer;
- improving the local environment;
- improving transport;
- building a prosperous and vibrant community;
- tackling worklessness;
- ensuring that all young children and young people achieve their full potential;
- improving health and social care;
- meeting housing needs;
- supporting active citizens and good neighbours;
- mitigating climate change.

¹⁵

<http://www.lambeth.gov.uk/Services/HousingPlanning/Planning/PlanningPolicy/LocalPlan/DraftLocalPlanConsultation.htm>

¹⁶ <http://www.wandsworth.gov.uk/info/856/>

Concerning Nine Elms and North East Battersea (the part of the VNEB OA included in the London Borough of Wandsworth), the Core Strategy identifies that these areas have long suffered from a lack of functional identity. The Core Strategy aims at working with the GLA and Lambeth Council to develop the OAPF to provide at least 1,500 homes and 50,000 m² of employment floor space in the next ten years - with development concentrated at the existing public transport nodes around Battersea Power Station in the west and Vauxhall in the east. Concurrently, the London Borough of Wandsworth points out that, in the longer-term, improvements to public transport and other infrastructure may unlock the potential of the whole of the area, with opportunities for higher density development resulting in a further 8,500 homes and 185,000 m² of employment floor space.

5.3.6 London Borough of Wandsworth (2010), Wandsworth Site Specific Allocations Document

The Council's Site Specific Allocations Document identifies the VNEB area as a priority area for growth. The NLE is recognized as a 'key feature' of the VNEB development: "Achieving the proposed level and mix of development is dependent on major improvement to public transport. The extension to the Northern line, from Kennington to Battersea Power Station, with an intermediate stop on Wandsworth Road (in Lambeth) is seen as key to transforming the accessibility of much of the area".

5.3.6 London Borough of Southwark (2011), Local Development Scheme¹⁷

In line with the London Plan, the Core Strategy of the London Borough of Southwark seeks to support sustainable transport and recognizes the need to increase the capacity, quality and integration of public transport as a coordinated network. The NLE is considered to be in accordance with the London Borough of Southwark's policy objectives.

¹⁷ http://www.southwark.gov.uk/info/856/planning_policy

6 Northern Line Extension Stakeholder Analysis

This section provides information regarding the key stakeholders identified from a review of the NLE background material as presented above. For the purpose of this report Stakeholders are defined as “those people who have a vested interest in a problem by affecting it or/and being affected by it” (Banville et al., 1998).

It is important to acknowledge that the decision-making process which characterizes major projects generally affects a large number of stakeholders who frequently have very diverse (and frequently conflicting) interests and priorities (Dimitriou, 1992; Hogwood and Gunn, 1984). OMEGA Centre findings suggest that selecting a representative group of stakeholders with such diverse interests to participate in the project appraisal process is critical to the effective identification of project risks and opportunities and to avoid bias during the development of project objectives. It is against this background that a variety of relevant documents have been reviewed to identify a list of the key individuals, organizations, departments and interest groups involved directly or indirectly in the NLE project, as set-out in Table 10. Stakeholders have been classified in this Table according to their geographical dimension (local, regional, national or international) as well as their sectoral interest (public sector, private sector or civil society).

It should be noted the documents included in the TWAO application submitted on 30th April 2013 by TfL reveal that extensive consultation has taken place in relation to the NLE. The TWAO consultation document lists over 300 stakeholders who were consulted during the various development phases of the NLE (Appendix 6) using the following stakeholder typology:

- resident and community interest groups,
- equality groups,
- boroughs,
- business community groups,
- MPs and Assembly Members,
- environment groups,
- transport groups,
- utility companies and emergency services,
- landowners, and
- other pertinent stakeholders.

A list of statutory consultees (i.e. those that, according to the “2006 Rules”) is also provided; an applicant for a TWAO is required to consult (see also Appendix 4). The Transport Works Act also identifies a very comprehensive list of stakeholders together with their association with freehold/leasehold sites within the NLE.

Table 11 (below) also presents the main categories of stakeholders identified by this report and includes an analysis of each stakeholder perceived agenda with reference to documentation reviewed.

Table 10 Main stakeholders involved in the NLE project

STAKEHOLDERS CLASSIFICATION			
Public sector, Private sector, Civil Society			
LOCAL	REGIONAL	NATIONAL	INTERNATIONAL
London Borough of Wandsworth	Greater London Authority - Mayor of London	UK Government	
London Borough of Lambeth		HM Treasury	
Other boroughs surrounding the OA <ul style="list-style-type: none"> - London Borough of Southwark - London Borough of Camden - London Borough of Islington - Royal Borough of Kensington and Chelsea 			
Local Accessibility groups, approx. 10 groups including: <ul style="list-style-type: none"> - Wandsworth mobility forum - Camden mobility forum - Hounslow mobility forum 	Regional Accessibility groups, approx. 10 groups including: <ul style="list-style-type: none"> - Inclusion London - Royal London Society for the Blind - Greater London Forum for Older People 	National Accessibility groups, approx. 15 including: <ul style="list-style-type: none"> - Disability Rights for UK - Guide Dogs for the Blind - Trailblazers Network 	
Local transport groups: <ul style="list-style-type: none"> - Clapham Transport Users Group 	Regional transport groups: <ul style="list-style-type: none"> - London Travel Watch - London Underground Royal Society# 	National transport groups: <ul style="list-style-type: none"> - Travel Watch UK - Passenger Focus 	

<p>Local Action groups, approx. 70 including:</p> <ul style="list-style-type: none"> - Battersea Society - Heart of Kennington Residents' Association - Vauxhall Forum - Claylands Green NLE Action Group - Heart of Kennington Residents Association, - Kennington and Walworth Neighbourhood Action Group - Kennington Planning Forum - Claylands Green NLE Action Group, - Fentiman Road NLE Action Group - Fentiman Road and Richborne Terrace Residents Association - VNEB DATA group - Harmsworth Street Action Group - Incredible Edible Lambeth - Lambeth and Southwark Housing Association - Lansdowne Residents Association - Viva Vauxhall Residents Association - Salter Buildings Residents Company Ltd 			
<p>Other groups:</p>			

<ul style="list-style-type: none"> - The Deanery of Southwark and Newington - St Anne and All Saints Church - Life Tabernacle Church 			
<p>Local Utility Companies/service providers</p> <ul style="list-style-type: none"> - Western Riverside Waste Authority - Pimlico District Heating Undertaking - 	<p>Regional Utility Companies/service providers</p> <ul style="list-style-type: none"> - Bus Operating Companies - Train Operating Companies - London Underground - London Power Networks - Thames Water Utilities Limited 	<p>National Utility Companies/service providers</p> <ul style="list-style-type: none"> - Thames Water - EDF Energy - National Grid - Cory International - BT - Airwave Solutions Limited - British Gas Services Limited - British Telecommunications plc - CBS Outdoor Limited - Clear Channel UK Limited - Colt Technology Services Group Limited - Colt Telecommunications - Fibernet UK Limited - Gamma Telecom Limited - Independent Pipelines Limited - JC Decaux Limited - Kcom Group plc - Level 3 - Eastern Power Networks - Easynet Limited - E.S. Pipelines Limited - Communications - Max Media Limited 	

		<ul style="list-style-type: none"> - National Grid Electricity Transmission plc - National Grid Gas plc - Network Rail Infrastructure Limited - Royal Mail Group Limited - Virgin Media Limited - Vodafone Limited 	
<p>Local landowners/promoters:</p> <ul style="list-style-type: none"> - Covent Garden Market Authority - LB Lambeth - Kia Oval/Surrey Cricket Club - Battersea Dogs & Cats Home - Bishop House Nursery - Lambeth Estate - Halcyon Estates Limited - Western Riverside Waste Authority - Battersea Project Land Company Limited - 	<p>Regional Local landowners/promoters:</p> <ul style="list-style-type: none"> - Transport for London - Port of London Authority - Metropolitan Housing Trust Limited - Hyde Southbank Homes Limited 	<p>National Local landowners/promoters:</p> <ul style="list-style-type: none"> - BT - Salmon Harvester Properties Ltd - Wendover Investments Ltd - Berkeley Homes - Christies - Royal Mail Group - St James Group Ltd - Sleaford Street Management Company & Dairy Crest - Marcus Cooper Group - Network Rail - Sainsbury's - National Grid - Green Property Ltd/CIT - Benham Security - British Land - Duchy of Cornwall 	<p>International Local landowners/promoters:</p> <ul style="list-style-type: none"> - US Government - China Government - The Netherlands Government - Battersea Power Station Development Company - CLS Holdings Plc - Fraser Properties - Ballymore Group - CIMB Bank Berhad -
Local Resident and transport Users	London citizens and transport users		
		<p>Statutory Bodies:</p> <ul style="list-style-type: none"> The Environment Agency Natural England English Heritage 	

<p>Local Business, approx. 100+ groups including:</p> <ul style="list-style-type: none"> - Vauxhall One Business Improvement District - Vauxhall First - Beekeepers - MP Moran, plumbers and builders on Stannary Street - World First UK Ltd 	<p>Regional Business, approx. 10 groups including:</p> <ul style="list-style-type: none"> - London Chamber of Commerce and Industry - London First - St. James Group 	<p>National Business:</p> <ul style="list-style-type: none"> - Federation of Small Business - CBI 	
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Table 11 Stakeholder objectives

STAKEHOLDER GROUPS			STAKEHOLDER'S AGENDAS
Public sector, Private sector, Civil Society			
International	Landowner and major project promoters	<ul style="list-style-type: none"> - US Government 	The US Embassy is moving into the VNEB OA. It will benefit from a totally redeveloped area (political prestige derived from a key location within a global city) and, at the same time, is likely to be a major catalyst for the redevelopment
		<ul style="list-style-type: none"> - China Government - The Netherlands Government 	These Embassies are considering the idea of moving into the VNEB OA to benefit from the redevelopment of the area
		<ul style="list-style-type: none"> - Battersea Power Station Development Company - CLS Holdings Plc - Fraser Properties - Ballymore Group - CIMB Bank Berhad 	These stakeholders are seeking to maximize profit from the redevelopment of the area. Their concerns mainly entail future land acquisition and construction methodologies

National	Government	National government	<p>The UK Government aims to</p> <ul style="list-style-type: none"> - increase the competitiveness of London by means of the redevelopment of the OA and the delivery of strategic infrastructure projects - attract new investors to the OA - promote the use of public transport within the VNEB OA
		HM Treasury	<p>HM Treasury aims to:</p> <ul style="list-style-type: none"> - attract major new private sector investment - achieve greater value for money from the redevelopment of the VNEB OA - ensuring the development of affordable homes within the VNEB OA - promoting new business within the VNEB OA
	Environment	The Environment Agency	Seeks to ensure that a proper Environmental Impact Assessment of the development projects in the area and the NLE, in particular will be carried out – including a flood risk assessment
		English Heritage	Supports the redevelopment of the VNEB OA but also aims to preserve the historic environment and mitigate the impacts from the construction works
	Community groups	<p>National Accessibility groups</p> <ul style="list-style-type: none"> - Guide Dogs for the Blind - Trailblazers Network - ... 	These groups are calling for a development of the VNEB AO that takes into account the needs of disabled people (e.g. stations must be fully accessible)
		<p>National transport groups</p> <ul style="list-style-type: none"> - Travel Watch UK - Passenger Focus 	Support the NLE project but call for more attention to be paid to future service levels on Northern Line
	Landowner and major project promoters	<ul style="list-style-type: none"> - BT - Salmon Harvester Properties Ltd 	These stakeholders are seeking to maximize profit from the redevelopment of the area. Their

		<ul style="list-style-type: none"> - Wendover Investments Ltd - Berkeley Homes - Christies - Royal Mail Group - St James Group Ltd - Sleaford Street Management Company & Dairy Crest - Marcus Cooper Group - Network Rail - Sainsbury's - National Grid - Green Property Ltd/CIT - Benham Security - British Land - Duchy of Cornwall 	<p>concerns mainly revolve around the land acquisition and construction methodologies</p>
	<p>Service providers</p>	<ul style="list-style-type: none"> - Thames Water - EDF Energy - National Grid - Cory International - BT - Airwave Solutions Limited - British Gas Services Limited - British Telecommunications plc - CBS Outdoor Limited - Clear Channel UK Limited - Colt Technology Services Group Limited - Colt Telecommunications - Eastern Power Networks - Easynet Limited - E.S. Pipelines Limited - Fibernet UK Limited - Gamma Telecom Limited - Independent Pipelines Limited - JC Decaux Limited - Kcom Group plc - Level 3 Communications - Max Media Limited - National Grid Electricity Transmission plc - National Grid Gas plc - Network Rail Infrastructure Limited - Royal Mail Group Limited - Virgin Media Limited - Vodafone Limited 	<p>Seeking to maximize profit from the redevelopment of the area.</p>

	Government	<ul style="list-style-type: none"> - Greater London Authority/Mayor of London 	Has identified the potential for the redevelopment of the VNEB OA so as to enhance the competitiveness of London
Regional	Community groups	<p>Regional Accessibility</p> <ul style="list-style-type: none"> - Inclusion London - Royal London Society for the Blind 	These stakeholders are calling for a development of the VNEB AO that takes into account the needs of disabled people (e.g. stations must be accessible)
	Community groupsLandowner and major project promoters	<p>Regional transport groups</p> <ul style="list-style-type: none"> - London Travel Watch - London Underground - Royal Society 	Call for wider, and more integrated, transport improvements in the area
		<ul style="list-style-type: none"> - Transport for London - Port of London Authority - Metropolitan Housing Trust Limited - Hyde Southbank Homes Limited 	Seeking to maximize profit from the redevelopment of the area. Their concerns mainly relate to land acquisition and construction methodologies
	Service providers	<ul style="list-style-type: none"> - Bus Operating Companies - Train Operating Companies - London Underground - London Power Networks - Thames Water Utilities Limited 	Seeking to maximize profit from the redevelopment of the area.
	Business	<ul style="list-style-type: none"> - The London Chamber of Commerce and Industry 	Supports the NLE project and related developments as a means to enhance the competitiveness of London
	Government	<ul style="list-style-type: none"> - London Boroughs of Wandsworth 	Aims at improving the quality of life within the neighborhood. Its main concern involve the funding of the NLE
		<ul style="list-style-type: none"> - London Boroughs of Lambeth 	Aims at improving the quality of life within the neighborhood. Its main concerns are the impact of the NLE and the other development projects during and after construction.

local	Government Community groups	<p>Action groups:</p> <ul style="list-style-type: none"> - Claylands Green NLE Action Group - Heart of Kennington Residents Association, - Kennington and Walworth Neighbourhood Action Group - Kennington Planning Forum - Claylands Green NLE Action Group, - Fentiman Road NLE Action Group - Fentiman Road and Richborne Terrace Residents Association - VNEB DATA group 	<p>The main issues raised by these groups are:</p> <ul style="list-style-type: none"> - Noise and environmental impacts - Disruptions during construction - Location of permanent shaft - Capacity of the Northern line and especially Kennington station and future service levels on the Northern line - Necessity for a more comprehensive transport needs analysis - Costs concern - Suggestions about alternative routes of the NLE
	Community groups Business	<p>Local transport groups:</p> <ul style="list-style-type: none"> - Clapham Transport Users Group 	Suggest the consideration of possible alternative routes for the NLE
		<ul style="list-style-type: none"> - Vauxhall One Business Improvement District - Vauxhall First - Beekeepers - MP Moran, plumbers and builders on Stannary Street - World First UK Ltd 	Support the development of the area provided that it will not cause excessive problems to their business potential
	Service providers	<ul style="list-style-type: none"> - Western Riverside Waste Authority - Pimlico District Heating Undertaking 	Seeking to maximize profit from the redevelopment of the area.
	Landowner and major project promoters	<ul style="list-style-type: none"> - LB Lambeth - Kia Oval/Surrey Cricket Club - Battersea Dogs & Cats Home - Bishop House Nursery - Lambeth Estate - Halcyon Estates Limited - Western Riverside Waste Authority - Battersea Project Land Company Limited 	Seeking to maximize profit from the redevelopment of the area. Their concerns mainly relate to land acquisition and construction methodologies
	Landowner and major project promoters	<ul style="list-style-type: none"> - Covent Garden Market Authority 	Seek to improve Covent Garden Market and attract more customers and visitor on account of the redevelopment of the VNEB.

7 Examination of Resonance of OMEGA Lessons and Case Study Findings to NLE project

This section seeks to conduct an examination of the resonance of selected OMEGA lessons and case study findings to the NLE project, involving:

- **Sub-task 3.1** – the identification of the OMEGA lessons and case study findings derived from all OMEGA studies, and
- **Sub-task 3.2** – the application of OMEGA lessons and case study findings to the NLE project as a basis to inform the planning and appraisal interdependency considerations.

The planning and appraisal stage of the NLE has been reviewed against a list of project criteria and lessons distilled from a selection of key findings from the five-year research project on *Decision-making in the Planning, Appraisal and Delivery of Mega Transport Projects* published by the OMEGA Centre (OMEGA Centre, 2012).

Columns 1 and 2 of Table 12 below provide a breakdown of OMEGA Centre Lessons, as presented in the OMEGA 2 Executive Summary (OMEGA Centre, 2012), whilst Columns 3 and 4 of Table 12 present the development of associated criteria for application to the NLE projects, and an analysis of the responses from the application of the criteria to the NLE.

Table 12 Analysis of the NLE in Response to OMEGA lessons and Appraisal Criteria

	OMEGA lessons & insights	OMEGA criteria/guidance	Criteria for NLE	Analysis of NLE in response to criteria
1	MTPs as ‘Agents of Change’ - there is a need for a change of mind-set concerning the way in which MTPs are positioned, framed and planned			
1.1	<ul style="list-style-type: none"> MTPs frequently become (either by design or by virtue of the nature and extent of their impacts) critical ‘agents of change’ that have multiple spatial, economic, environmental and other implications – but ‘agent of change’ objectives are <i>not</i> always a part of their initial <i>raison d’etre</i>; 	<ul style="list-style-type: none"> The project planning and appraisal process must examine its potential to function as an agent of spatial and sectoral change. As a consequence, such planning and appraisal processes must view MTPs as more than simply infrastructure providers 	<ul style="list-style-type: none"> Extent to which agent of change considerations/impacts have been examined in the course of project planning and appraisal Extent to which the project presented solely as an infrastructure service provider 	<ul style="list-style-type: none"> The link between land use and transport planning has been clear from the early stages of the project. The NLE Project has been considered in by both the NLE preliminary business case, and later studies for both the NLE and the VNEB as a critical infrastructure to support the planned regeneration of the VNEB OA and not merely a standalone engineering project. However, the project appraisal exercises and seems to have focused more on the NLE line haul and justification for the project in terms of business and leisure travel time savings and do not include the wider costs and benefits of the VNEB OA beyond some economic metrics introduced by the Volterra Study.

	OMEGA lessons & insights	OMEGA criteria/guidance	Criteria for NLE	Analysis of NLE in response to criteria
1.2	<ul style="list-style-type: none"> Similarly, the potential for such projects to change the context into which they are placed is often under-appreciated by decision-makers, resulting in unexpected/unintended consequences (which may be beneficial and/or problematic); 	<ul style="list-style-type: none"> MTP planning and appraisal processes need to thoroughly examine their potential impacts on the contexts into which they are inserted. A key part of these processes is the building and testing of scenarios and the formulation of future-proofing strategies in response to forecast/potential changes in context. 	<ul style="list-style-type: none"> Extent to which the project's impacts resulting from its' agent of change potential have been examined Extent to which this involved scenario building and testing and/or future proofing 	<ul style="list-style-type: none"> The potential benefits for the area have been examined (see studies carry out by Volterra, SDG, SKM). The Volterra Study in particular has made an effort to identify wider economic impacts and benefits of the line on the VNEB however these concentrate on agglomeration effects and a move to more productive jobs, enhanced tax revenue and foreign investment (which is claimed could double the BCR) The core appraisals have not entailed the use of scenario planning other than in the development of route options where the most optimistic development case was found to have the most favourable BCR and physical capacity. No downside scenarios were taken into account during the appraisal processes.
1.3	<ul style="list-style-type: none"> MTP planning, appraisal and delivery agents therefore need to be clear about: 	<ul style="list-style-type: none"> There is a need for clarity by MTP planning, appraisal and delivery agents therefore need to be clear about: 	<ul style="list-style-type: none"> Extent to which the project planning and appraisal process considered: 	<ul style="list-style-type: none"> The consideration of the spatial and temporal dimensions of the project as an agent of change is

	OMEGA lessons & insights	OMEGA criteria/guidance	Criteria for NLE	Analysis of NLE in response to criteria
	<ul style="list-style-type: none"> ○ whether, how and over what spatial and temporal dimensions a MTP is <i>expected</i> to function as an ‘agent of change’ (e.g. in terms of territorial, sectoral or other type of strategy) ○ which forces of change the projects should be trying to influence or harness and over what timeframe ○ what resources (financial, institutional, personnel, legal, etc.) and policy frameworks are likely to be needed 	<ul style="list-style-type: none"> ○ whether, how and over what spatial and temporal dimensions a MTP is <i>expected</i> to function as an ‘agent of change’ (e.g. in terms of territorial, sectoral or other type of strategy) ○ which forces of change the projects should be trying to influence or harness and over what timeframe ○ what resources (financial, institutional, personnel, legal, etc.) and policy frameworks are likely to be needed 	<ul style="list-style-type: none"> ○ whether, how and over what spatial and temporal dimensions a MTP is <i>expected</i> to function as an ‘agent of change’ (e.g. in terms of territorial, sectoral or other type of strategy) ○ which forces of change the projects should be trying to influence or harness and over what timeframe ○ what resources (financial, institutional, personnel, legal, etc.) and policy frameworks are likely to be needed 	<p>somewhat limited in the VNEB Development Framework.</p> <ul style="list-style-type: none"> ● The NLE line haul studies included journey time impact analysis over the entire London transport network to 2030. The CBA takes account of the impact on the national economy of the travel time savings generated by the line haul discounted to the present. ● Those documents focusing on development and regeneration tend to focus on local impacts, including accessibility (PTALs), by taking the VNEB OA boundary as the project frame. ● There is evidence of strategic thinking concerning and safeguarding for future extensions of the NL and the full separation of the southern section ● There is little evidence available concerning the resourcing of the planning and appraisal cycle

	OMEGA lessons & insights	OMEGA criteria/guidance	Criteria for NLE	Analysis of NLE in response to criteria
2	MTPs are ‘Open Systems’ - planning, appraisal and delivery agents need to recognise that MTPs are phenomena that require ‘open systems’ treatment in light of their complex and fluid relationship with the areas/sectors/communities they serve, traverse and impact upon.			
2.1	<ul style="list-style-type: none"> MTPs are ‘open systems’ that continuously interact with the changing ‘context(s)’ they serve, traverse and impact upon – including environmental, social, economic, physical, institutional and political contexts. 	<ul style="list-style-type: none"> MTPs must be seen as ‘open systems’ that continuously interact with the changing ‘context(s)’ they serve, traverse and impact upon – including environmental, social, economic, physical, institutional and political contexts. This calls for the establishment of project planning and appraisal processes that enable MTPs to be properly treated as open systems. By contrast, MTP planning and delivery agents need to be aware that MTPs which are treated as ‘closed systems’ during the project planning and appraisal stages cannot be adequately considered as a constituent of the wider, and hence more complex, context into which they are placed. This raises the real possibility that potential project impacts will be seriously underestimated and/or lead to 	<ul style="list-style-type: none"> Extent to which the project was treated as an open system in its planning and appraisal 	<ul style="list-style-type: none"> The planning stage of the project was limited to the consideration of a number of options for the extension depending upon a range of development and demand scenarios. There is little evidence of the planning process being an open system beyond the VNEB. Some of the consultation exercises resulted in minor changes to aspects of the project. The appraisal exercise seems to have been conducted in a ‘closed’ manner concerning the operations of the line haul. The avoidance of any connection with other lines such as the Victoria line was taken to simplify the project but may limit the long term resilience of the project

	OMEGA lessons & insights	OMEGA criteria/guidance	Criteria for NLE	Analysis of NLE in response to criteria
		significant lost opportunities and downside risk.		
2.2	<ul style="list-style-type: none"> Closed system treatment will undoubtedly be needed once a MTP is deemed ready for implementation. However, the timing of this 'project freezing' is critical in that choices about the project will inevitably be locked in and may be prejudiced by future contextual change. 	<ul style="list-style-type: none"> The timing of 'project freezing' needs to be carefully considered in that choices about the project will inevitably be locked in and may be prejudiced by future contextual change. 	<ul style="list-style-type: none"> Extent to which consideration was given to the stage at which the project should be treated as frozen? Extent to which downside risk associated with project freezing was explored? 	<ul style="list-style-type: none"> The date at which the project will be frozen will depend upon the outcomes of the TWA deposited on 31st April 2013 No evidence of consideration of downside risks associated with project freezing has been found
2.3	<ul style="list-style-type: none"> It should be acknowledged that many outcomes of MTPs are difficult to identify precisely, much less quantify – and may only emerge many years after the project has been completed. This is because MTPs are themselves complex (often innovative) systems which interact in multiple and complex ways over time and space. 	<ul style="list-style-type: none"> MTP planning, appraisal and delivery processes need to acknowledge that many project outcomes/impacts are difficult to identify precisely, much less quantify – and may only emerge many years after the project has been completed. 	<ul style="list-style-type: none"> Extent to which processes have been put in place to monitor project outcomes/impacts and to take action in response to any forecast/actual changes over time 	<ul style="list-style-type: none"> There is no evidence to suggest this has been taken into account
3	<p>Mega Transport Projects (MTPs) are 'Organic' Phenomena - MTPs are 'organic' phenomena (rather than static engineering artefacts) that often need 'time to breathe'. This time to breathe can present special opportunities that should be seized and exploited by key decision-makers.</p>			
3.1	<ul style="list-style-type: none"> Most MTPs are subject to an 'organic', evolutionary process that often produces fundamental change in their 	<ul style="list-style-type: none"> MTP planning and appraisal agents, and the processes they establish for this purpose need to be aware that most such projects 	<ul style="list-style-type: none"> Extent to which there was a continuous re-examination of the raison d'être of the project during its planning and appraisal process 	<ul style="list-style-type: none"> Despite the planning and appraisal processes starting in 2007 and potentially ending in 2013, depending upon the

	OMEGA lessons & insights	OMEGA criteria/guidance	Criteria for NLE	Analysis of NLE in response to criteria
	<p>raison d'être, their scope/scale and/or the thinking behind plans for the areas they impact upon.</p> <ul style="list-style-type: none"> Given the organic characteristics of MTPs, they often need a period of reflection (a 'time to breathe') to allow for more consistent and comprehensive decision-making. This addition to the project's gestation period need not be seen as ineffective if used wisely to reconsider and reconfigure the raison d'être and scale/scope of the project. By contrast, in some cases, the fast tracking of projects can prove very problematic if insufficient time has been allowed to absorb/deal with the numerous issues they need to address. 	<p>are subject to an 'organic', evolutionary process that often produces fundamental change in their raison d'être, their scope/scale and/or the thinking behind plans for the areas they impact upon.</p> <ul style="list-style-type: none"> MTP planning and appraisal agents should consider whether, and how, a period of reflection (a 'time to breathe') is needed to allow for more consistent and comprehensive decision-making. By contrast, there is a need to consider whether the fast tracking of projects could prove to be very problematic if insufficient time has been allowed to absorb/deal with the numerous issues they need to address. 	<ul style="list-style-type: none"> Extent to which the project planning and appraisal process was subject to a period(s) of reflection in which its fundamental nature was re-assessed If relevant, extent to which this period of reflection was beneficial/harmful 	<p>outcome of the TWAO Application, the route of the project seems to have been decided at the beginning of the project and the subsequent appraisal studies undertaken by SDG and Volterra have sought to further develop the case for these lines.</p> <ul style="list-style-type: none"> Mega project development in the UK typically involves long gestation periods for complex projects, the NLE has been presented as a relatively simple project by promoters and may be considered a fast-tracked project especially when considering the original promoter entered receivership in 2011
3.2	<ul style="list-style-type: none"> Planning, appraisal and delivery agents need to acknowledge the evolutionary nature of many/most MTPs and in so doing recognise: 	<ul style="list-style-type: none"> Planning, appraisal and delivery agents need to acknowledge the evolutionary nature of many/most MTPs and in so doing recognise: <ul style="list-style-type: none"> that many MTPs and the plans, programmes and 	<ul style="list-style-type: none"> Extent to which the project was subject to flexible, robust and adaptable strategies that were able to address and respond to the complexities they pose, especially in relation to their interaction with 	<ul style="list-style-type: none"> The route for the line haul was decided relatively early on in the project planning and appraisal process and there is little indication of the adoption of robust and adaptable strategies to produce a resilient in the event

	OMEGA lessons & insights	OMEGA criteria/guidance	Criteria for NLE	Analysis of NLE in response to criteria
	<ul style="list-style-type: none"> ○ that many MTPs and the plans, programmes and projects they spawn will often need to evolve in response to changing contextual influences that exert themselves over the (often lengthy) project lifecycle; ○ that this requires the insertion of dedicated periods of reflection into the project planning and appraisal process – which should facilitate the involvement of all interested stakeholders and allow for the advent of new ‘emergent’ objectives or visions; ○ that opportunities may present themselves when contextual influences are ‘right’ (i.e., when the ‘planets are aligned’) to take decisive action; ○ that the ability to control every aspect of project planning and delivery is 	<ul style="list-style-type: none"> ○ projects they spawn will often need to evolve in response to changing contextual influences that exert themselves over the (often lengthy) project lifecycle; ○ that this requires the insertion of dedicated periods of reflection into the project planning and appraisal process – which should facilitate the involvement of all interested stakeholders and allow for the advent of new ‘emergent’ objectives or visions; ○ that opportunities may present themselves when contextual influences are ‘right’ (i.e., when the ‘planets are aligned’) to take decisive action; ○ that the ability to control every aspect of project planning and delivery is often fundamentally undermined by 	<p>the areas and sectors they impact upon</p>	<p>of significant deviations from forecast demand.</p> <ul style="list-style-type: none"> ● The absence of connection with other tube lines may limit the resilience of the project. Downside scenarios were not taken into account.

	OMEGA lessons & insights	OMEGA criteria/guidance	Criteria for NLE	Analysis of NLE in response to criteria
	<p>often fundamentally undermined by ‘happenstance’ (i.e. unforeseen circumstance);</p> <ul style="list-style-type: none"> ○ that preparing flexible, robust and adaptable strategies for MTP developments that are able to address and respond to the complexities they pose, especially in relation to their interaction with the areas and sectors they impact upon, is of critical importance; and ○ that the fundamental raison d’etre of MTPs must not necessarily remain unchanged over time. 	<p>‘happenstance’ (i.e. unforeseen circumstance);</p> <ul style="list-style-type: none"> ○ that preparing flexible, robust and adaptable strategies for MTP developments that are able to address and respond to the complexities they pose, especially in relation to their interaction with the areas and sectors they impact upon, is of critical importance; and ○ that the fundamental raison d’etre of MTPs must not necessarily remain unchanged over time. 		
4	<p>The Framing of MTPs - the changing demands placed on MTPs can make it excruciatingly difficult to judge their successes and failures. This makes it imperative to ensure proper project framing so as to enable their appraisal to be based upon a fair and transparent foundation.</p>			
4.1	<ul style="list-style-type: none"> • The most common criteria employed for judging MTP ‘success’ remain those associated with completing projects on time, on budget, and as per specifications. This focus 	<ul style="list-style-type: none"> • The planning and appraisal of MTPs needs to recognise that judgements about project success will almost always encompass a much broader set of considerations than whether the 	<ul style="list-style-type: none"> • Extent to which the project was subject to a comprehensive and robust planning and appraisal processes that emphasised a broader spectrum of objectives 	<ul style="list-style-type: none"> • The studies carry out by Volterra, SDG, SKM illustrate a wider range of objectives concerning the NLE and VNEB however the consultation process and the appraisal exercise seem to have

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	<p>is, however, capable of <i>only</i> providing a partial (albeit important) basis for such judgements. Indeed, to make a sound judgement about a project's 'success' or 'failure' it is critically important to <i>also</i> understand contextual influences that prevailed at the time the project was conceived, planned, appraised <i>and</i> implemented.</p>	<p>project was delivered on time, on budget and to specification.</p> <ul style="list-style-type: none"> Given that the planning, appraisal and delivery process will almost inevitably be influenced by contextual forces, it is critically important to establish clear (and transparent) project objectives (whether original or emergent) against which project success can be measured. 	<p>than merely time, cost and specification?</p> <ul style="list-style-type: none"> Extent to which project objectives were formulated that expressed the needs and wants of different stakeholders Extent to which project objectives evolved over time in response to changing contextual influences and stakeholder agendas 	<p>primarily focused on the line haul and a relatively narrow set of objectives.</p> <ul style="list-style-type: none"> The Planning Framework for the VNEB was prepared by the GLA in partnership with London Boroughs of Wandsworth and Lambeth, Transport for London, LDA, DfL, and key land owners in the OA through a stakeholder consultation process. A small evolution in project objectives can be detected by the routes considered in the 2012 MCA undertaken by SDG. The appraisal includes an amendment to the two station option with three differing configurations for the station locations.
4.2	<ul style="list-style-type: none"> Careful thought should be given to the nature and clarity of MTP visions, goals and objectives – whether these relate to the project itself, associated spatial and sectoral transformational initiatives or a combination of the two. In this connection it is suggested that: 	<ul style="list-style-type: none"> Careful thought should be given to the nature and clarity of MTP visions, goals and objectives – whether these relate to the project itself, associated spatial and sectoral transformational initiatives or a combination of the two. In this connection it is suggested that: 	<ul style="list-style-type: none"> Extent to which project objectives were clearly articulated at the outset. Extent to which project objectives were subject to robust scrutiny and debate. 	<ul style="list-style-type: none"> A range of stakeholder project objectives have been presented within the reports reviewed where the project objectives are relatively clear from 2010 onwards (Central Government Objectives, TfL Objectives, Local Government Objectives). The precise nature of the original

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	<ul style="list-style-type: none"> ○ there should be a clear early statement of project roles, goals and objectives, together with key assumptions, appraisal criteria and anticipated impacts which need to be disseminated to (and thoroughly discussed with) impacted key stakeholders; ○ having such clarity could be harmful <i>if</i> there is reluctance to change/inertia even when fluid contextual forces suggest the need to accommodate emergent objectives; and ○ objectives relating to agent of change roles and functions are often insufficiently developed at the outset and will need time to fully articulate in terms of more concrete action. 	<ul style="list-style-type: none"> ○ there should be a clear early statement of project roles, goals and objectives, together with key assumptions, appraisal criteria and anticipated impacts which need to be disseminated to (and thoroughly discussed with) impacted key stakeholders; ○ having such clarity could be harmful <i>if</i> there is reluctance to change/inertia even when fluid contextual forces suggest the need to accommodate emergent objectives; and ● objectives relating to agent of change roles and functions are often insufficiently developed at the outset and will need time to fully articulate in terms of more concrete action. 		<p>2007/08 objectives is not available. The 2013 TWAO includes a 'Concise statement of aims.</p> <ul style="list-style-type: none"> ● The consultation processes focused only on the route options – it is unclear if the projects primary objectives were subject to robust scrutiny and debate

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4.3	<ul style="list-style-type: none"> • Sound judgement about the ‘success’ (or failure) of MTPs is more likely to be achieved when projects are presented to key decision-makers in a manner that lays out <i>all</i> key financial and non-financial costs and benefits in a transparent way against different time-lines and within a policy-led multi-criteria framework to assess progress. This assists the setting of priorities and helps make trade-offs among different project objectives and stakeholder interests much clearer. As part of this process, it should be acknowledged (once again) that the achievement of project completion on time, to cost and to specification, though very important, does <i>not</i> necessarily represent the <i>raison d’être</i> for undertaking MTPs. 	<ul style="list-style-type: none"> • Projects should be presented to key decision-makers in a manner that lays out <i>all</i> key financial and non-financial costs and benefits in a transparent way against different time-lines and within a policy-led multi-criteria framework to assess progress. This assists the setting of priorities and helps make trade-offs among different project objectives and stakeholder interests much clearer. 	<ul style="list-style-type: none"> • Extent to which all key financial and other non-financial costs and benefits were presented to decision-makers in a transparent way and set against prevailing policy agendas • Extent to which the planning and appraisal process sought to identify the project’s impacts in terms of key ‘winners and losers.’ 	<ul style="list-style-type: none"> • In a superficial way this has been done (TfL presented the impact of the NLE against the objectives of the London Plan, SDG conducted a multi-criteria analysis of the NLE on the basis of the objective and criteria established by the Mayor of London Transport Study, the VNEB OAPF, NATA (informed by the Governments Appraisal Criteria for Transport -DASTS) • The appraisal process does not highlight winners and losers.

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5	The Power of Context¹⁸ - context awareness and sensitivity to context on the part of project decision-makers is vital for both the successful planning, appraisal and delivery of MTPs and suitable treatment of contextual risks, uncertainties and complexities.			
5.1	<ul style="list-style-type: none"> The context of individual decisions and events impacting on MTP planning appraisal and delivery is <i>essentially</i> unique for each project and therefore reference to past/best practice can be very misleading. 	<ul style="list-style-type: none"> The context of individual decisions and events impacting on MTP planning appraisal and delivery is <i>essentially</i> unique for each project and therefore reference to past/best practice can be very misleading. 	<ul style="list-style-type: none"> Extent to which there was evidence of path dependent thinking in the planning and appraisal of the project. Extent to which this was beneficial or harmful in the face of contextual circumstances and changes thereto. 	<ul style="list-style-type: none"> In the planning and appraisal exercise is little clear reference to past-experiences. The Volterra report makes reference to a methodology for Wider Economic Benefits (WEBs) appraisal developed for the Crossrail study.
5.2	<ul style="list-style-type: none"> The contexts in which MTPs are planned, appraised and delivered are changing at an ever increasing pace due, among other things, to rapid technological improvements, global financial and environmental instabilities and forces of globalisation - especially for those MTPs that have a transnational function. Careful attention also needs to be paid to the governmental 	<ul style="list-style-type: none"> The contexts in which MTPs are planned, appraised and delivered are changing at an ever increasing pace due, among other things, to rapid technological improvements, global financial and environmental instabilities and forces of globalisation - especially for those MTPs that have a transnational function. Careful attention also needs to be paid to the governmental 	<ul style="list-style-type: none"> Extent to which important external contextual influences likely to fundamentally impact on project planning, appraisal and delivery (including globalisation and technological change) were identified and incorporated within plans and strategies from the outset. 	<ul style="list-style-type: none"> Score evidence available.

¹⁸ Clearly, the term 'context' here embodies many and varied dimensions for decision-making - including, culture and societal beliefs/values, time and space concerns, economic circumstances, institutional and planning frameworks and, not least because of its impact on MTP decision-making, political contexts.

	OMEGA lessons & insights	OMEGA criteria/guidance	Criteria for NLE	Analysis of NLE in response to criteria
	(and spatial/territorial planning) contexts into which MTPs are to be inserted as mismatches in expectations and outcomes are frequently experienced.	(and spatial/territorial planning) contexts into which MTPs are to be inserted as mismatches in expectations and outcomes are frequently experienced.		
5.3	<ul style="list-style-type: none"> • MTP planning, appraisal and delivery agents faced with this reality consequently need to acknowledge the importance of: <ul style="list-style-type: none"> ○ undertaking periodic <i>sensitivity analyses</i> of the context(s) of such projects over the entire project lifecycle - contextual change often drives pivotal decisions; ○ key project stakeholders need to identify and analyse the critical contexts (and interdependencies) that surround pivotal project decision making; ○ recognising the likelihood (perhaps inevitability) that the constant ebb and flow of context will almost certainly result in the need 	<ul style="list-style-type: none"> • MTP planning, appraisal and delivery agents faced with this reality consequently need to acknowledge the importance of: <ul style="list-style-type: none"> ○ undertaking periodic <i>sensitivity analyses</i> of the context(s) of such projects over the entire project lifecycle - contextual change often drives pivotal decisions; ○ key project stakeholders need to identify and analyse the critical contexts (and interdependencies) that surround pivotal project decision making; ○ recognising the likelihood (perhaps inevitability) that the constant ebb and flow of context will almost certainly result in the need to adjust project objectives, 	<ul style="list-style-type: none"> • Extent to which the project planning and appraisal process was characterised by: <ul style="list-style-type: none"> ○ the undertaking of periodic <i>sensitivity analyses</i> of the context(s) of the project over its entire lifecycle; ○ key project stakeholders identifying and analysing the critical contexts (and interdependencies) that surrounded pivotal project decision making; ○ acknowledgement of the likelihood contextual change would result in the need to adjust project objectives, appraisal; methods/approaches and delivery plans and programmes; ○ acknowledgement that there are occasions of 	<ul style="list-style-type: none"> • Scare evidence available.

	OMEGA lessons & insights	OMEGA criteria/guidance	Criteria for NLE	Analysis of NLE in response to criteria
	<p>to adjust project objectives, appraisal methods/ approaches and delivery plans and programmes;</p> <ul style="list-style-type: none"> ○ acknowledging that there are occasions of serendipity ('happenstance') in MTP decision-making when unique opportunities present themselves that need to be seized by key stakeholders who are keen to influence project outcomes; ○ acknowledging that 'mega events' (such as major political change, World Cup Finals and Olympic Games) may have both positive and negative impacts on the contextual risk, uncertainty and complexity of MTPs; and ○ recognising that the scale, cost and often controversial nature of MTPs means that political 	<p>appraisal methods/approaches and delivery plans and programmes;</p> <ul style="list-style-type: none"> ○ acknowledging that there are occasions of serendipity ('happenstance') in MTP decision-making when unique opportunities present themselves that need to be seized by key stakeholders who are keen to influence project outcomes. ○ acknowledging that 'mega events' (such as major political change, World Cup Finals and Olympic Games) may have both positive and negative impacts on the contextual risk, uncertainty and complexity of MTPs; and ○ recognising that the scale, cost and often controversial nature of MTPs means that political influence/support will remain a critical 	<p>serendipity ('happenstance') in MTP decision-making when unique opportunities present themselves that need to be seized by key stakeholders who are keen to influence project outcomes;</p> <ul style="list-style-type: none"> ○ acknowledgement that 'mega events' could have both a significant positive and negative impact on contextual risk, uncertainty and complexity; ○ recognition of the need for political influence/support over the entire project lifecycle. 	

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	influence/support will remain a critical contextual factor over the entire project lifecycle.	contextual factor over the entire project lifecycle.		
6	Role of Sustainable Development Visions - the lack of a clear and shared vision of the meaning of ‘sustainable development’ threatens to seriously undermine the potential for, and use of, MTPs to make a positive contribution to its achievement. Simultaneously, it is readily apparent that there is a widespread lack of clarity about the capability of such projects to support sustainable development visions (despite the rhetoric that exists in this respect).			
6.1	<ul style="list-style-type: none"> The lack of clarity and consensus regarding the operationalization of sustainable development visions as they concern MTP planning, appraisal and delivery poses questions about they can effectively meet the needs of intra <i>and</i> inter-generational equity of sustainable social, economic and environmental development - including <i>global</i> concerns about energy consumption, carbon footprints, climate change, greenhouse gases and Co2 emissions. 	<ul style="list-style-type: none"> There needs to be greater clarity and consensus regarding the operationalization of sustainable development visions as they concern MTP planning, appraisal and delivery poses questions about they can effectively meet the needs of intra <i>and</i> inter-generational equity of sustainable social, economic and environmental development - including <i>global</i> concerns about energy consumption, carbon footprints, climate change, greenhouse gases and Co2 emissions. MTP planning and appraisal processes need to be clear about the relative aspirations associated with the different dimensions of sustainability and 	<ul style="list-style-type: none"> Extent to which there were clearly articulated and operational objectives associated with the project that reflected its envisaged environmental, economic, social and institutional sustainability credentials? Extent to which such visions and objectives also related to the retrofitting of existing plans, programmes and projects 	<ul style="list-style-type: none"> The Mayors transport strategy includes a number of clearly articulated goals and related challenges concerning the 3 pillars of sustainability. However the appraisal process undertaken against these goals is relatively narrow. For example, Goal 3 includes ‘Enhance the quality of life for all Londoners’. This Goal is appraised using criteria related to ‘improving Journey Experience’ whilst Goal 6 which aims to ‘Reduce Transports Contribution to Climate Change’ has not been considered in the appraisal as the project options are considered to have a

	OMEGA lessons & insights	OMEGA criteria/guidance	Criteria for NLE	Analysis of NLE in response to criteria
		how the needs associated with each dimension are to be achieved/balanced in a mutually acceptable manner.		comparable impact in this respect.
6.2	<ul style="list-style-type: none"> There are significant institutional/organisational and professional barriers and silos that often inhibit the application of 'holistic' visions of sustainability to MTP developments. 	<ul style="list-style-type: none"> MTP planning, appraisal and delivery processes need to facilitate the application of 'holistic' visions of sustainability and thereby overcome existing institutional, professional and organisational barriers. 	<ul style="list-style-type: none"> Extent to which institutional and organisational barriers to considerations about sustainability were dealt with in the project planning and appraisal process. 	<ul style="list-style-type: none"> No evidence available.
6.3	<ul style="list-style-type: none"> Certain MTPs (especially those with major highway components) are characterised by an inbuilt conflict between concerns for environmental sustainability and the manner in which they are designed and funded – i.e. their continued financial sustainability is frequently dependent on revenues that require ever increasing patronage/rising traffic levels. 	<ul style="list-style-type: none"> MTP planning, appraisal and delivery processes need to facilitate a measured approach to address the inbuilt conflict between concerns for environmental sustainability and the manner in which such projects are designed and funded – i.e. their continued financial sustainability should not be dependent on revenues that require ever increasing patronage/rising traffic levels. In planning and appraising proposed MTPs, priority should always be given to those projects that comprise components of 	<ul style="list-style-type: none"> Extent to which inbuilt conflicts (in terms of sustainability) between potential project outcomes and the means by which the project was to be delivered were addressed. 	<ul style="list-style-type: none"> The VNEB OAPF indicated that the objective of redeveloping the OA would create partial conflict with sustainable development goals but with some mitigation measures it will be possible to overcome this problem.

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		transit-orientated developments (ToDs) as these potentially have far-reaching positive sustainability benefits that go well beyond their immediate line-haul operations by virtue of the positive urban agglomerations they can attract and the reduced private motorcar dependency they can encourage.		
6.4	<ul style="list-style-type: none"> Sustainable development visions require long-term appraisal and evaluation cycles which in turn need to be supported by sustained political support and institutional frameworks which share the same vision. 	<ul style="list-style-type: none"> Sustainable development visions require long-term appraisal and evaluation cycles which in turn need to be supported by sustained political support and institutional frameworks which share the same vision. 	<ul style="list-style-type: none"> Extent to which the project's sustainable development vision was/is subject to long-term appraisal and evaluation cycles supported by sustained political support and institutional frameworks which share the same vision. 	<ul style="list-style-type: none"> No evidence available.
7	<p>Engaging with MTP Stakeholders - effective and early engagement with key stakeholders is seen as critical in MTP planning, appraisal and delivery. This presents important opportunities to manage/mitigate risk, uncertainty and complexity in project developments and more specifically to assist in the adjustment of project objectives to address manifold contextual influences (and changes thereto), manage expectations and help progress the project delivery process.</p>			
7.1	<ul style="list-style-type: none"> However, discerning and analysing key stakeholder motives/agendas and levels of influence on MTP developments is never easy – not least, because they are subject to change over 	<ul style="list-style-type: none"> MTP planning, appraisal and delivery processes should acknowledge that discerning and analysing key stakeholder motives/agendas and levels of influence on project 	<ul style="list-style-type: none"> Extent to which key stakeholders were able to access all relevant, high quality, information Extent to which full engagement with project stakeholders was undertaken at an early stage and 	<ul style="list-style-type: none"> Many of the documents concerning the appraisal of the NLE and planning of the VNEB are within the public-domain However the full extent of the project has only been recently

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	<p>time and the likelihood that relationships between will alter during the MTP lifecycle.</p>	<p>developments is never easy – not least, because they are subject to change over time and the likelihood that relationships between will alter during the MTP lifecycle.</p> <ul style="list-style-type: none"> • MTP planning, appraisal and delivery processes need to establish mechanisms that enable the building of effective relations with key project stakeholders. • This is dependent upon the establishment of trust, credibility and transparency - which, in turn, represent important factors in creating consensus in decision-making, especially necessary in turbulent and uncertain times. • Trust, credibility and transparency is more usually achieved if project stakeholders are involved at an early stage in the setting of project objectives. • In turn, access by key stakeholders to all relevant, high quality, information is seen as 	<p>continued throughout the project lifecycle</p> <ul style="list-style-type: none"> • Extent to which there were frequent scans of the stakeholder environment in order to assess the willingness, ability and capacity of different stakeholder groups and networks involved in the project to exert critical influence on pivotal decisions 	<p>revealed with the publication of the TWA application and a window of 1.5 months given for interested parties to respond</p> <ul style="list-style-type: none"> • There have been a number of consultations concerning the NLE and VNEBOA. However full stakeholder engagement only occurred during the consultation on NLE route options – • Battersea Power station developers and the American Embassy appear to have been the only stakeholders located within the VNEB site which have had a strong influence in the project (although this assumption is inferred by the location of stations). The majority of other stakeholders were only involved during consultation on the route options. The only amendments to the project from the consultation process of a significant nature was the removal of a permanent shaft at Claylands Road (and subsequent re-engineering of tunnels for safety purposes).

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		critically important in building trust and consensus.		
8	Institutional, Policy and Legislative Support - MTPs are unlikely to be able to deliver the full range of agent of change benefits unless accompanied by a suitable institutional, policy and legislative framework that remains in place throughout the project lifecycle.			
8.1	<ul style="list-style-type: none"> Whether or not a MTP's institutional framework is bespoke or represents an adaptation/extension of currently available institutional, policy or legislative arrangements, it is critically important that they are transparent, accountable and sustainable over the long-term – including during the project operations phase. 	<ul style="list-style-type: none"> It is critically important that MTP's institutional frameworks are transparent, accountable and sustainable over the long-term – including during the project operations phase. 	<ul style="list-style-type: none"> Extent to which the project's institutional framework transparent, accountable and sustainable over the long-term – including during the project operations phase. 	<ul style="list-style-type: none"> Planning and appraisal documents suggest a good level of transparency in this regard.
8.2	<ul style="list-style-type: none"> Such frameworks also need to address the wide-ranging variety of stakeholder expectations and aspirations that MTPs inevitably engender; and the multiple territorial, sectoral and stakeholder interfaces with which project planning, appraisal and delivery processes have to deal. 	<ul style="list-style-type: none"> Such frameworks also need to address the wide-ranging variety of stakeholder expectations and aspirations that MTPs inevitably engender; and the multiple territorial, sectoral and stakeholder interfaces with which project planning, appraisal and delivery processes have to deal. 	<ul style="list-style-type: none"> Extent to which the institutional framework was capable of addressing the wide-ranging variety of stakeholder expectations and aspirations that project engendered, together with its multiple territorial, sectoral and stakeholder interfaces. 	<ul style="list-style-type: none"> More likely only concerning the line haul.

	OMEGA lessons & insights	OMEGA criteria/guidance	Criteria for NLE	Analysis of NLE in response to criteria
<ul style="list-style-type: none"> 8.3 	<ul style="list-style-type: none"> MTPs benefit greatly from sustained political support and leadership, particularly to the point of their political approval and commencement of construction - such support helps to maintain both consensus and momentum. 	<ul style="list-style-type: none"> MTPs benefit greatly from sustained political support and leadership, particularly to the point of their political approval and commencement of construction - such support helps to maintain both consensus and momentum. 	<ul style="list-style-type: none"> Extent to which the project was subject to sustained political support and leadership Was there evidence of the involvement of a project champion(s)? Extent to which this impacted on the project planning and appraisal process. 	<ul style="list-style-type: none"> There seems to be a strong support from government for the NLE.
<ul style="list-style-type: none"> 9 	<ul style="list-style-type: none"> Lesson Learning and Sharing - It is apparent that systematic, widespread lesson-learning and sharing is not currently a significant feature of MTP planning, appraisal and delivery, and that there are few examples in the public domain of post-project evaluation that go beyond time/cost/specification assessments of project performance. Furthermore, there is evidence to suggest that knowledge acquired by the private sector in the field of MTP developments is frequently jealously guarded for commercially competitive gain, often ultimately at the expense of the public purse. 			
<ul style="list-style-type: none"> 9.1 	<ul style="list-style-type: none"> In light of the above, MTP planning, appraisal and delivery agents should seek to ensure that the findings of more extensive and systematic lesson-learning and sharing are integrated into project decision-making practice world-wide. 	<ul style="list-style-type: none"> MTP planning, appraisal and delivery agents should seek to ensure that the findings of more extensive and systematic lesson-learning and sharing are integrated into project decision-making practice world-wide. 	<ul style="list-style-type: none"> Extent to which lesson learning and sharing mechanisms have been put in place. 	<ul style="list-style-type: none"> No data available.

8 Conclusions

The above has sought to conduct a review of secondary data available concerning the NLE project to provide:

- the NLE project background information and key facts and figures including a project timeline;
- the identification of key project stakeholders and their objectives;
- an analysis of the policy context for the project; and
- an analysis of the NLE planning and appraisal phase (up until the deposit of the TWAO on 30th April 2013) against a distillation of the OMEGA Centre Project 2 study findings.

The principle aim of this document is to inform the development of and testing of the IPMF and associated matrix mapping tool. Through the compilation of this information, a number of observations can be made concerning the identification of project interdependencies as summarized below.

8.1 Identification of possible NLE interdependencies with respect to definition as defined by Frontier Economics Report

According to the framework proposed in the *Frontier Economics* Report to map infrastructure interdependencies it has been possible to distinguish two types of interdependencies characterized by the NLE project as discussed below.

8.1.1 Intra-system interdependencies

As defined in Appendix 6, these can be understood as the interdependencies between the NLE and other parts of the transport system. Such interdependencies are listed in Section 4 of this report. For example, the *Transport Study* Report carried out by the Sinclair Knight Merz to inform the development of the VNEB OAPF (SKM, 2009) 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. Additionally, a range of supporting transport measures will also be necessary – including new bus stops, improvement of the existing bus stations, improvement of the transport interchange and connections with the wider Vauxhall and Opportunity Area, enhancement of the quality and accessibility of the existing Station Vauxhall Underground and Vauxhall National rail stations, improvement of the interchange and integration at existing and new underground and rail stations with the existing transport network, enhancement of the quality of the pedestrian environment and cycling routes throughout the OA.

The nature of this intra-system interdependency is likely to be physical (interchange and integration), digital (signaling systems) and organizational (TfL, London Underground, Railways Companies, Buses Companies). Decisions relating to one part of the transport infrastructure system may have implications for other parts of the infrastructure system. There is evidence that detailed analysis of such interdependencies has taken place in the planning and appraisal of the NLE although this has been undertaken through traditional lenses of transport planning.

8.1.2 Inter-system interdependencies

As defined in Appendix 6, these can be understood as those between one infrastructure system (NLE line haul and its stations) and another (related regeneration and associated social and institutional infrastructure within the VNEB OA). From Sections 4, 5 and 6 of this report it is evident that there is a strong interdependency between the NLE project and the proposed development of the VNEB OA. On the one hand, a large-scale development of this kind may be achieved *only* with a concomitant intervention aiming to enhance public transport accessibility and capacity. On the other hand, this massive transport project may be justified more on the basis of transport demand generated from the development of new business, leisure and residential neighborhoods.

The nature of this inter-system interdependency is likely to be *physical* (the location of redevelopment projects around the stations), and *organizational* (TfL and other major landowners and developers within the VNEB). Decisions relating to one infrastructure system (the line haul and its stations) will give rise to important interdependencies with other sectors (such as real estate, social infrastructure and community developments). Analysis from Section 6 of this report highlights that these interdependencies have been inadequately considered in the planning and appraisal of the NLE to date. Some aspects of the interdependencies between the NLE and social infrastructure have been identified, *but* remain underdeveloped.

There is also a tier of intra-system interdependencies acting upon the NLE project at a higher *institutional and economic* level. These are the interdependencies between the NLE/VNEB OA area and its broader contexts - including the economic, social system and institutional systems. For example, the funding of the NLE project is to be recouped through direct contributions from developers in the form of Section 106 Agreements and Community Infrastructure Levy (CIL) contributions, and taxes from the businesses projected to eventually occupy the developments in the form of incremental business rates. This funding mechanism is highly sensitive to changes/fluctuations of economic contexts in the form of economic cycles both within the UK and those internationally, impacting developers/investors and the national/international political systems, the decision making of which, can act to either mitigate or accentuate such circumstances. Analysis from Section 6 of this report highlights these interdependencies and the fact that they have been *inadequately* considered in the planning and appraisal of the NLE so far, especially in terms of considering the validity of the broader strategic visions of the VNEB OA against a range of alternative futures in the form of scenario planning.

8.1.3 Main channels through which infrastructure interdependencies are able to contribute to economic growth

On the basis of the recommendation provided by the Frontier Economics Report it is possible to identify at least five main channels through which a better acknowledgment of infrastructure interdependencies within the VNEB OA may concur in generating economic growth in the area. These are as follows.

8.1.4 Unlocking new investment and growth

It is broadly acknowledged in the different technical and planning documents reviewed that delivery of NLE project has the potential to unlock new investment. However, as already indicated, a broader

and more participatory approach could have led to a better assessment of risks and threats entailed by these interdependencies and as well as to the identification of further development opportunities.

8.1.5 Delivering new infrastructure at lower cost

The possibility to use an integrated, independent utility provider could lower the costs of delivering the required utility infrastructure for the site. This type of approach has been adopted, for instance, in the redevelopment of King's Cross Central site and has enabled a reduction of the cost of infrastructure provision. Presently this eventuality seems to have not been considered either by the GLA in the VNEB OAPF or by the individual Boroughs.

8.1.6 Sharing infrastructure

From the public-domain material it has not been possible to fully understand whether and to what extent the new London Underground tunnels necessary to run the service from Kennington to Battersea will be used to accommodate other utilities, such as communications, which will be required as a result of the development of the VNEB OA.

8.1.7 Delivering a future vision

The OMEGA Centre findings indicate that mega-projects require both a clear vision and robust strategy to cope with changing contextual influences. There is a need for all parties (politicians, major developers, TfL, communities) to play a role in the regeneration of the OA in order to enhance the outcomes of the proposed VNEB redevelopment project. However, the limited stakeholder engagement undertaken and the narrow closed system approach to the appraisal of the NLE (focusing almost exclusively on the line haul) may have prevented this from happening.

8.1.8 Extracting value from land assets

The land use strategy for the VNEB appears to be underdeveloped, leaving opportunities for the more efficient use of space. For example via the exploration of interdependencies between the space requirements for the construct of heat exchangers and pumps for the future low carbon district heating network and the other potential developers of the site may reveal potentials for co-located facilities.

8.2 Analysis of NLE against OMEGA Centre Lessons

Framing the NLE project and the related urban regeneration schemes *together* as a megaproject, the planning and appraisal stages of the NLE project and the related regeneration schemes have been reviewed against a set of planning and appraisal criteria distilled from a selection of key findings and lessons learned from a five-year international study of decision-making in the planning, appraisal and delivery of mega transport projects involving 30 case studies in ten countries in the developed world undertaken by the OMEGA Centre (OMEGA Centre, 2012).

Notwithstanding the many highly competent studies undertaken to date in association with the proposal to build the NLE project, an examination of these OMEGA findings suggest that a number of noteworthy omissions exist in the NLE planning and appraisal processes *if* one is to consider it a 'megaproject' that is critically dependent on (as it is) the success of related urban regeneration schemes and the effectiveness/efficiency of the interdependencies of other supporting infrastructure networks.

This more ‘open-systems’ perspective of project planning and appraisal - which looks well beyond the ‘closed system’ of the rail link and its stations and which takes on board the ‘agent of change’ agenda it aspires to, warrants (it is contended) a policy-led multi-criteria analysis (PLMCA) framework and related processes that facilitates the transparent prioritizing and contextualizing of trade-offs amongst different key stakeholders regarding decisions about resourcing and costing the project, as well as determining where costs and benefits ultimately fall over time, space and institutionally. A policy-framework of this kind clearly needs to be sensitive to what market forces deem viable. At the same time it needs to be cognizant of critical planning and regulatory measures. We contend that the overarching UK government vision of sustainable development - expressed through international, national, regional and local policies, plans and legislation – should provide the leadership of such a PLMCA framework operationalized by policies and functional performance indicators.

Whilst both the technical and the policy documents reviewed provide a clear indication of the aspired after ‘agent of change’ function envisaged by the construction of the NLE line haul and its stations - namely to provide a step change improvement in transport connections in Battersea, Nine-Elms and South Lambeth in order to unlock the development potential of a number of urban regeneration opportunities within the VNEB OA - the appraisal process of the NLE project itself has been conducted on the basis of too narrow an economic analysis. The line haul is essentially treated as a closed system thereby preventing the use of a more holistic integrated planning and appraisal framework that better identifies the full extent of the broader costs, benefits, risks and opportunities, both of a monetizable and non-monetizable nature, associated with the VNEB OA.

This needs to be done by considering the technical, social, economic, environmental and institutional interdependencies between the line haul and the associated regeneration schemes and related infrastructure dependencies. We further conclude that:

- **The appraisal process** of the NLE has been based exclusively on the line haul with the assessment of different route options being conducted *without* adequate consideration of the many other infrastructures required to support the development of the VNEB OA.
- **The project appraisals** undertaken rely predominately on Cost Benefit Analysis (CBA), with the major proportion of social benefits identified for the scheme being made up of travel time savings, decongestion and crowding relief on the NL, whilst the economic costs are restricted to direct capital expenditure, renewal and operation expenses concerning the line haul and stations only. The wider costs and benefits associated with the regeneration of the VNEBOA including the required social infrastructure and the associated risks and opportunities, and identification of “winners” and “losers” (over time, space and institution) have *not* been adequately included in the appraisal or consultation exercises.
- **The *raison d’etre*** of the NLE is the delivery of a high-density development within the VNEB OA that has been assumed as the ‘favored’ option by the GLA, while low development hypothesis or downside economic scenarios have *not* been taken adequately into consideration during the project appraisal. This places at risk the robustness of the selected route option when compared with other potentially viable transport options.
- **The definitive route** of the extension has, furthermore, *not* been challenged sufficiently during the appraisal process. The avoidance of any connection with other London Underground lines such as the Victoria line, together with the limited attention given to the adoption of more robust and

adaptable strategies to cope with possible deviations from traffic forecast demands (for example), or the sudden withdrawal of major investors, may limit the long-term resilience of the project.

- **Only the Battersea Power Station developers and possibly American Embassy** have been able to really influence this megaproject, while the remaining stakeholders have merely been asked to provide an opinion exclusively on the route options once that the extension had been already selected as the preferred transport solution. International evidence in Scandinavia suggests that *early* consultation with key project stakeholders can reduce the opposition to projects further down the line and thereby avoid incurring additional costs that opposing appeals, for example, can generate.

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Steer Davies Gleave (2008), *Northern Line Extension to Battersea and Nine Elms: Feasibility Study and Business Case Methodology- Final Report*, Report prepared for REO (Power Station) Ltd.

Steer Davies Gleave (2010), *Northern Line Extension Options - Multi-criteria Assessment of Route Options*, Report prepared for Treasury Holdings UK Ltd, Battersea Power Station.

Transport for London (2012a), *Factsheet 1: Temporary shaft site at Radcot Street*.

Transport for London (2012b), *Factsheet 2: Temporary shaft site at Harmsworth Street*.

Transport for London (2012c), *Factsheet 3: Permanent shaft at Kennington Green*.

Transport for London (2012d), *Factsheet 4: Permanent shaft at Kennington Park*.

Transport for London (2012e), *Factsheet 5: New station at Nine Elms*.

Transport for London (2012f), *Factsheet 6: New station at Battersea Power Station*.

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Transport for London (2013d), *Transport and Works Act Order Application - London Underground (Northern Line Extension) - Funding Statement*

Transport for London (2013), *Northern Line Extension Environmental Statement.*

Volterra Partners (2012), *The Wider Economic Benefits of the Northern Line Extension in the Vauxhall, Nine Elms, Battersea Opportunity Area.*

Appendix 1: List of technical documents on NLE Reviewed for OMEGA IUK NLE Report

- Steer Davies Gleave (2008), *Nine Elms and North East Battersea: Feasibility Study and Business Cases for Tram and Tube Options*.

This study presents the Preliminary Business Case and Engineering Feasibility Study for tram and tube options. This study concludes that an extension of the Northern Line (Charing Cross Branch) from Kennington to Battersea Power Station is the only practical means of providing the required level of public transport accessibility to support both the proposed level of development of the Battersea Power Station site and high levels of development in the OA.

- Steer Davies Gleave (2008), *Northern Line Extension to Battersea and Nine Elms: Feasibility Study and Business Case Methodology- Final Report*, Report prepared for REO (Power Station) Ltd. (<http://www.steerdaviesgleave.com/sites/default/files/Northern%20Line%20Extension%20to%20Battersea%20%26%20Nine%20Elms%20-%20Feasibility%20Study%20and%20Business%20Case%20Methodology%20-%20Final%20Report1.pdf>)

This report presents a preliminary feasibility study and business case to assess three different tube extension options:

- direct to Battersea Power Station
- to Battersea Power Station via a new station in the Nine Elms area
- to Battersea Power Station via a new interchange station at Vauxhall

The feasibility study concluded that an extension is feasible and identified a range of technical issues for each options.

- Sinclair Knight Merz (2009), *Vauxhall Nine Elms Battersea - Opportunity Area Transport Study*, Transport Study Report. (<http://www.tfl.gov.uk/assets/downloads/corporate/oapf-nine-elms-transport-study.pdf>)

This report presents the findings of the Vauxhall Nine Elms Battersea Opportunity Area Planning Framework (VNEB OAPF) Transport Study, commissioned by Transport for London (TfL) to inform the development of the OAPF being led by the Greater London Authority (GLA).

In the Report the five different development scenarios identified by GLA are used as basis for identifying, modelling and testing a range of different public transport solutions, providing varying levels of transport improvement, to support the proposed intensification.

Sinclair Knight Merz concludes that:

- The three high density development scenarios would require a massive public transport improvement;
- all development scenario/transport package combinations, except those including the NLE, would result in increased public transport passenger congestion at Vauxhall and at Vauxhall Underground station, in particular;
- conversely, the NLE would provide significant relief to this congestion.

- Steer Davies Gleave (2010), *Northern Line Extension Options - Multi-criteria Assessment of Route Options*, Report prepared for Treasury Holdings UK Ltd, Battersea Power Station.

(<http://www.steerdaviesgleave.com/sites/default/files/Northern%20Line%20Extension%20to%20Battersea%20%26%20Nine%20Elms%20-%20Feasibility%20Study%20and%20Business%20Case%20Methodology%20-%20Final%20Report1.pdf>)

This report builds on the Preliminary Business Case and Engineering Feasibility Study and presents a multi-criteria framework assessment of four different tube extension options:

- direct to Battersea Power Station
- to Battersea Power Station via a new station in the Nine Elms area
- to Battersea Power Station via a new interchange station at Vauxhall
- to Battersea Power Station via a new station in the north Nine Elms

The assessment is divided into four main categories:

- Mayor's Transport Strategy priorities;
- Vauxhall, Nine Elms and Battersea Opportunity Area objectives as set out in the VNEB OAPF;
- NATA criteria and sub-criteria;
- feasibility, affordability and deliverability.

Steer Davies Gleave concludes that the option 2 is the best option on account of

- it is feasible;
- it is affordable
- it is less expensive than route 3 and 4;
- it could attract more passengers than the other routes;
- it could provide passengers with more time saving than the other routes;
- it could significantly reduce congestion at Vauxhall and on the Victoria;
- the BCR is satisfactory;
- it could achieve the objectives of the Mayor's Transport Strategy better than the other routes;
- it could perform better than the other options in terms of the NATA criteria.

- Roger Tym & Partners, Peter Brett Associates and GVA Grimley (2010), *Vauxhall Nine Elms Battersea Development Infrastructure Funding Study*.
(<http://www.lambeth.gov.uk/NR/rdonlyres/5787A725-8827-4818-8C4D-278FB7699CFA/0/VauxhallNineElmsBatterseaDevelopmentInfrastructureFundingStudyFinalReportOctober2010.pdf>)

This report investigates the social (schools, hospitals, etc.) and economic infrastructure (transport, energy, water, telecommunication networks, etc.) required to support the proposed level of new development within the OA based on preferred development capacity revised scenario 5 (high density housing with retail and office). Additionally, it tries to identify the level of contribution that can be collected from developers without jeopardising viability; how this is split between the proposed Northern Line Extension (NLE) and other infrastructure projects; the size of the potential funding gap; and how this funding gap might be addressed.

- Volterra Partners (2012), *The Wider Economic Benefits of the Northern Line Extension in the Vauxhall, Nine Elms, Battersea Opportunity Area*.
(<http://www.tfl.gov.uk/assets/downloads/corporate/volterra-nle-economic-report.pdf>)
This report draws on and extends previous transport and economic appraisal work already done regarding the development of the Vauxhall Nine Elms Battersea Opportunity Area (VNEB OA) and the need for an extension of the Northern Line (NLE) to make this possible. The report:
 - evaluates the need for regeneration and development in the VNEB area;

- considers the accessibility of the area and reviews the analysis undertaken on the NLE to enable future development;
- assesses the wider economic benefits, taxation revenues and local impacts that would be generated by the development that is enabled by the NLE.

Volterra Partners conclude that:

- the NLE could enable a further 17,000 jobs, 7,500 homes and 20,000 new residents that could not otherwise be located in the VNEB area;
- the NLE could provide an economically feasible regeneration option for Battersea Power Station as well as delivering significant other development including the New Covent Garden Market and the US Embassy, which would not otherwise be available;
- the NLE could generate wider economic benefits as well as conventional transport benefits.

- Transport for London (2012a), *Factsheet 1: Temporary shaft site at Radcot Street.*
(http://www.tfl.gov.uk/assets/downloads/corporate/24718_Factsheet1.pdf)

This paper explains the physical impacts of the proposed Northern Line Extension Project on Radcot Street to build a temporary shaft. The work should last overall 21 months. On completion of works, the site would be restored to its original state. There would be no permanent impacts

- Transport for London (2012b), *Factsheet 2: Temporary shaft site at Harmsworth Street.*
(http://www.tfl.gov.uk/assets/downloads/corporate/24718_Factsheet2.pdf)

This documents explains the physical impacts of the proposed Northern Line Extension Project on Harmsworth Street to build the other temporary shaft. Similarly to Radcot Street, even at Harmsworth Street the work should last overall 21 months. On completion of works there would be no permanent impacts

- Transport for London (2012c), *Factsheet 3: Permanent shaft at Kennington Green.*
(http://www.tfl.gov.uk/assets/downloads/corporate/24718_Factsheet3.pdf)

The document explains the physical impacts of the proposed Northern Line Extension Project on *Kennington Green* to build a permanent shaft. The shaft at Kennington Green will be underground but will require a structure on the surface (head house). The work should last approximately 2 years.

- Transport for London (2012d), *Factsheet 4: Permanent shaft at Kennington Park.*
(http://www.tfl.gov.uk/assets/downloads/corporate/24718_Factsheet4.pdf)

This paper explains the physical impacts of the proposed Northern Line Extension Project on *Kennington Park* to build the second permanent shaft. Even the shaft at Kennington Green will require a structure on the surface (head house). The construction site is likely to be required for approximately 2 years.

- Transport for London (2012e), *Factsheet 5: New station at Nine Elms.*
(http://www.tfl.gov.uk/assets/downloads/corporate/24718_Factsheet5.pdf)

As part of the Northern line extension (NLE) a new Tube station is proposed at Nine Elms. The construction impacts are presented in this document. The construction site is likely to be required for up to 4 years to build the station.

- Transport for London (2012f), *Factsheet 6: New station at Battersea Power Station*. (http://www.tfl.gov.uk/assets/downloads/corporate/24718_Factsheet6.pdf)

Another station will be constructed at Battersea and will be located within the wider planned development of the Battersea Power Station site. The station would take approximately 4 years to build. The construction impacts are presented in this document.

- Transport for London (2012g), *Factsheet 7: Temporary shafts and ground treatment works*. (http://www.tfl.gov.uk/assets/downloads/corporate/24718_Factsheet7.pdf)

This factsheet explains why ground treatment is necessary and how grout shafts will be used on the construction of the Northern line extension

- Transport for London (2012h), *Factsheet 8: Previous consultation on the Northern line extension (NLE) and our response to issues raised* (http://www.tfl.gov.uk/assets/downloads/corporate/24718_Factsheet8%281%29.pdf)

This factsheet is a summary of TfL's response to the key issues raised during the consultation on the overall proposal which took place in the summers of 2010 and 2011. The purpose of the consultations was to obtain feedbacks on the proposed route and the locations for the stations, and temporary and permanent shafts required as part of the NLE project. The main issues which were raised during the consultation concerned:

- how the proposed route options outlined in the consultations were developed;
- the location of the permanent ventilation and access shafts;
- construction impacts on the extension;
- noise and vibration impacts of operating the extension;
- the impact of the NLE on Kennington station and the Northern line, and the inclusion of a possible interchange at Vauxhall;
- a possible extension of the NL from Battersea;
- the decision to propose a Tube over other transport solutions;
- the funding of the proposed extension.

- Transport for London (2012i), *Factsheet 9: Alternative construction approach for connecting the extension to the existing Northern line and stabilising the ground*. (http://www.tfl.gov.uk/assets/downloads/corporate/24718_Factsheet9.pdf)

This factsheet points out that an alternative approach to grout shafts entailing the construction of underground 'gallery tunnels' is under exploration.

- Transport for London (2012j), *Plans to extend the Northern line to Nine Elms and Battersea - TfL's response to the updated independent technical review conducted by Ramboll on behalf of the London Borough of Lambeth*. (http://www.tfl.gov.uk/assets/downloads/corporate/24718_tfl-response-to-ramboll-report.pdf)

This documents contains the TfL's response the recommendations made by Ramboll (see Ramboll, 2012 further below). TfL points out that it is continuously working to improve the scheme design in preparation for the TWAO application, accounting responses received during the most recent consultation and considering further possibility of engagement with local groups and representatives as well as with the London Borough of Lambeth and Ramboll.

- Transport for London (2012k), *London Underground - Northern Line Extension Construction Noise and Vibration Mitigation Scheme*.
(<http://www.tfl.gov.uk/assets/downloads/corporate/Northern-line-extension-construction-noise-and-vibration-mitigation-scheme-Nov-2012.pdf>)

The purpose of this document is to explain both how the noise insulation and temporary rehousing schemes work.

- Transport for London (2012l), *London Underground - Guidelines on Ground Movement due to Tunnelling and Deep Excavations*.

This paper covers the following issues: method of assessing ground movement and associated risk; monitoring; protective works; defects surveys; repairs and listed buildings.

- Transport for London (2012m), *Noise and Vibration Asset Design Guidance*.
(https://consultations.tfl.gov.uk/tube/nle/user_uploads/noise-and-vibration-asset-design-guidance.pdf)

The purpose of this Guidance is to define noise and vibration assessment methodologies and criteria that should be used in the design of new operational assets

- Transport for London (2012n), *The Northern Line Extension - Purchase of property in cases of hardship*.
(https://consultations.tfl.gov.uk/tube/nle/user_uploads/purchase-of-property-in-cases-of-hardship-policy-nov-2012.pdf)

This paper explains TfL's policy on the discretionary purchase of properties in cases of hardship arising in consequence of its proposals to extend the NL to Battersea. This policy is referred to as the Hardship Policy.

- Transport for London (2012o), *Autumn 2012 consultation on the NLE - Our response to key issues raised*.
(http://www.tfl.gov.uk/assets/downloads/corporate/24718_Our_response_to_key_issues_raised.Autumn_2012_NLE_consultation.pdf)

This report is a summary of TfL's response to the key issues raised during the autumn 2012 NLE consultation. The key issues raised in the consultation focused around the following themes:

- capacity of the Northern line and especially Kennington station and future service levels on the Northern line;
- Noise and vibration levels once the NLE will be in operation;
- The location and design of the permanent shaft and head house at Kennington Park;
- The potential effects of settlement to buildings situated above the new tunnels;
- Noise and traffic during construction;
- Requests for further investigation and consideration of the wider transport needs and alternative transport solutions to the NLE and alternative route suggestions;
- Concerns about the consultation process;
- Concerns about the funding of the scheme and the potential use of public money.

- Lambeth Council (2012a), *Northern Line Extension*, Report to Cabinet 16 January 2012 (<http://www.lambeth.gov.uk/moderngov/documents/s39771/2a%20-%20Northern%20Line%20Report.pdf>)

This report is a summary of meeting on the Northern Line Extension project held by The Cabinet Member for Regeneration, Planning and Strategic Transport on the 16th of January 2012. The Cabinet supported the route option from Kennington to Battersea Power Station with a mid-station at Nine Elms (on account of this was the only solution able to deliver this level of public transport capacity) but required more analysis and consultation with residents.

- Lambeth Council (2012b), *Vauxhall Area: statement of principles, emerging issues and Development Infrastructure Funding Study*, Report to Cabinet 16 January 2012 (<http://www.lambeth.gov.uk/moderngov/documents/s39775/3a%20-%20Vauxhall%20Area%20Report.pdf>)

This report provides guidance on the development of the Vauxhall area and calls for a revision of the Council's Supplementary Planning Document (SPD) for Vauxhall in the light of the changing circumstances and the increasing development pressure in the area.

- Lambeth Council (2012c), *Proposal for a Northern Line Extension to Nine Elms & Battersea* (<http://www.lambeth.gov.uk/moderngov/mgConvert2PDF.aspx?ID=24012>)

This document describes the main features of the NLE project and the potential benefit that it can bring to the VNEB OA.

- Ramboll (2012), *Northern Line Extension to Battersea Independent Technical Review*, Report prepared for London Borough of Lambeth. (http://www.lambeth.gov.uk/NR/rdonlyres/48BED646-0E87-4956-96BA-5F6F06013377/0/2013022820776GDDRRambollI023_Full.pdf)

This report depicts a multidisciplinary review of the information that has been prepared by specialist consultants to inform the choice of preferred route for the extension of the NL. It includes also recommendations relates to the additional work that, according to Ramboll, TfL and their designers should undertake.

- Accent Market Research (2013), *Proposed Northern Line Extension Consultation Analysis - Consultation undertaken 7 November to 30 December 2012*, Report Prepared by Accent Market Research for Transport for London (http://www.tfl.gov.uk/assets/downloads/corporate/24718_ACCENT_REPORT_-_FINAL.pdf)

This report analyses responses to the consultation on the overall proposal which took place between 7 November and 30 December 2012 as part of TfL's wider engagement with stakeholders, interest groups, residents and members of the public which has helped to develop and inform the proposed scheme.

The consultation, which was based on a questionnaire consisting of 13 questions, aimed at informing all the interested parties about the proposed scheme as well as obtaining a feedback from the public on the project. Almost all respondents responded to the consultation as an individual.

In general there seem to be a good support for the NLE scheme (48% of the 2,908 comments which were made turn out to be positive, 26% were negative and 26% were neutral). Even the

construction works at the various sites and the proposed stations and shafts received more positive comments than negative ones.

Amongst the issues which were raised there were

- the necessity for a better connection between the new stations and the other public transport links (e.g. future train services from/to the Battersea station);
 - the request for a further extension of the line;
 - the suggestions of different routes and location for the stations;
 - concerns about the construction impacts as well as about noise and vibrations from the trains once the extension will be in operation.
- Transport for London (2013), *Plans to extend the Northern line to Nine Elms and Battersea (NLE) - A report on the 2012 consultation to extend the Northern line.*
(http://www.tfl.gov.uk/assets/downloads/corporate/24718_A_report_on_the_2012_consultation_to_extend_the_NLE_-_FINAL.pdf)

This report summarizes the main features of the consultation on the overall proposal which took place between 7 November and 30 December 2012

- Transport for London (2013), *Transport and Works Act Order Application - London Underground (Northern Line Extension) Order, Supporting Statement.*
(http://www.tfl.gov.uk/assets/downloads/corporate/NLE_TWA_TWA_Supporting_Statement_A6.PDF)

This document contains a summary of the case that supports TfL's TWAO application and has been produced to accompany the application and aid understanding of the NLE project.

- Transport for London (2013), *Northern Line Extension (NLE) Transport and Works Act Order Application - A report on consultation.*
(http://www.tfl.gov.uk/assets/downloads/corporate/NLE_TWA_TWA_Consultation_Report_A7.pdf)

This document provides a summary of consultations undertaken to inform the final proposals for the NLE proposals, the key issue raised during the processes and the key amendments and additional design and feasibility work undertaken in response to consultation feedback.

- Transport for London (2013), *Transport and Works Act Order Application - London Underground (Northern Line Extension) - Funding Statement*
(http://www.tfl.gov.uk/assets/downloads/corporate/NLE_TWA_TWA_Funding_Statement_A9.PDF)

This report contains information on the funding and financing mechanisms of the NLE project,

- Transport for London (2013), *Northern Line Extension Environmental Statement.*
(<http://www.tfl.gov.uk/assets/downloads/corporate/nle-twa-environmental-statement-volume-1-main-report-chapters-1-2-a17-1a.pdf>)

The Environmental Statement forms part of the 'Statement of Environmental Information' required to support the Transport and Works Act Order (TWAO) application for the proposed Northern Line Extension (NLE). This document:

- presents an overview of the NLE, describing the different route options that has been initially proposed, outlining the key components of the chosen route and the main reasons for the choices made;
- identifies the relationship between the NLE and the Vauxhall Nine Elms Battersea Opportunity Area Planning Framework as well as the other relevant policies at national, regional and local levels;
- assesses the likely significant environmental effects of the proposed NLE on the OA;
- illustrates the overall effects that may result from the demolition, construction and operation of the NLE
- selects opportune mitigation measures and defines the potential residual effects of the NLE, namely those effects that remain following the implementation of mitigation measures relate to each of the key phases.
- Finally, it presents the overall conclusions of the EIA process.

The report acknowledges that some adverse effects will be experienced during the demolition and construction phase of the NLE. However, it points out that the adverse effects anticipated to arise will be managed and reduced to residual effects of negligible or minor significance through the implementation of mitigation measures.

Appendix 2: List of Policy Documents Reviewed for OMEGA IUK NLE Report

National Policy

- Department for Communities and Local Government (2012), *National Planning Policy Framework*
(<https://www.gov.uk/government/publications/national-planning-policy-framework-2>)

The National Planning Policy Framework aims at integrating and consolidating the policies defined in the previously issued documents called Planning Policy Statements and Planning Policy Guidance Notes.

The Framework sets out planning policies for England and how they are expected to be applied. It provides guidance for local planning authorities and decision-takers, both in drawing up plans and making decisions about planning applications.

The underlining purpose of the National Planning Policy Framework is to contribute to the achievement of sustainable development. The documents, in fact, encourages local planning authorities to pursue the development needs (in terms of homes, jobs and infrastructures) in a way which is consistent with the principles of sustainable development.

- HM Treasury (2011), *Autumn Statement*.
(http://www.hm-treasury.gov.uk/as2011_index.htm)

The Autumn Statement provides an update on the government's plans for the economy based on the latest forecasts from the Office for Budget Responsibility. In the *Autumn Statement 2011* Government supports the NLE project with a commitment to create an enterprise zone for the VNEB area.

- HM Treasury (2012), *Autumn Statement*.
(<https://www.gov.uk/government/topical-events/autumn-statement-2012>)

In the *Autumn Statement 2012* the government sets out specific actions in three key areas: protecting the economy, economic growth, and fairness. The Government confirmed that up to £1bn of borrowing from the Public Works Loan Board would be available to the Greater London Authority (GLA) to finance the construction of the NLE.

- Department of Energy & Climate Change (2008), *Climate Change Act 2008*.
(<http://www.legislation.gov.uk/ukpga/2008/27/contents>)

The ACT aims to enable the United Kingdom to become a low-carbon economy. An independent Committee on Climate Change has been created under the Act to provide advice to UK Government on these targets and related policies.

- Department of Energy & Climate Change (2011), *Carbon Plan*.

(<https://www.gov.uk/government/publications/the-carbon-plan-reducing-greenhouse-gas-emissions--2>)

The government drew up the Carbon Plan in December 2011, to move the UK to a low carbon future in order to meet the Climate Change Act targets. This plan sets out how the UK will achieve decarbonization making the transition to a low carbon economy while maintaining energy security, and minimizing costs to consumers.

- Department for Transport (2010), *White Paper: Creating Growth, Cutting Carbon - Making Sustainable Local Transport Happen*. (<https://www.gov.uk/government/publications/creating-growth-cutting-carbon-making-sustainable-local-transport-happen>)

This White Paper forms part of the overall UK strategy to tackle carbon emissions from transport. With this document the Department for Transport seeks to encourage sustainable local travel and economic growth by making public transport and cycling and walking more attractive and effective, promoting lower carbon transport and tackling local road congestion. The document aims to provide practical guidance and examples of some of the ways in which local authorities can and are dealing with the transport issues in their areas. It also set out how central Government will provide practical support in this endeavor

- HM Treasury - Infrastructure UK (2010), *Strategy for national infrastructure*. (http://www.direct.gov.uk/prod_consum_dg/groups/dg_digitalassets/@dg/@en/documents/digitalasset/dg_186451.pdf)

This strategy is a first step towards providing a more integrated approach to infrastructure development across the five sectors and networks that directly contribute to economic growth (energy, transport, water, waste and communications). Infrastructure UK has three key objectives:

- enabling long term investment by establishing a Green Investment Bank (GIB) operating on a commercial basis, involving both public and private sector capital;
 - ensuring effective long term plans and priorities by developing the National Infrastructure Framework;
 - improving delivery of infrastructure by commissioning study and research.
- HM Treasury (2013), *Planning for economic infrastructure* (<http://www.nao.org.uk/report/hm-treasury-planning-for-economic-infrastructure/>)

This report examines government efforts to secure investment in the nation's economic infrastructure, including energy, transport, water, waste, flood defence, and communications assets.

- 2008 Planning Act (DCLG, 2008)

The Planning Act 2008 is an Act of the Parliament of the United Kingdom intended to speed up the process for approving major new infrastructure projects such as airports, roads, harbours, energy facilities such as nuclear power and waste facilities. Along with the Climate Change Bill and the Energy Bill the 2008 Planning Act was considered by the Brown administration to be one of the "three legislative pillars of the Government's strategy to secure long-term prosperity and quality of life for all"

The Act sets out which types of infrastructure can be considered as 'nationally significant infrastructure project' (NSIP). For this type of infrastructure projects the following main innovations were introduced:

- policy would be set out in advance in a series of National Policy Statements (NPSs) rather than time being taken up deciding whether a particular application was needed during its consideration;
- consultation would be required before an application was submitted, to identify issues and allow changes to be made before they were too expensive and difficult to make;
- consideration of applications would be largely done in writing, with no public inquiry, limited opportunities for hearings, and even more limited opportunities for cross-examination;
- fixed timescales would be introduced for considering applications; and
- the stage of ministerial approval of an inspector's report would be eliminated, with the examining body making the decisions

On 13 December 2010, the coalition government introduced the Localism Bill, which made changes to the regime under the Planning Act 2008. It replaced the Infrastructure Planning Commission with a Major Infrastructure Planning Unit of the Planning Inspectorate, and returned decision-making to the Secretary of State. It also allowed the House of Commons to be able to veto National Policy Statements, and made other changes to the Planning Act regime.

Regional Policy

- Mayor of London (2010), *The Mayor's Transport Strategy*
(<http://www.london.gov.uk/priorities/transport/publications/mayors-transport-strategy>)

The *Mayor's Transport Strategy* prepares for the Capital's predicted growth of 1.25 million more people and 0.75 million more jobs by 2031 and supports sustainable growth across London to facilitate this. This document highlights the importance of increasing transport accessibility, along with the need to address congestion on the central London networks. Key proposals include:

- Enhancing Tube, rail and buses;
 - Improving interchanges;
 - Reducing CO2 emissions
 - Delivering better streets and environment
 - Improving access to the transport system;
- Mayor of London (2010), *Mayor's Economic Development Strategy*
(<http://www.london.gov.uk/sites/default/files/Economic-Development-Strategy.pdf>)

This document, which together with *Transport Strategy* and the *London Plan* provides a coordinated strategy for London, confirms that investment in growth and regeneration is essential for the future of London.

- Mayor of London (2011), *The London Plan*.
(<http://www.london.gov.uk/shaping-london/london-plan/strategy/download.jsp>)

The London Plan replaced the previous strategic planning guidance for London issued by the Secretary of State and known as Regional Planning Guidance 3. The regional planning document was first published in final form on 10 February 2004. In addition to minor alterations, it was substantially revised and republished in February 2008 and again in July 2011. As of June 2012 minor alterations are being made to the plan in order to comply with the National Planning Policy Framework (Department for Communities and Local Government, 2012) and other changes in national policy.

The London Plan establishes an integrated social, economic and environmental framework for the future development of London, looking forward 15-20 years.

The plan sets out six key objectives:

- to make London capable of meeting the challenges of economic and population growth;
- to make London An internationally competitive and successful city;
- to make London a city of diverse, strong, secure and accessible neighbourhoods;
- to make London a healthier and better city for people to live in;
- to make London a city that becomes a world leader in improving the environment;
- to make London a city with an efficient and effective transport system which actively encourages more walking and cycling and makes better use of the Thames.

The London Plan supports Boroughs to prepare and implement Opportunity Area Planning Frameworks to realize their growth potential associated with existing or proposed improvement in public transport accessibility. The Mayor of London stresses, in particular, the importance of relating transport provision to spatial development (“spatial policies cannot be considered in isolation from their links to existing and proposed transport accessibility and capacity”).

Local Policy

- Greater London Authority (2009), *Vauxhall Nine Elms Battersea Opportunity Area Planning Framework*, Consultation Draft.
(http://www.wandsworth.gov.uk/downloads/download/622/vauxhall_nine_elms_battersea_opportunity_area_planning_framework)

The Opportunity Area Planning Framework (OAPF) for Vauxhall Nine Elms Battersea (VNEB) is a spatial planning document, which has been produced in partnership with the Greater London Authority (GLA), London Development Agency (LDA), Transport for London (TfL), London Boroughs (LBs) of Lambeth and Wandsworth, English Heritage, to sets out the strategic policy framework for development within the OA, articulating the key policy directions established in the new London Plan.

This framework describes the area and identifies current issues relating to the public realm, connectivity and legibility which need to be addressed. Additionally, it considers development capacity and associated social infrastructure and open space requirements. Finally, the

framework also establishes specific strategies for transportation, tall building, energy, waste, wharves and water.

- Greater London Authority (2012), *Vauxhall Nine Elms Battersea Opportunity Area Planning Framework*, Final document.
(http://www.london.gov.uk/sites/default/files/VNEB_OAPF_2012_0.pdf)

In the final version of spatial planning document GLA incorporates some amendments derived from the various consultation exercises but confirmed substantially its objective to deliver two growth poles at Battersea Power Station and Vauxhall as well as mixed use residential neighborhoods at Nine Elms and Albert Embankment. These growth poles and new neighborhoods will be connected by a strategic green link from Battersea Park to Lambeth Palace including a new linear park in the heart of Nine Elms. The new mixed use residential areas will be connected to existing communities, the riverside and the rest of London with new public transport infrastructure, cycle routes and pedestrian linkages.

- London Borough Of Lambeth (2011), Unitary Development Plan.
(<http://www.lambeth.gov.uk/NR/rdonlyres/A1D816AB-4845-4E36-B67D-E115B3B4F648/0/UnitaryDevelopmentPlanPoliciesSavedBeyond05August201018012011.pdf>)

The Unitary Development Plan seeks to achieve major change to improve the quality of life in major sites and areas such as in Streatham, Brixton, Waterloo and Vauxhall.

The main aim of the Lambeth Community Strategy is to reduce inequality in the Borough, and it seeks to address this by focusing on five key targets:

- reducing crime;
- reducing worklessness;
- improving health;
- improving education;
- improving housing and the environment;
- reducing dependence on the private car and enhancing connectivity, quality and capacity in public transport.

The Core Strategy recognizes the major opportunities for regeneration and development within the OA and supports the scale of growth identified in the then emerging OAPF, confirming that new infrastructure such as extensions to the Underground network is necessary to enable this growth.

- London Borough Of Lambeth (2013), *Lambeth Draft Local Plan*.
(<http://www.lambeth.gov.uk/Services/HousingPlanning/Planning/PlanningPolicy/LocalPlan/DraftLocalPlanConsultation.htm>)

The Draft Local Plan retains the overall spatial strategy, vision and strategic objectives of the Lambeth Core Strategy adopted in January 2011. It updates the approach to some strategic policy issues in the light of new evidence and the publication of the OAPF and adoption of the London Plan.

The Draft Local Plan notes that the VNEB OA presents “the most significant potential for commercial development and jobs growth in the borough, alongside their potential to provide new housing”.

- London Borough of Wandsworth (2010), Local Development Framework.

(<http://www.wandsworth.gov.uk/info/856/>)

The Local Development Framework is made up of a set of development plan documents. Of these, the Core Strategy is the most important as it sets out the Council's vision and its guiding principles for planning in Wandsworth. The key strategic priorities of the Core Strategy are:

- making Wandsworth safer;
 - improving the local environment;
 - improving transport;
 - building a prosperous and vibrant community;
 - tackling worklessness;
 - ensuring that all young children and young people achieve their full potential;
 - improving health and social care;
 - meeting housing needs;
 - supporting active citizens and good neighbours;
 - mitigating climate change.
- London Borough of Wandsworth (2010), Wandsworth Site Specific Allocations Document.

The Council's Site Specific Allocations Document sets out the main sites where development or other change is anticipated in the borough, where the Council has particular objectives or is supporting or promoting specific proposals. It shows development sites which will contribute to achieving the objectives of the Core Strategy. It identifies the VNEB area as a priority area for growth.

- London Borough of Southwark (2011), *Local Development Scheme*.
(http://www.southwark.gov.uk/info/856/planning_policy)

In line with the London Plan the Core Strategy of the London Borough of Southwark seeks to support sustainable transport and recognizes the need to increase the capacity, quality and integration of public transport as a coordinated network.

The Planning and Compulsory Purchase Act 2004 requires local planning authorities to produce a Local Development Framework (LDF), setting out a spatial strategy and policies and proposals for the development and other use of land within their borough. The LDF is made up of a set of Development Plan Documents. The Core Strategy is the most important of these documents as it sets out the Council's vision and guiding principles for planning in Wandsworth. Wandsworth's Core Strategy was found sound by the Planning Inspectorate in June 2010 and was formally adopted in October 2010.

Appendix 3: NLE Project Timeline

Date	Activity	Notes
Summer 2008	Consultation on the Battersea Power Station redevelopment project held by Treasury Holdings UK	Support for the plan to extend the Northern line from Kennington to a new station in Battersea.
2008	Steer Davies Gleave undertakes a preliminary <i>Feasibility Study and Business Case for the NLE</i>	Steer Davies Gleave concludes that an extension of the NL is feasible and, amongst different public transport initiatives, it would be the best practical means for creating the level of accessibility required to unlock the development aspirations;
May 2010	Adoption of the <i>Mayor's Transport Strategy</i> and the <i>Mayor's Economic Development Strategy</i> after a consultation process started in 2009	The Mayor's visions support the NLE project as means to promote the regeneration of the Vauxhall/ Nine Elms/Battersea area
Summer 2010	Public consultation on preferences for 4 potential routes for the NLE held by Treasury Holdings UK	Overall more than 60% of respondents supported an extension of the NL to Battersea with a new station at Nine Elms. This option was also supported by a study undertaken by Steer Davies Gleave (2010) on the basis of a multi-criteria assessment of the four different route options
Summer 2011	NLE consultation on the proposed route, station and permanent shaft locations	Strong support for route from Kennington to Battersea with a new station at Nine Elms.
July 2011	Adoption of the <i>London Plan</i> after a consultation process started in 2010	The London Plan provides policy support for both the planned growth in the Vauxhall Nine Elms Battersea (VNEB) Opportunity Area and the NLE.
2011	<i>Publication of the Autumn Statement 2011</i>	Government supports the NLE project
Late 2011	Treasury Holdings went into administration	in late 2011 and the project promotion was taken over by TfL with partial funding to be provided by the new owners of Battersea Power Station

March 2012	Adoption of the Vauxhall Nine Elms Opportunity Area Planning Framework after a consultation process started in 2009	The framework includes a proposal for an extension to the Northern line from Kennington to Battersea via Nine Elms on the basis of a <i>Transport Study</i> carried out by Sinclair Knight Merz in 2009
Autumn 2012	consultation - full scheme proposals and key sites	the main comment made by almost half of respondents, was the extension was an idea that they supported
2012	<i>Publication of the Autumn Statement 2012</i>	Government confirms support to the NLE project
April 2013	TfL submits its application for a Transport and Works Act Order	The TWAO application marks the start of a statutory consultation period ending on 18th June 2013, during which comments (positive or negative) on the NLE proposal may be submit to the Secretary of State for Transport
2014	Possible final decision on TWAO application	
2015	Possible commencement of the works	
2020	Possible conclusion of the works	

Appendix 4: Statutory Consultations as per TWA Consultation Report (30th April, 2013)

Statutory Consultees	Rule 13, Schedule 5 category reference	Rule 14, Schedule 6 category reference	Consultation
The Crown Estate Commissioners	1	2	Emails sent June 2012 (briefing offered) and November 2012 Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
The Trinity House	1		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
The Environment Agency South East Region	1, 2, 5, 6, 20	5, 9	Emails sent June 2012 (briefing offered) and November 2012 Meeting held in March 2013 Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
Secretary of State for Environment, Food and Rural Affairs – For the attention of the Marine Management Organisation	1, 5		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
Secretary of State for Transport — For the attention of the Maritime and Coastguard Agency	1		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
Port of London Authority	2, 7	4, 9	Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans

Statutory Consultees	Rule 13, Schedule 5 category reference	Rule 14, Schedule 6 category reference	Consultation
London Borough of Lambeth	9, 11	6	Ongoing liaison and meetings throughout 2012 and 2013 Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
London Borough of Southwark	9, 11	6	Ongoing liaison and meetings throughout 2012 and 2013 Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
London Borough of Wandsworth	9, 11	6	Ongoing liaison and meetings throughout 2012 and 2013 Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
Highways Agency		6	Emails sent June 2012 (briefing offered) and November 2012 Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
A & N Media Services Limited	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans. Stakeholder responded to confirm that their apparatus is not affected.
Battersea Power Station Development Company Limited	12		Written to c/o Clifford Chance Solicitors in March 2013 with copies of Draft Order and draft Deposited Order Plans
British Gas Services Limited	12		Written to in March 2013 with copies of Draft Order and draft Deposited

Statutory Consultees	Rule 13, Schedule 5 category reference	Rule 14, Schedule 6 category reference	Consultation
British Telecommunications plc	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
BSKYB Telecommunications Services Ltd	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans Stakeholder responded to confirm that their apparatus is not affected.
Cable & Wireless Communications Plc	12		Written to in March 2013 with copies of Draft Order and draft Order Deposited Plans
Cable & Wireless UK Services Limited	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
CBS Outdoor Limited	12		Written to in March 2013 with copies of Draft Order and draft Order Deposited Plans
Clear Channel UK Limited	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
Colt Technology Services Group Limited	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
Colt Telecommunications	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
E.S. Pipelines Limited	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans Stakeholder responded to confirm that their apparatus is not affected.

Statutory Consultees	Rule 13, Schedule 5 category reference	Rule 14, Schedule 6 category reference	Consultation
Eastern Power Networks	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
Easynet Limited	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
Electricity North West Limited	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans Stakeholder responded to confirm that their apparatus is not affected.
Everything Everywhere Limited	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
Fibernet UK Ltd	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
Gamma Telecom Limited	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
Geo Networks Limited	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans Stakeholder responded to confirm that their apparatus is not affected.
Global Crossing (UK) Ltd	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
Global Crossing (UK) PEC	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
Global Crossing (UK) Telecommunications Ltd	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans

Statutory Consultees	Rule 13, Schedule 5 category reference	Rule 14, Schedule 6 category reference	Consultation
Hutchison 3G UK Limited	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans Stakeholder responded to confirm that their apparatus is not affected.
Independent Pipelines Limited	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
JC Decaux Limited	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
Kcom Group plc	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
Level 3 Communications	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
London Power Networks	12		Email sent in November 2012 Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
National Grid Electricity Transmission plc	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
National Grid Gas PLC	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
National Grid PLC	12		Regular discussion and engagement, correspondence etc. including meetings held in April 2012 and March 2013 and emails sent June 2012 (briefing offered) and November 2012 Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans

Statutory Consultees	Rule 13, Schedule 5 category reference	Rule 14, Schedule 6 category reference	Consultation
Network Rail Infrastructure Limited	12		<p>Emails sent June 2012 (briefing offered) and November 2012</p> <p>A number of meetings held in 2013</p> <p>Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans</p>
Northern Gas Networks	12		<p>Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans</p> <p>Stakeholder responded to confirm that their apparatus is not affected.</p>
Npower Limited	12		<p>Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans</p>
Ocean Outdoor UK Limited	12		<p>Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans</p> <p>Stakeholder responded to confirm that their apparatus is not affected.</p>
Primesight Limited	12		<p>Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans</p>
Reach Active (contracted by InterRoute)	12		<p>Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans</p>
Royal Mail	12	13	<p>Regular discussion and engagement including emails sent June 2012 (briefing offered) and November 2012</p> <p>Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans</p>

Statutory Consultees	Rule 13, Schedule 5 category reference	Rule 14, Schedule 6 category reference	Consultation
Scotia Gas Networks Limited	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
Scottish and Southern Energy Power Distribution	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans Stakeholder responded to confirm that their apparatus is not affected.
Southern Gas Networks	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
Spectrum Interactive Plc	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
Telefonica UK Limited	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
Thames Water Utilities Limited	12		Meetings held throughout 2012 and 2013 Emails sent June 2012 (briefing offered) and November 2012 Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
The Gas Transportation Company Limited	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
UK Power Networks Holdings Limited (formerly EDF Energy Networks)	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
Utility Assets Limited	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans

Statutory Consultees	Rule 13, Schedule 5 category reference	Rule 14, Schedule 6 category reference	Consultation
Verizon Global Solutions UK Limited	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
Virgin Media Limited	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
Vodafone Limited	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
Airwave Solutions Limited	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
Orange Personal Communication Services Ltd	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
T-Mobile	12		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans Stakeholder responded to confirm that their apparatus is not affected.
English Heritage (officially known as The Historic Buildings and Monuments Commission for England)	14, 15, 16	9	Emails sent June 2012 (briefing offered) and November 2012 Meeting held in March 2013 Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
London TravelWatch	23		Emails sent June 2012 (briefing offered) and November 2012 Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
Passenger Focus	23		Email sent in November 2012 Written to in March 2013 with copies

Statutory Consultees	Rule 13, Schedule 5 category reference	Rule 14, Schedule 6 category reference	Consultation
			of Draft Order and draft Deposited Order Plans
Her Majesty's Railway Inspectorate	24		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
The Office of Rail Regulation	25		Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
Duchy of Cornwall	27		Discussion during 2013 including a meeting held in June 2012 Email sent November 2012 Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
Mayor of London	28		Written to in March 2013 with copies of Draft Order and draft Order Deposited Plans
Natural England (formerly English Nature)		1, 2	Emails sent June 2012 (briefing offered) and November 2012 Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
The Theatres Trust		8	Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
Covent Garden Market Authority		9	Detailed liaison and correspondence ongoing consultation/discussion in 2012 – 2013 Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
Marine Management Organisation		9	Written to in March 2013 with copies of Draft Order and draft Deposited

Statutory Consultees	Rule 13, Schedule 5 category reference	Rule 14, Schedule 6 category reference	Consultation
Open Spaces Society		9	Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
The Georgian Society		9	Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
London Parks & Gardens Trust		9	Written to in March 2013 with copies of Draft Order and draft Order Deposited Plans
The Victorian Society		9	Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
The Kennington Association		9	Emails sent June 2012 (briefing offered) and November 2012 Meeting held in January 2013 Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
The Heart of Kennington Residents' Association		9	Meetings throughout 2011, 2012 and 2013 Emails sent June 2012 (briefing offered) and November 2012 Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
The Vauxhall Society		9	Emails sent June 2012 (briefing offered) and November 2012 Meeting held October 2012 Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans

Statutory Consultees	Rule 13, Schedule 5 category reference	Rule 14, Schedule 6 category reference	Consultation
London Fire and Emergency Planning Authority		11	Emails sent June 2012 (briefing offered) and November 2012 Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
Mayor's Office for Policing and Crime (formerly the Metropolitan Police Authority)		11	Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans
The Design Council (formerly The Commission for Architecture and the Built Environment)		15	Written to in March 2013 with copies of Draft Order and draft Deposited Order Plans

Appendix 5: Table to Outline Stakeholder Engagement through the Development of NLE proposals (TWA Consultation Report – 30th April 2013)

Stakeholder	Notified of updates, correspondence and consultations	Meetings/ Correspondence	Key Discussion points
Albert Square Conservation Area	Yes		
Ashmole Estate (Metropolitan Housing Trust)	Yes	Meeting in March 2011	Location of permanent shafts; construction impacts, noise and vibration.
Ashmole TRA	Yes		
Battersea Society	Yes		
Bee Urban	Yes	A series of meetings held between February 2012 and April 2013	Design of the head house and community facilities and the temporary relocation of Bee Urban's operations to alternative accommodation in the park whilst construction of the NLE is undertaken.
Bolney Meadow TRA	Yes		
China Walk	Yes		
Claylands Green NLE Action Group	Yes	Meetings and correspondence in 2012 and 2013 Participated in Lambeth Overview and Scrutiny meeting where TfL responded to questions on the NLE – March 2013	A range of issues including the location of the permanent shaft at Claylands Rd, noise & vibration, consultation, impact of the NLE on the NL and Kennington station, funding.
Cleaver Square Residents Association	Yes	Meetings and correspondence in 2011, 2012 and 2013.	Location of temporary worksites, construction impacts. Reinstatement of Kennington Green, impact of the NLE on crowding at Kennington station, zoning of Kennington station.

Stakeholder	Notified of updates, correspondence and consultations	Meetings/ Correspondence	Key Discussion points
Deanery of Southwark and Newington, St Paul, St Agnes and St Mary	Yes	Correspondence and attendance at NLE exhibition	Kennington station
De Laune Street Residents Association	Yes	Meeting in November 2011	Temporary shafts, construction impacts
Edible Lambeth	Yes		Location of the permanent shaft (head house) in Kennington Park and the provision of community facilities.
Fentiman Road NLE Action Group	Yes	Meetings in 2011 and February 2013	Noise and vibration, settlement, NL and Kennington station, alternative route alignment, funding of the NLE, noise and traffic disruption during construction
Fentiman Road, Richbourne Terrace and Dorset Road Residents' Association	Yes	Participated in Lambeth Overview and Scrutiny meeting where TfL responded to questions on the NLE – March 2013	Transport routes, noise and traffic disruption during construction and noise levels relating the operational railway.
Fentiman/Dorset Residents	Yes		Settlement, noise and vibration.
Friends of Archbishop's Park	Yes		
Friends of Kennington Park	Yes	A series of meetings and correspondence in 2011, 2012 and 2013	Route options, locations of shafts, consultation feedback for Kennington Park and design treatments for Kennington Park, temporary relocation of community facilities and the dog walking area within Kennington Park.
Friends of Tate South Lambeth Library	Yes		
Friends of Vauxhall Park	Yes	Participated in Lambeth Overview and Scrutiny meeting where TfL responded to questions on the NLE – March 2013	

Stakeholder	Notified of updates, correspondence and consultations	Meetings/ Correspondence	Key Discussion points
Friends of Vauxhall Pleasure Gardens	Yes		
Hannover Gardens Group	Yes	Correspondence in 2012 Participated in Lambeth Overview and Scrutiny meeting where TfL responded to questions on the NLE – March 2013	Transport needs analysis, congestion at Kennington station and on Northern line, noise and vibration
Harmsworth Street Action Group	Yes	Correspondence 2012 and 2013 and attendance at 2012 and 2013 drop in events	Temporary shafts, Noise, disruption, construction traffic, compensation, ground water.
Heart of Kennington Residents Association	Yes	A series of meetings and correspondence in in 2011, 2012 and 2013	Route options & locations of ventilation & access shafts, temporary shaft options, reinstatement of Kennington Green, gallery tunnels, traffic and parking, noise and vibration, compensation
Hemans Estate	Yes		
KASSN	Yes		
Kennington Association	Yes	Representatives attended meeting about the reinstatement of Kennington Green in January 2013	Consideration of transport needs, using existing national rail infrastructure into Waterloo or Victoria, providing a tram link, financing and funding, consultation process, capacity of Kennington station, reinstatement of Kennington Green.
Kennington Green Residents		A series of meetings in 2012 and 2013	The design of the head house at Kennington Green, design and reinstatement of Kennington Green following construction.
Kennington Oval & Vauxhall Forum	Yes	Meeting held in June 2011	Route options & locations of ventilation & access shafts
Kennington Park Estate Board	Yes		

Stakeholder	Notified of updates, correspondence and consultations	Meetings/ Correspondence	Key Discussion points
Kennington Park Neighbourhood Action Group	Yes	A series of meetings and correspondence in 2011, 2012 and 2013	Alternative shaft locations in the Kennington Park area, construction impacts, impact on Kennington station, concerns about the consultation process for the permanent shaft locations, design of the shaft and community space at Kennington Park
Kennington Park TRA	Yes		
Kennington People on Bikes	Yes		
Kings College Hospital Foundation Trust	Yes		Suggested extension of the northern line along the A23 to Streatham
Lambeth and Southwark Housing Association	Yes		Location of permanent shaft at Kennington Park and the design of the head house, preservation of bee keeping facilities.
Lambeth Community Forum		Meeting in May 2011	
Lambeth Towers and Lambeth Road TRA	Yes		
Lansdowne Residents' Association	Yes		Proposed extension of the Northern line, suggested alternative routes and funding.
Larkhall Triangle Residents	Yes		
LB Wandsworth Local Community Group		Meeting in March 2011	Route options & locations of ventilation & access shafts
Life Tabernacle Church	Yes		No issues raised
Manor of Kennington Residents Association	Yes		
Mawbey Brough TRA	Yes		
Metropolitan Housing Trust	Yes	Meetings and correspondence in 2011 and 2012	Route options & locations of ventilation & access shafts
North Lambeth Area Housing Forum	Yes		
Oval Partnership	Yes	Meetings and correspondence in May 2011	Route options & locations of ventilation & access shafts

Stakeholder	Notified of updates, correspondence and consultations	Meetings/ Correspondence	Key Discussion points
Portuguese Community (Centre)/Paolp News	Yes		
Radcot/ Ravensdon/ Stannary Residents	Yes	Meetings in August 2011 and February 2013 (coordinated by Heart of Kennington RA)	Temporary shaft options
Salter Buildings Residents Company Ltd	Yes		No issues raised
Southwark and Lambeth Housing Association	Yes		
Southwark Conservation Area Advisory Group		Meeting in January 2013 and attendance at drop in event	Input into the design considerations for Kennington Park
Southwark PTCF		Meeting in June 2011	
St Ann and All Saints Church	Yes		No issues raised
Battersea residents		Meeting in June 2011	Route options & locations of ventilation & access shafts
St George's Wharf RA	Yes		
Stockwell Park Residents Association Committee	Yes		
Stockwell Partnership	Yes		
Tenants' Council	Yes		
The Battersea Society	Yes		
The Vauxhall Society	Yes	Meeting in October 2012	Plans to extend the NLE to Nine Elms & Battersea
Tradescant Area Residents' Association	Yes		
Urban Beekeeping	Yes		NLE consultation process, noise and traffic disruption, noise and vibration when NLE is operational
Vauxhall Gardens Community Centre	Yes		
Vauxhall Gardens' Estate Residents' and Tenants' Association	Yes		
Vine Housing Co-operative	Yes		
Viva Vauxhall Residents' Association	Yes		Transport need/alternatives in the VNEB area and funding and financing.

Stakeholder	Notified of updates, correspondence and consultations	Meetings/ Correspondence	Key Discussion points
VNEB DATA	Yes	Meetings and correspondence in 2012 – 2013 including participation in Lambeth Overview and Scrutiny meeting where TfL responded to questions on the NLE – March 2013	Transport assessment and alternatives transport solutions, funding, impact on the Northern line and Kennington station
Whitgift TRA	Yes	Participated in Lambeth Overview and Scrutiny meeting where TfL responded to questions on the NLE – March 2013	
World First UK Ltd	Yes		Suggested extension of the Northern Line to Clapham Junction, the positioning of the temporary shafts, the positioning of the permanent shaft at Kennington Green.
Wyvil Estate Residents Association	Yes		
Action for Blind People	Yes		
Action on Hearing Loss (RNID)	Yes		
Advocacy in Greenwich	Yes		
Age UK London	Yes		
British Red Cross	Yes		
Camden mobility forum	Yes		
Community Transport Association	Yes		
Croydon mobility forum	Yes		
Disability Rights UK	Yes		
Disabled Persons Transport Advisory Committee - DfT	Yes		
Greater London Forum for Older People	Yes		

Stakeholder	Notified of updates, correspondence and consultations	Meetings/ Correspondence	Key Discussion points
Guide Dogs for the Blind	Yes		Location and design of the new stations
Hammersmith and Fulham Older People's Consultative Forum	Yes		
Haringey mobility forum	Yes		
Harrow Macular Disease Society	Yes		
Hillingdon mobility forum	Yes		
Hounslow mobility forum	Yes		
Inclusion London	Yes		
Independent Disability Advisory Group	Yes		
Islington mobility forum	Yes		
K&C mobility forum	Yes		
Leonard Cheshire Disability	Yes		
London Mencap	Yes		
London Visual Impairment Forum	Yes		
London Voluntary Service Council	Yes		
Mencap	Yes		
MS Society	Yes		
National Autistic Society	Yes		
NCVO	Yes		
RADAR London Access Forum	Yes		
Richmond-upon-Thames mobility forum	Yes		
RNIB	Yes		
Royal London Society for the Blind	Yes		
SCOPE	Yes		
Tower Hamlets mobility forum	Yes		
Trailblazers, Muscular Dystrophy UK	Yes		Access and accessibility
Transport for All	Yes		
Waltham Forest mobility forum	Yes		

Stakeholder	Notified of updates, correspondence and consultations	Meetings/ Correspondence	Key Discussion points
Wandsworth mobility forum	Yes		
Whizz-Kidz	Yes		
The London Borough of Lambeth	Yes	Meetings since 2011 through the development of the scheme and a regular monthly NLE borough liaison meetings in 2012 & 2013 NLE update provided at Central London sub-regional panel in December 2012	Various including noise, vibration, shaft locations design considerations for the above ground structures, Nine Elms and acquisition of land and lights at Kennington Park and Kennington Green.
The London Borough of Southwark	Yes	Meetings since 2011 through the development of the scheme. Ward member walkabout around the proposed sites for the temporary shaft in the Harmsworth St area. Regular monthly NLE borough liaison meetings in 2012 & 2013 NLE update provided at Central London sub-regional panel in December 2012	Various including zoning of Kennington station, location of the temporary shafts and settlement
The London Borough of Wandsworth	Yes	Meetings and correspondence since 2011 through the development of the scheme and a regular monthly borough liaison meetings in 2012 & 2013	Various, including funding and financing of the scheme and Nine Elms.
Westminster City Council	Yes	Meeting held in June 2012 NLE update provided at Central London sub-regional panel in December 2012	
London Borough of Camden	Yes	NLE update provided at Central London sub-regional panel December 2012	

Stakeholder	Notified of updates, correspondence and consultations	Meetings/ Correspondence	Key Discussion points
London Borough of Islington	Yes	NLE update provided at Central London sub-regional panel December 2012	
City of London	Yes	NLE update provided at Central London sub-regional panel December 2012	
Royal Borough of Kensington and Chelsea	Yes	NLE update provided at Central London sub-regional panel December 2012	
Cllr Donatus Anyanwu, Lambeth		NLE and Nine Elms Vauxhall Partnership update at Overview and Scrutiny meeting in March 2013	
Cllr. Jim Dickson, Lambeth		NLE update at Cabinet meeting in March 2013	
Cllr Jane Edbrook, Lambeth	Yes		
Cllr Alex Bigham, Lambeth	Yes		
Cllr Nigel Haselden, Lambeth	Yes		
Cllr Rachel Haywood, Lambeth		NLE update at Cabinet meeting in March 2013	
Cllr Jack Hopkins, Lambeth	Yes	NLE update at Cabinet meeting in March 2013 NLE and Nine Elms Vauxhall Partnership update at Overview and Scrutiny Committee meeting in March 2013	Alternative suggestions to the NLE
Cllr Peter Bowyer, Lambeth	Yes		
Cllr Diana Braithwaite, Lambeth	Yes		

Stakeholder	Notified of updates, correspondence and consultations	Meetings/ Correspondence	Key Discussion points
Cllr Jennifer Braithwaite, Lambeth		NLE and Nine Elms Vauxhall Partnership update at Overview and Scrutiny Committee meeting in March 2013	
Cllr Ishbel Brown, Lambeth	Yes		
Cllr Lorna Campbell, Lambeth	Yes	NLE update at Cabinet meeting 04.03.13	
Cllr Edward Davie, Lambeth		NLE and Nine Elms Vauxhall Partnership update at Overview and Scrutiny Committee meeting in March 2013	
Cllr Roger Giess		NLE and Nine Elms Vauxhall Partnership update at Overview and Scrutiny Committee meeting in March 2013	
Cllr Lib Peck, Lambeth	Yes	Quarterly NLE updates at received at Nine Elms Vauxhall Strategy Board NLE update at Cabinet meeting in March 2013. NLE and Nine Elms Vauxhall Partnership update at Overview and Scrutiny Committee meeting in March 2013	
Cllr Steve Reed, Lambeth	Yes	Correspondence in 2012 Quarterly NLE updates at received at Nine Elms Vauxhall Strategy Board	
Cllr Ashley Lumsden		NLE and Nine Elms Vauxhall	

Stakeholder	Notified of updates, correspondence and consultations	Meetings/ Correspondence	Key Discussion points
		Partnership update at Overview and Scrutiny Committee meeting in March 2013	
Cllr Mark Harrison, Lambeth	Yes	Meeting in 2012 about temporary shaft location NLE and Nine Elms Vauxhall Partnership update at Overview and Scrutiny Committee meeting in March 2013	
Cllr Stephen Morgan, Lambeth	Yes	Meetings and correspondence in 2012 & 2013 including NLE and Nine Elms Vauxhall Partnership update at Overview and Scrutiny Committee meeting in March 2013	Permanent shafts at Kennington Green and Kennington Park (location and impact), impact of the NL on Kennington Station, construction related traffic in the Radcot Street area and the opening of the two new proposed stations at Battersea and Nine Elms.
Cllr Paul McGlone, Lambeth		NLE update at Cabinet meeting in March 2013	
Cllr Jackie Meldrum, Lambeth	Yes	NLE update at Cabinet meeting in March 2013 NLE and Nine Elms Vauxhall Partnership update at Overview and Scrutiny Committee meeting in March 2013	
Cllr Sally Prentice, Lambeth		NLE update at Cabinet meeting in March 2013	
Cllr Peter Robins, Lambeth		NLE update at Cabinet meeting in March 2013	
Cllr Mike Smith, Lambeth		NLE and Nine Elms Vauxhall Partnership update	

Stakeholder	Notified of updates, correspondence and consultations	Meetings/ Correspondence	Key Discussion points
		at Overview and Scrutiny Committee meeting in March 2013	
Cllr Imogen Walker, Lambeth	Yes	NLE update at Cabinet meeting in March 2013	
Cllr Jeremy Clyne, Lambeth	Yes	NLE and Nine Elms Vauxhall Partnership update at Overview and Scrutiny Committee meeting in March 2013	Funding of the Northern Line Extension (NLE) and a suggested extension of the Northern line to Streatham.
Cllr Clare Whelan OBE, Lambeth		NLE and Nine Elms Vauxhall Partnership update at Overview and Scrutiny Committee meeting in March 2013	
Cllr Catherine Bowman, Southwark	Yes	Correspondence in March 2013 and attendance at a meeting about the permanent shaft at Kennington Park, March 2012	Extension to the existing Northern line, noise and vibration levels once the Northern Line Extension (NLE) is operational, location of permanent shaft at Kennington Park and temporary shaft at Harmsworth St, financing and funding and strategic transport planning.
Cllr Barrie Hargrove, Southwark	Yes	Correspondence	Capacity on the Northern line, the zoning of Kennington station, settlement, connecting the new tunnels to the existing loop under Kennington Park, alternative construction approach for connecting the extension to the existing Northern line.
Cllr Fiona Colley, Southwark	Yes		
Cllr Neil Coyle, Southwark	Yes		
Cllr Patrick Diamond, Southwark	Yes		
Cllr Peter John, Southwark	Yes		
Cllr Abdul Mohamed, Southwark	Yes		

Stakeholder	Notified of updates, correspondence and consultations	Meetings/ Correspondence	Key Discussion points
Cllr Ravi Govindia, Wandsworth	Yes	Correspondence and quarterly NLE updates at received at Nine Elms Vauxhall Strategy Board	
Cllr Alexander Raubitschek, Wandsworth	Yes		
Cllr James Cousins, Wandsworth	Yes		
Cllr Nick Cuff, Wandsworth	Yes		
Cllr Russell King, Wandsworth	Yes		
Cllr Jo-Anne Nadler, Wandsworth	Yes		
Cllr Nichola Nardelli, Wandsworth	Yes		
Cllr T Belton (Battersea Labour Party and Wandsworth Labour councillors)	Yes		Interchange with Battersea Park and Queenstown Road stations and the mitigation of noise and disruption during construction.
Cllr Gregory Udeh, Merton	Yes		Noise and disruption during construction
Vauxhall Liberal Democrats (Chair, George Turner)	Yes		Strategic transport planning, financing and funding, overcrowding on the Northern Line and the effect on Kennington station, route of the Northern Line
Federation of Small Businesses	Yes		
Vauxhall One Business Improvement District	Yes	Two meetings held in 2012	
Vauxhall First	Yes		
London First	Yes		
MP Moran	Yes		Potential changes to local traffic conditions as a result of the Northern Line extension.
London Chamber of Commerce and Industry	Yes		Supporting NLE extension

Stakeholder	Notified of updates, correspondence and consultations	Meetings/ Correspondence	Key Discussion points
Sainsbury's: Four Communications	Yes		
Vauxhall One and CLS Holdings	Yes		
CBI London	Yes		
Victoria Business Improvement District		Telephone conversation to discuss NLE in 2012	
Waterloo Quarter Business Improvement District		Telephone conversation to discuss NLE in 2012	
London First	Yes		
London Wide	Yes		
Bishop's House	Yes		
CBI	Yes		
South Bank Employers Group		Meeting held September 2012	
St James Group	Yes	Meeting held May 2012	
Canary Wharf Group		Meeting held June 2012	
Kate Hoey MP	Yes	Briefing provided in December 2011 Attended meeting with Claylands Road Action Group in January 2013	Capacity of the Northern line and Victoria lines, shaft locations, community engagement
Chuka Umunna MP	Yes		
Jeremy Corbyn MP	Yes		
Emily Thornbury MP	Yes		
Lynne Featherstone MP	Yes		
Mark Field MP	Yes		
Grant Schapps MP		Meeting held July 2012	
Justine Greening MP	Yes	Correspondence in April 2012	
Stephen Hammond MP	Yes		
Harriet Harman MP	Yes		
Glenda Jackson MP	Yes		
Jane Ellison MP	Yes		
Tessa Jowell MP	Yes		
Karen Buck MP	Yes		
Matthew Offord MP	Yes		
Siobhan McDonagh MP	Yes		

Stakeholder	Notified of updates, correspondence and consultations	Meetings/ Correspondence	Key Discussion points
Mike Freer MP	Yes		
Frank Dobson MP	Yes		
Sadiq Khan MP	Yes		
Simon Hughes MP	Yes	Correspondence and meeting February 2012	Capacity of the Northern line especially at Kennington station, the temporary Harmsworth Street shaft and the permanent Kennington Park
Theresa Villiers MP	Yes		
Andrew Dismore AM	Yes		
Caroline Pideon AM	Yes	Correspondence and meetings in 2011, 2012 and 2013	Transport alternatives, capacity on the Northern line and Kennington station,
Kit Malthouse AM	Yes		
Murad Qureshi AM	Yes		
Richard Tracey AM	Yes		
Valerie Shawcross AM	Yes	Correspondence in 2011, 12 and 2013 and attendance at meetings with the Claylands Green Action Group and KPNAG in 2012 and 2013. .	Battersea and Nine Elms stations, proposed tunnel routes, noise and vibration, permanent shafts, future train services, local impacts and financing and funding.
Andrew Boff AM	Yes		
Darren Johnson AM	Yes	Correspondence in 2013	Extension of the Northern line to Clapham Junction.
Gareth Bacon AM	Yes		
Jeanette Arnold AM	Yes		
Joanne McCarthy AM	Yes		
John Biggs AM	Yes		
Nicky Gaveron AM	Yes		
Steve O'Connell AM	Yes		
Tom Copley AM	Yes		
Victoria Borwick AM	Yes		
Jenny Jones AM	Yes		
Roger Evans AM	Yes		
Fiona Tywcross AM	Yes		
Stephen Knight AM	Yes		
The Environment Agency	Yes	Meetings and correspondence throughout 2012 -13	Flood risk assessments, ground water and land contamination and marine dredging.

Stakeholder	Notified of updates, correspondence and consultations	Meetings/ Correspondence	Key Discussion points
Natural England	Yes	Regular update meetings to discuss the NLE	
London TravelWatch	Yes		Kennington Green, the proposed new station in Battersea and the potential extension of the Northern line from Battersea to Clapham Junction.
Passenger Focus	Yes		
Clapham Transport Users Association	Yes	Meetings and correspondence about the NLE in 2013	Capacity on the Northern line, modelling, wider/integrated transport improvements
London Underground Railway Society	Yes	Presentation on NLE extension April 2013	
Metropolitan Police Authority	Yes		
London Fire and Emergency Planning Authority	Yes	Meetings and correspondence in 2012 & 2013	Safety requirements for the design of the NLE and location of permanent shafts and head houses
A & N Media Services Limited	Yes		
British Gas Services Limited	Yes		
British Telecommunications plc	Yes		
BSKYB Telecommunications Services Ltd	Yes		
Cable & Wireless Communications Plc	Yes		
Cable & Wireless UK Services Limited	Yes		
CBS Outdoor Limited	Yes		
Clear Channel UK Limited	Yes		
Colt Technology Services Group Limited	Yes		
Colt Telecommunications	Yes		
E.S. Pipelines Limited	Yes		
Eastern Power Networks	Yes		
Easynet Limited	Yes		
Electricity North West Limited	Yes		

Stakeholder	Notified of updates, correspondence and consultations	Meetings/ Correspondence	Key Discussion points
Everything Everywhere Limited	Yes		
Fibernet UK Ltd	Yes		
Gamma Telecom Limited	Yes		
Geo Networks Limited	Yes		
Global Crossing (UK) Ltd	Yes		
Global Crossing (UK) PEC	Yes		
Global Crossing (UK) Telecommunications Ltd	Yes		
Hutchison 3G UK Limited	Yes		
Independent Pipelines Limited	Yes		
JC Decaux Limited	Yes		
Kcom Group plc	Yes		
Level 3 Communications	Yes		
London Power Networks	Yes		
National Grid Electricity Transmission plc	Yes		
National Grid Gas PLC	Yes		
Northern Gas Networks	Yes		
Npower Limited	Yes		
Scotia Gas Networks Limited	Yes		
Scottish and Southern Energy Power Distribution	Yes		
Southern Gas Networks	Yes		
Spectrum Interactive Plc	Yes		
Telefonica UK Limited	Yes		
The Gas Transportation Company Limited	Yes		
UK Power Networks Holdings Limited (formerly EDF Energy Networks Limited)	Yes		
Utility Assets Limited	Yes		
Verizon Global Solutions UK Limited	Yes		
Virgin Media Limited	Yes		
Vodafone Limited	Yes		

Stakeholder	Notified of updates, correspondence and consultations	Meetings/ Correspondence	Key Discussion points
Airwave Solutions Limited	Yes		
Orange Personal Communication Services Ltd	Yes		
T-Mobile	Yes		
Thames Water	Yes	A series of meetings held in 2012 and 2013	Discussions around synergies between the NLE and Thames Tideway Tunnel
Banham Security	Yes	A series of meetings held between 2011-13	Impact on business operations, business continuity. Land acquisition and future development of land.
LB Lambeth (Kennington Park manager)	Yes		
Kia Oval/Surrey Cricket Club	Yes		
Royal Mail	Yes	Quarterly NLE updates at Nine Elms Vauxhall Strategy Board 2011 - 13	Future construction methodology and interfaces.
Port of London Authority	Yes	Meeting held in summer 2012	Use of the river
Chivas (Beefeater)	Yes	Regular meetings from 2011- 13	Impacts relating to the introduction of a NLE head house on their business operations and future development.
Duchy of Cornwall	Yes	Meeting and correspondence in 2012.	
Treasury Holdings	Yes	Quarterly NLE updates at Nine Elms Vauxhall Strategy Board 2011 - 12	
Covent Garden Market Authority	Yes	Regular meetings throughout 2011 -13 including quarterly NLE updates at Nine Elms Vauxhall Strategy Board	Impact on business operations, business continuity. Land acquisition and future development of land.
National Grid	Yes	Discussion and correspondence in 2012 and 2013 and quarterly NLE updates at Nine Elms Vauxhall	Potential construction interfaces between NLE and other development programmes

Stakeholder	Notified of updates, correspondence and consultations	Meetings/ Correspondence	Key Discussion points
		Strategy Board 2011 - 13	
Sainsbury's	Yes	Regular meetings throughout 2011-13 including quarterly NLE updates at Nine Elms Vauxhall Strategy Board	Construction and engineering interfaces of NLE and Sainsbury's development programmes including the temporary provision of a temporary store. Future integration of public realm.
Bishop House Nursery	Yes	Meeting held in November 2011	Location of temporary shaft sites in the Harmsworth Street area
Battersea Dogs & Cats Home	Yes	Regular meetings held throughout 2012-13	Construction interfaces, disruption to and temporary relocation of homes facilities during the NLE construction period
Network Rail Infrastructure Ltd	Yes	Meetings held in January, February and March 2013	Protection of Network Rail's assets, temporary use and permanent acquisition of land.
Ballymore	Yes	Discussion and correspondence and quarterly NLE updates at Nine Elms Vauxhall Strategy Board 2011-13	Future construction methodology and interfaces.
The Bearkley Group	Yes	Discussion and correspondence	Future construction methodology and interfaces.
Ashmole Estate Presentation	Yes	Meeting in May 2011	Route options & locations of ventilation & access shafts
Battersea Power Station Development Company		Quarterly NLE updates at received at Nine Elms Vauxhall Strategy Board 2012 - 13	Construction and delivery interfaces between projects. Construction of a new station in Battersea including access, phasing etc.
British Land		Update meeting December 2012	
Tesco	Yes	Meetings and correspondence January to March 2013	Various
US embassy	Yes	Correspondence and engagement	Various
Lambeth Estates		Meetings in February and March 2013	

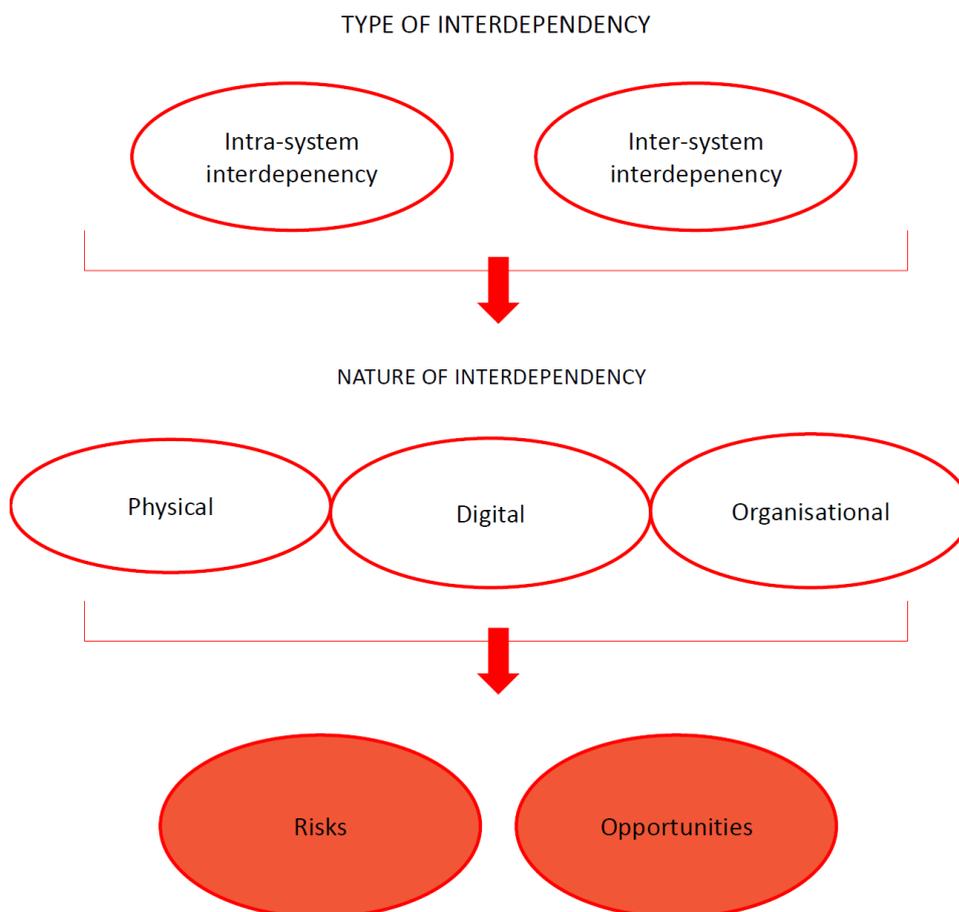
Stakeholder	Notified of updates, correspondence and consultations	Meetings/ Correspondence	Key Discussion points
CIT Developments Ltd		Quarterly NLE updates at Nine Elms Vauxhall Strategy Board 2011 - 12	
CLS Holdings		Quarterly NLE updates at Nine Elms Vauxhall Strategy Board 2012 - 13	
St Modwens		Engagement including quarterly NLE updates at Nine Elms Vauxhall Strategy Board 2012 - 13	Construction of NLE and development interfaces – linked to CGMA above.

Appendix 6: Definition and Typologies of Infrastructure Interdependency

As this report seeks to provide information to inform the development of an approach to planning and managing infrastructure interdependencies, it is important to review what is understood by the term ‘interdependency’ by the client. The HM Treasury and Infrastructure UK recognize the importance of considering different infrastructure as part of a network so as to mitigate risks and exploit all the possible opportunities generated by infrastructure interdependency.

It is in the *Frontier Economics* Report (FER) (HMT/IUK, 2012) that HM Treasury and Infrastructure UK adopt a conceptual framework to define the possible interdependency relationships between transport, energy, water, waste and flood, telecommunications infrastructure networks and related investments. The framework distinguishes between *intra-system interdependencies*, namely interdependency relations within the same infrastructure system which take place when one part of a given infrastructure network affects another part, and *inter-system interdependency*, namely interdependency relations between different infrastructure systems which take place when one form of infrastructure is able to affect one or more other infrastructure systems.

Figure 6.1 Interdependency Typology



The framework classifies the natures of both intra and inter interdependency as *physical* (tangible), *digital* (electronic or informational connections) and *organizational* (interdependency between organizations and owners of infrastructure assets) as shown in Figure 7.1 above.

The FER also illustrates six main channels through which infrastructure interdependencies are able to contribute to economic growth. According to HM Treasury and Infrastructure UK these key channels are:

- *Unlocking new investment and growth*
- *Delivering new infrastructure at lower cost*
- *Maintaining infrastructure at lower cost*
- *Sharing infrastructure*
- *Delivering a future vision*
- *Extracting value from land assets.*

Finally the FER identifies the following four strategic actions to facilitate the contribution of these interdependencies to economic growth:

- *Lowering regulatory barriers and increasing flexibility.*
- *Embedding interdependency assessment in projects.*
- *Enhancing decision-making processes*
- *Developing the evidence*