

Paper 3

Application of Policy-Led Multi-Criteria Analysis to Appraisal of the Northern Line Extension, London

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Abstract

This paper seeks to both illustrate and act as a proof of concept of how a policy-led multi-criteria analysis framework and its attendant process of the type introduced in Paper 2 can be applied to the appraisal of a mega transport project in the form of the Northern Line Extension in London. It is offered with a view to help better identify the distribution of the projects costs and benefits and shed greater light on the possible ‘winners’ and ‘losers’ over space and time, and under given scenarios.

Drawing from an extensive array of public domain literature the paper sets out both the policy and planning contexts for the project plus the business case that led to a decision by UK Treasury to guarantee a £1 billion loan to Transport for London for the construction of the Northern Line’s extension. The paper looks at the scale and nature of the megaproject’s features, particularly its line-haul and related real estate developments, especially those in the assigned development opportunity area. The text presents the policy, planning, legislative and regulative dimensions of the project likely to define its revenue generation prospects and environmental and social impacts, with special attention paid to those project outcomes affecting key stakeholders over time and space. The paper also seeks to explain the mechanics of how to employ a policy-led multi-criteria framework together with its associated processes within which stakeholder policies and agendas can be mapped and common/divergent interests identified. This is done with a view to ultimately facilitate stakeholder negotiation decision-making trade-offs in given scenarios under the policy guidance of the Greater London Authority with the support of the Treasury of the UK Government.

Key words: policy-led multi-criteria analysis, megaprojects, multi-stakeholders, sustainable development, distributional analysis

JEL: R4 D61 D63

3.1 Introduction

This final contribution to the monograph seeks to illustrate how the policy-led multi-criteria analysis (PLMCA) approach outlined in the previous paper can be applied to the appraisal of a mega transport project (MTP), using the Northern Line Extension (NLE) in London as an illustration. It does this by employing a macro perspective of the appraisal of the project of the kind most likely to be employed by a regional government body such as the Greater London Authority (GLA) with overall responsibility for the project. The PLMCA exercise is embarked upon in an effort to identify the distribution of project costs and benefits along a newly proposed transport corridor highlighting, among other things, the NLE's intra and inter-dependencies with other land uses and sectors, and the anticipated 'winners' and 'losers' of the project over space and time, and under different scenarios. The conclusions of the paper emphasise the stakeholder participatory character of the approach, highlighting how the approach applied from a multi-stakeholder perspective, as opposed to a single stakeholder standpoint. Notwithstanding the value offered by any generic design and development features of the proposed framework and its attendant processes, the authors contend that PLMCA can also be employed as a tailor-made appraisal tool offering a more client and context-specific platform for establishing beneficial trade-offs in decision-making among different project stakeholders.

Drawing from public domain literature available at the time of writing, this paper sets out the policy and planning contexts for the NLE project plus the business case that led to the decision by UK Treasury to guarantee a £1 billion loan to Transport for London (TfL, 2013) to proceed with the construction of the NLE (TfL, 2013). The discussion commences with an outline of the NLE project itself (the rail extension/line-haul section) and its related proposed real estate and associated development area. It reviews the project's contextual policy and planning frameworks affecting the project and offers an analysis of key stakeholders involved in both the rail link extension itself and related developments (both around the two proposed new stations and along the route). The paper pays particular attention to the scale and nature of the project's features, especially those in the GLA's assigned development 'opportunity areas'. It also highlights the policy, planning, legislative and regulative dimensions likely to impact on its revenue generation prospects and environmental and social outcomes. The paper in particular seeks to illustrate how a PLMCA framework and its attendant processes can be used to identify and map the most relevant policies and agendas affecting the project. This is done with a view to identifying common and divergent stakeholder interests to ultimately facilitate stakeholder trade-offs in decision-making concerning when/where it is possible and advantageous to do so by agreement/consensus of the parties involved.

3.2 The NLEA project

Research conducted by the OMEGA Centre, in particular the OMEGA 2 Project reported on earlier in this publication (see OMEGA Centre, 2012), revealed that among the most important reasons for the differing conclusions about the 'success' or otherwise of MTPs has to do with the fact that the boundaries of these projects often differ in accordance with stakeholder interests. On this basis, for multiple stakeholder analysis, attaining clarity about the agreed definition of a project is *critical* to any PLMCA exercise. For the purposes of the NLE Project, we here consider 'the megaproject' in question to be comprised of three interdependent elements (hereafter referred to as the 'NLEA Project'):

- **the rail link itself** (otherwise referred to as the 'line haul') which is the extension of the Charing Cross branch of the London Underground's Northern Line from Kennington to Battersea (see Figure 1);
- **the two new stations** at Nine Elms and at Battersea with the latter becoming the new southern terminus of the Charing Cross branch (see Figure 2), and
- **the related developments**, namely: real estate areas, socio-economic communities, and environmental development areas both around the stations and along the line-haul, with particular emphasis paid to the GLA's assigned Opportunity Area (OA), referred to as the 'Vauxhall Nine Elms Battersea Opportunity Area' (VNEBOA) (once again, see Figure 2).

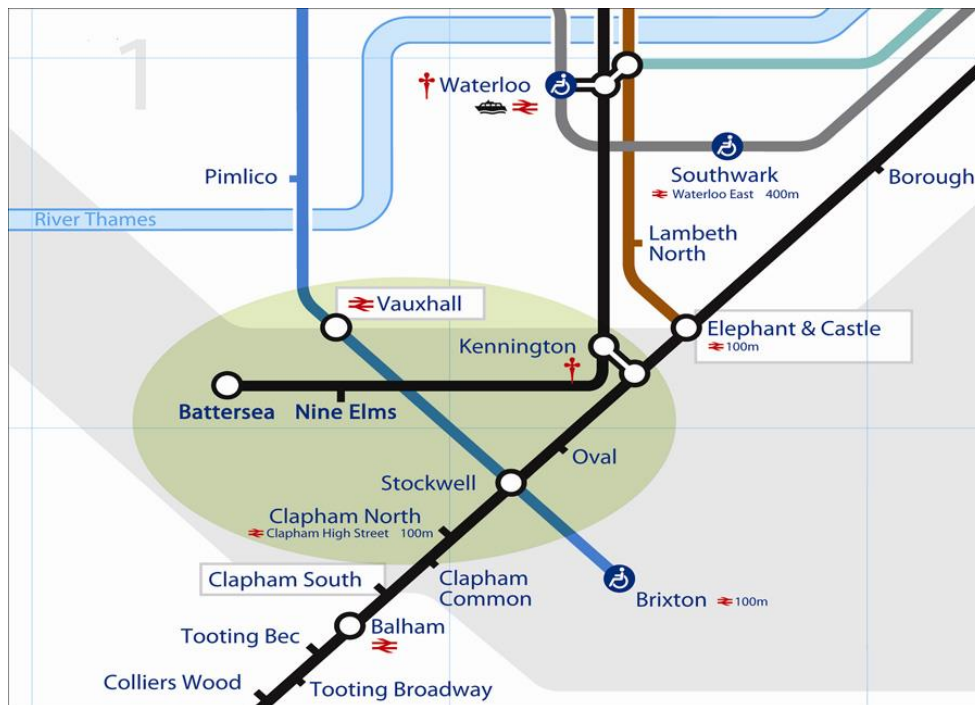


Figure 1: Proposed Extension of Charing Cross branch of Northern Line (Source: Wandsworth Council)

In contrast with the authors' project boundary definitions, the key features of the NLE megaproject as proposed by TfL include (see Figures 2 and 3):

- **the rail link extension** of the Charing Cross branch of the Northern Line from Kennington to Battersea via Nine Elms (approximately 3,150m long northbound and 3,250m long southbound);
- **a new station at Nine Elms** which is to 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.



Figure 2: Key Features of the Northern Line Extension (Source: Accent, 2013)

The story behind the project presented here is that Treasury Holdings (the former developers of the Battersea Power Station site) initially promoted the NLE project from 2007 to 2011 with support from Transport for London (TfL) with a view to enhancing the area’s public transport accessibility to the site and its surrounding areas. Treasury Holdings went into administration in late 2011, however, 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 (the Malaysian Developer *SP Setia* and conglomerate Sime Darby) (Ruddick, 2012).

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 (opening year)	16 trains per hour (tph) – approx.. 32,000 passenger (AM 3 hour peak)
Capacity in 2031 (end state)	28 tph – approx.. 60,000 passenger (AM 3 hour peak)
Passenger demand forecast in 2031	15,200 passengers

Figure 3: Key features of the NLE Project (Source: TfL, 2013)

In line with *The London Plan* (Mayor of London, 2011), the NLE project as proposed by TfL is considered to be a key element in the package of measures supporting the planned regeneration of the Vauxhall Nine Elms Battersea (VNEB) area; one of the GLA’s major Opportunity Areas (OAs) in Central London. This plan identifies the potential for a comprehensive renewal and intensification of development in

the VNEB OA to restore the degraded environment, promote the development of mixed-use residential neighbourhoods, and strengthen links with the rest of Central London (ibid, 2011). The area comprises 0.75 square miles of land to the south of the river between Chelsea and Lambeth bridges and bisected by the borough boundary between the London Borough of Lambeth and London Borough of Wandsworth (see Figure 4). The VNEB OA incorporates the sites of: Vauxhall, Nine Elms, Albert Embankment, Battersea Power Station, Stewarts Road, Patmore Estates, Spring Gardens and Queenstown Road (see Figure 5). The overall character of the OA prior to the commencement of redevelopment was predominantly industrial to the south and commercial to the north, accommodating approximately 6,500 residents and over 26,000 jobs (ibid, 2011).



Figure 4: Location of Vauxhall, Nine Elms Battersea Opportunity Area (Source: www.nineelmslondon.com, 2015)



Figure 5: Key sites within the VNEB area (Source: GLA, 2009)

Given the scale of the costs associated with the construction and delivery of the line-haul component of the project,¹ together with the costs of the range of related developments envisaged around the new stations and elsewhere within the NLE corridor (particularly in the OA), the NLE Project clearly qualifies as a megaproject as defined by Paper 1 of this monograph. This is particularly the case if one takes into account the complex dynamics associated with the development cycles of each of these project components.

As in the case of many other MTPs, it is very evident that there is a strong (and to a degree planned) inter-dependency between the NLE's infrastructure project components (i.e., the line-haul plus its stations) and the proposed related land use developments (especially in the OA). As the NLE's project infrastructure elements are positioned in relation to future visions for the development of the Battersea area by the Malaysian Developer SP Setia and conglomerate Sime Darby, the project is very much presented by its promoters (both in government and the private sector) as a transformational project (i.e., an 'agent of change') (see OMEGA, 2013). This is contended on grounds of the project's claimed ability to make significant positive contributions towards the amelioration of the prevailing social and economic challenges identified in the study area; in particular those featured in the Vauxhall

¹ According to TfL (2013) the overall project cost is £998.9m at 2012/13 prices. This includes the costs of five additional trains required to operate the service.

Nine Elms Battersea Opportunity Area Planning Framework (VNEB OAPF) developed by the GLA (GLA, 2009 and 2012). The background studies to this framework indicate that the OA (see Figure 6) 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 also negatively affects it. The area furthermore lacks open space and social infrastructure and is characterised by a high level of social deprivation possessing a relatively poor level of public transport accessibility.

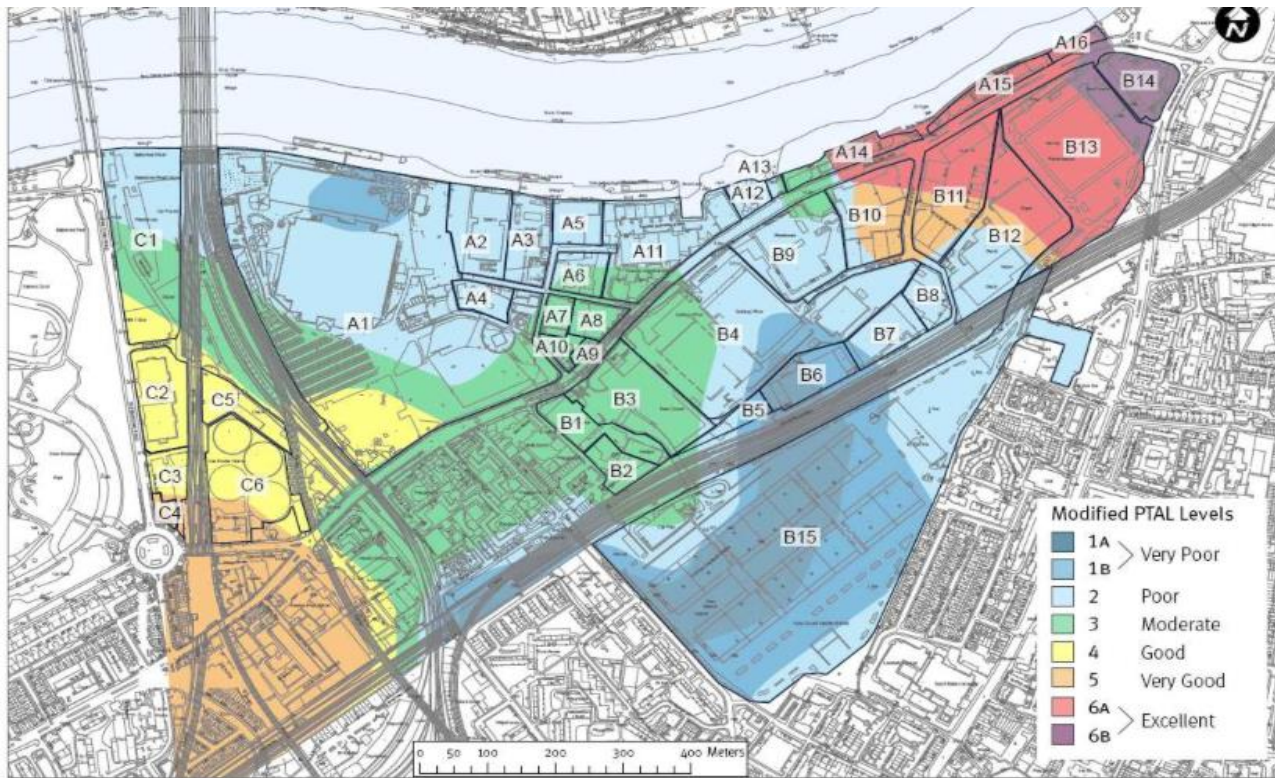


Figure 6: Existing Public Transport Accessibility Levels (PTALS) of the VNEB Area (Source: Stear Davies and Gleave, 2008).

3.4 The policy and planning background

Against the background outlined above to the NLE Project, the London Plan (Mayor of London, 2011) identifies the potential for a comprehensive renewal and intensification of the VNEB OA to restore the degraded environment and strengthen links with the rest of Central London. More specifically, the plan supports the delivery of a high density mixed land use development with 16,000 new homes and 15,000 – 20,000 new jobs through (ibid, 2011):

- the establishment of two growth poles: one at Battersea Power Station and the other at Vauxhall;
- the delivery of a new mixed use residential neighbourhood 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;
- the creation of a sustainable ‘place’ with new transport and social infrastructure, plus strategic flood mitigation measures; and

- development in the Battersea Nine Elms area of which 75% is to be in the form of new high-density mixed use neighbourhoods.

Similar development to that proposed for Battersea Nine Elms is also envisaged in the Vauxhall area in the form of tall, high-density mixed-use buildings (see Figure 7). Overall, less new development is planned in the other parts of the OA. The envisaged 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). 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.

On 30th April 2013, TfL submitted its application for a Transport and Works Act Order (TWAO), seeking permission to build and operate the rail extension. The TWAO application marked the start of a statutory consultation period (which ended on 18th June 2013), during which comments were submitted (both positive and negative) on the NLE proposal to the Secretary of State for Transport. Given the nature and number of comments received, the Secretary of State subsequently decided a public inquiry was required and appointed an inspector to hear both sides of the case and make a recommendation to either grant (with or without changes) or reject the TWAO application. The process (lasting 18 months) concluded on 12th November 2014 with the Secretary of State for Transport giving planning approval for the new line extension. By the time of writing, a funding and financing package was introduced to raise the £1 billion required. This is reliant on the GLA servicing the debt and project costs through Section 106/Community Infrastructure Levy funding and a proposed tariff on development and incremental business rates paid in the area (GLA, 2013) otherwise known as tax increment financing (TIF). The construction of the NLE Project commenced in the Spring of 2015 with the two new stations scheduled to open in 2020.

A range of studies have been undertaken to support the case for the NLE Project. These include:

- **The 2008 Steer Davies Gleave Study (SDG, 2008):** This was commissioned for TfL as a preliminary Feasibility Study. It presented a 'business case' for TfL for the project and concluded that an extension of the Northern Line is feasible and, amongst different public transport initiatives, would be the best practical means for creating the level of enhanced public transport accessibility required to unlock the development aspirations in the vicinity of the NLE.
- **The 2009 Sinclair Knight Merz Study (Sinclair Knight Merz, 2009):** Also carried out for TfL this study informed the GLA's development of the VNEB OAPF (Vauxhall, Nine Elms Battersea Opportunity Area Planning Framework). It 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 to provide the necessary levels of accessibility.

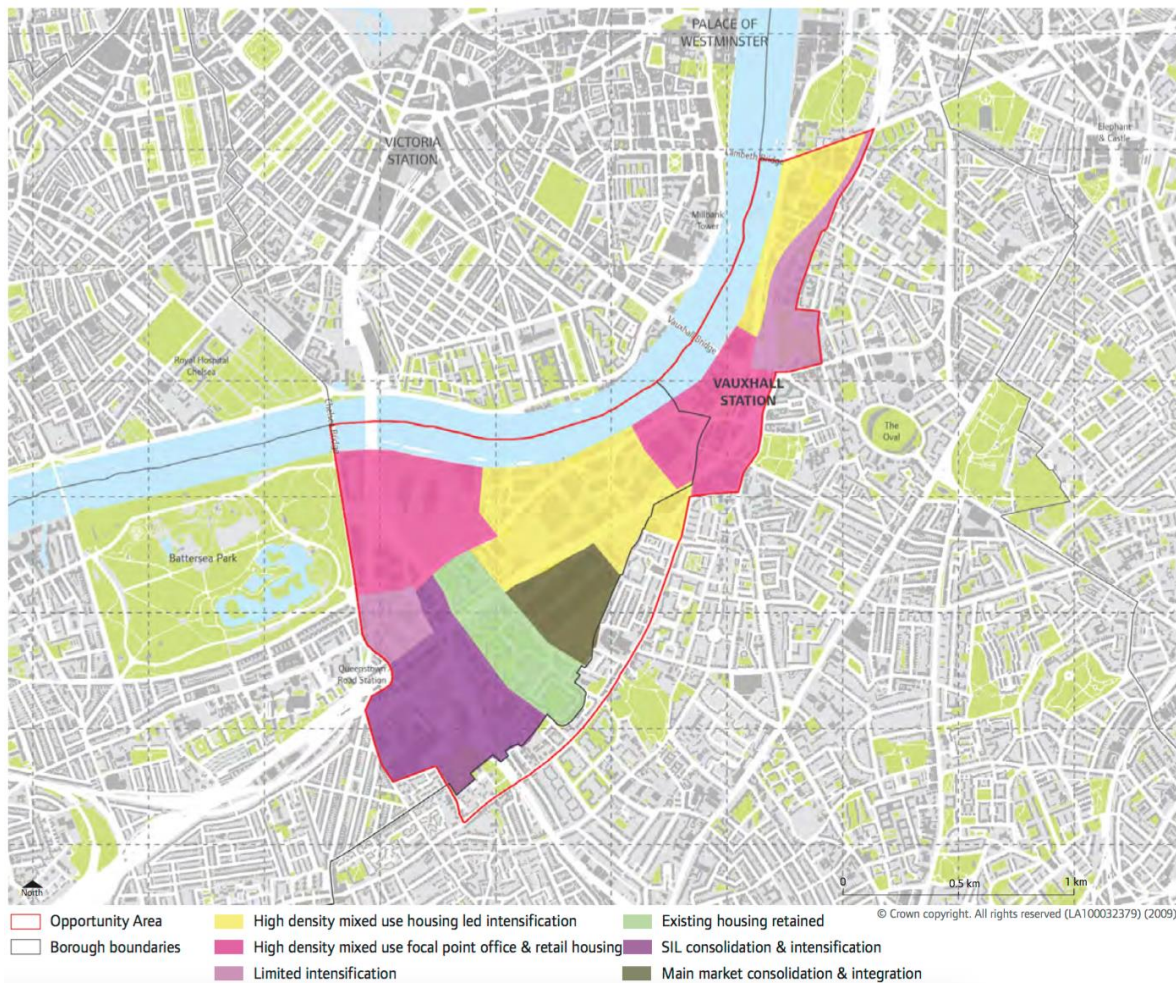


Figure 7: Land use strategy identified in the OAP Framework (Source: GLA, 2009)

- **The 2010 Steer Davies Gleave Study (SDG, 2010):** 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 (Volterra, 2012):** This independent study of the economic impacts of the NLE confirmed that the NLE project had the potential to yield substantial wider economic benefits (WEBs) for the area.

In addition to the above studies, the results of the first series of public consultations (held in the summers of 2010 and 2011) on the possible route options for the NLE showed overall support for an extension of the NL to Battersea with a new station at Nine Elms (as featured in Figure 2) (TfL, 2012a). In the autumn of 2012, feedback from 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 again considered the extension to be a good idea (TfL, 2012b; Accent 2013).

At the time of writing, there are a number of significant development proposals near the NLE. Some (essentially regeneration projects) involve a number of international investors as in the case of the Battersea Power Station project (see Figure 8). This involves a Malaysian consortium of investors

consisting of SP Setia Berhad, Sime Darby Berhad plus the Employees Provident Fund plus the US Embassy (see Figure 9) which is moving from Grosvenor Square to south of the River Thames in 2017. The US Embassy in particular will be a major catalyst for the regeneration of Nine Elms on the South Bank. In addition, the Chinese governments have considering moving their embassies into the area (Evening Standard, 2013) whilst the Dutch government has confirmed its move to part of the embassy gardens development (IBT, 2014).



Figure 8: Proposed Design for Redevelopment of Battersea Power Station (Source: www.e-architect.co.uk, 2015)



Figure 9: Proposed Design for New American Embassy Located within VNEBOA (Source: ConstructionEnquirer.com, 2012)

In order to support the development in the OA and simultaneously satisfy the needs of the new residents, the plan envisages that a wide range of additional economic and social infrastructure plus services will be required. This is premised on the population estimates at hand and the probable demographic profile of new residents reported in the *Vauxhall Nine Elms Battersea Development Infrastructure Funding Study* (Roger Tym and Partners *et al.*, 2010). The same source advocates investment in the following to promote the redevelopment of the area, in addition to the NLE itself:

- 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;
- social care facilities, early year primary and secondary education facilities, sport and recreation facilities and flood mitigation measures;
- 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 housing is envisaged;
- 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) within the VNEB OA;
- childcare and 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; and
- public spaces 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 infrastructure utilities in particular, 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 the predicted growth at the VNEB OA. These include:

- anticipated interventions in the energy sector, including 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;
- anticipated investments in meeting demand for new telephone lines and IT/Broadband networks to serve the proposed development, calculated by PBA to be in the order of 18,000 new homes; and
- anticipated interventions in water sector where it is expected that the existing water distribution network will have to be reviewed so that each part of the development can be supplied with potable water and sanitation services, in part by upgrading pumping stations.

The works for the construction of the Thames Tunnel, running 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 sewer overflow points along the River Thames, are also likely to affect the NLEA Project. The Heathwall Pumping Station and the related Albert Embankment developments involve the temporary use of 1.5 – 2 hectares of land up to 2020 (GLA, 2012).

As regards the transport sector, the Transport Study undertaken by Sinclair Knight Merz (2009) suggests a package of additional supporting transport interventions in the vicinity of the NLE Project, including:

- new and enhanced bus services, new bus stops, improvements to existing bus stations;
- improvements in transport interchange facilities and connections with the wider 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; and
- the improvement of the quality of the pedestrian environment and cycling routes throughout the OA.

Estimates produced by Roger Tym & Partners *et al.*, (2010) (see Figure 10) foresee transport sector interventions in the NLE’s project vicinity incurring major costs, representing approximately 81% of total infrastructure costs for the area. This contrasts with 8.7% for parks and open spaces and 8.7% for education (the second highest cost). The same source suggests there is likely to be an infrastructure funding gap of approximately £88 million; clearly an important challenge.

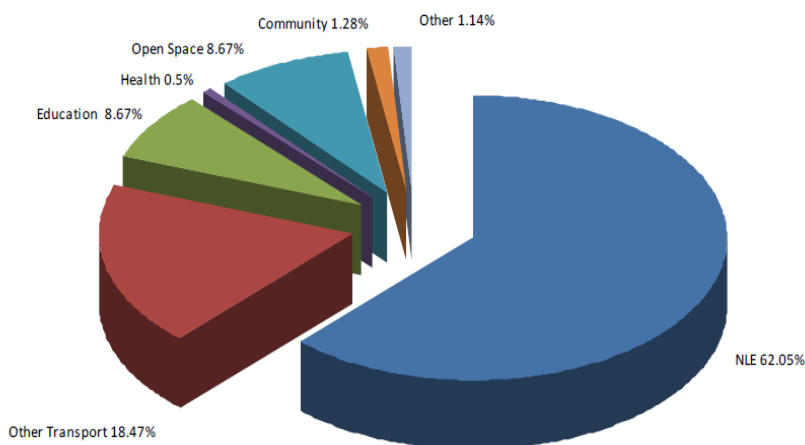


Figure 10: Estimated Infrastructure Costs Attributable to VNEB Development by Infrastructure Category (Source: Roger Tym and Partners *et al.*, 2010)

The NLE project, as proposed, is compliant with a number of relevant national, regional and local policies and plans. The documents reviewed at the time of writing include (at the national level) the 2014 *Autumn Statement*, (at the regional level) the *London Plan* and the *Mayoral Transport Strategies*, and (at the local level) the *Vauxhall Nine Elms Battersea Opportunity Area Planning Framework* plus

the *Local Development Framework* of the Boroughs of Lambeth and Wandsworth. All suggest support for the NLE project.

At the national level, *The Autumn Statement of 2011* prepared by HM Treasury (2011), proposed the creation of an enterprise zone for the VNEB area, 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 GLA (for TfL use) to finance the construction of the NLE.

At the regional level, *The Mayor's Transport Strategy* (Mayor of London, 2010) identified the VNEB as an area where improving accessibility is of particular concern. As earlier emphasised, the NLE was recognised by this document as a project to be privately funded to support developer-led growth in the VNEB. *The London Plan* published a year earlier (Mayor of London, 2011: 272) recognised 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 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 (see Figure 11). 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 referred to earlier.

At the local level, *The VNEB OAP Framework* (GLA, 2009 and 2012) describes the area and identifies two current issues relating to the public realm which need to be addressed; namely: connectivity and legibility. It also considers the development capacity and associated social infrastructure and open space requirements for the same area. Finally, the framework introduces specific strategies for transport, tall building developments, energy, waste, wharves and water. The Report reiterates that a large-scale 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 of the Transport Study carried out by Sinclair Knight Merz, support 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 recognise that the major opportunities for regeneration and development within the OA support the scale of growth identified, thereby confirming that new infrastructure such as extensions to the Underground network are critical to this growth. In terms of achieving policy and planning consistency at different levels, 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* (2010) at the regional scale. The *Core Strategy* presented by the London Borough of Wandsworth in 2010 reinforces the project at the local scale, and indirectly promotes the extension of the NL.

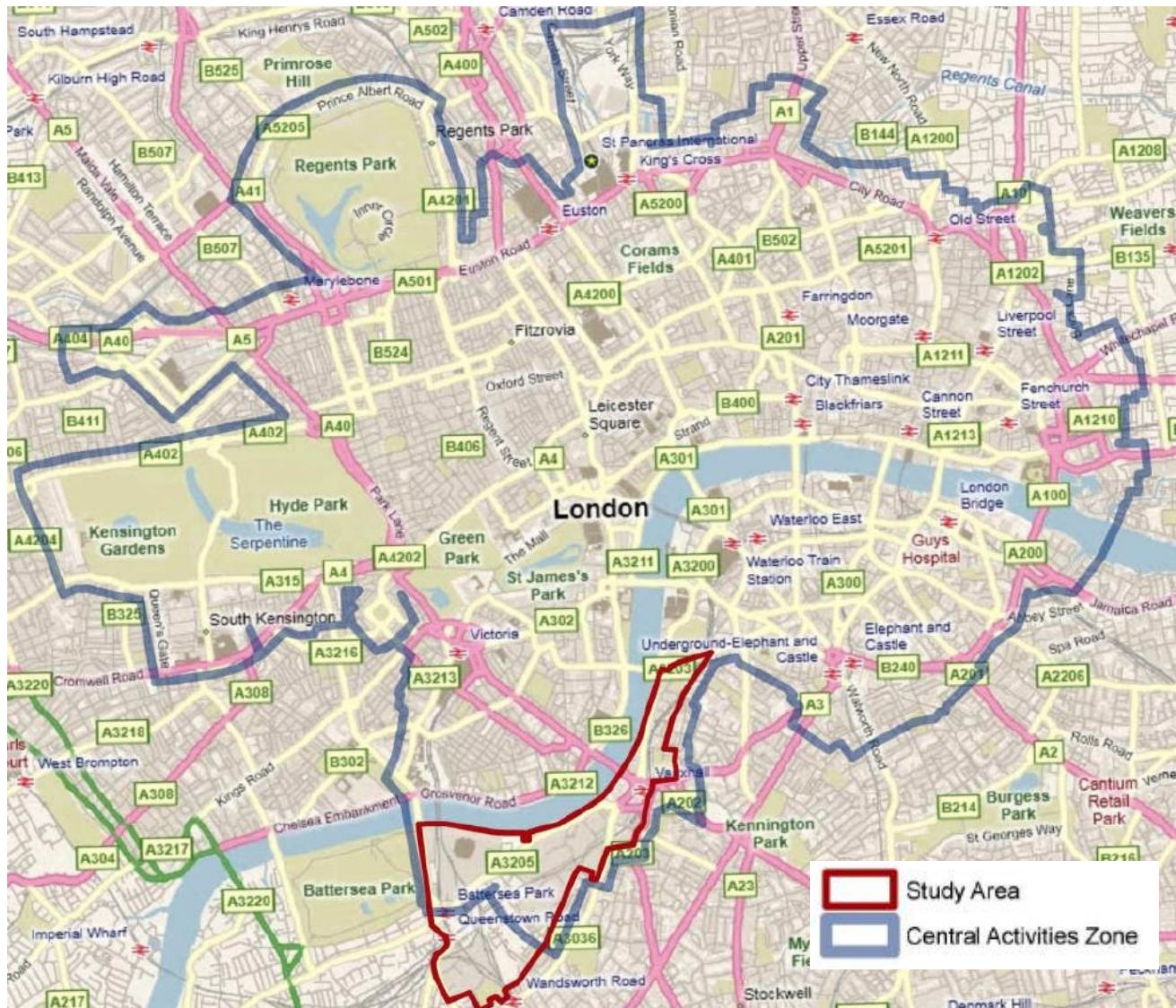


Figure 11: Location of VNEB OA and of Central Activity Zones (Source: Mayor of London, 2011)

3.4 Application of PLMCA as an appraisal tool for NLEA Project

3.4.1 Overall approach

This part of the paper examines the process by which a PLMCA approach may be applied to the appraisal of a mega infrastructure project – in this case the Preferred Option for the NLE. Acting as the catalyst for a number of related developments within the Battersea area, most specifically those included within the Vauxhall Nine Elms Battersea Opportunity Area (VNEB OA), the project is hereafter referred to as the “Northern Line Extension Area Project or NLEA Project”.² The PLMCA approach outlined here builds on the methodological discussion contained in the previous paper and draws from

² As compared to the “Northern Line Extension (NLE)” which is the line-haul rail extension link of the Northern Line from Kennington to Battersea.

the experiences of three NLE stakeholder role-playing OMEGA Centre Workshops held in 2013 at UCL.³ A number of participants attended these from government, the private sector, NGOs and academia each of who role-played assigned stakeholder⁴ positions in decision-making in the planning and appraisal of the development of the project.

It should be stressed that the discussion which follows does not seek to present outcomes from an appraisal of the NLEA Project per se. It is instead more concerned with explaining and illustrating the key steps and inputs enabling the design, development and execution of a PLMCA framework and its attendant processes suitable to function as a structured approach to decision-making incorporating a variety of stakeholder aims, needs and agendas, and responding to multiple policy and planning inputs. The proposed PLMCA approach is embarked upon from the standpoint of it being employed by an overseeing metropolitan body assisted by central government - exemplified here by the Greater London Authority (GLA) - supported by HM Treasury, using TfL as its execution agency.

The PLMCA framework and data input matrix proposed for the illustrative application (see Figure 13) has the input matrix representing the decision-making space within which stakeholder discussions, dialogue and negotiations take place, using eight different project dimensions identified from a preliminary analysis of the NLEA Project. These dimensions are considered sufficiently generic (and therefore adaptable) in their use for an overseeing regional/metropolitan agency (such as the GLA) that needs to engage both multiple stakeholders outside the lead agency, and for a single stakeholder organisation (such as an international pension fund) appraising whether or not it is to invest in the project in question. Of particular relevance here is the OMEGA 2 Project lessons (see Appendix to Paper 2) that suggests it is critically important to consider the 'power of context' in the planning and appraisal of megaprojects when making judgements about their 'success' (OMEGA, 2012). It is on these grounds that it is advocated that the processes through which any PLMCA exercise is to be applied needs to acknowledge and respect the different (and changing) contexts in which a PLMCA framework and its attendant processes are to be used, especially concerning impacts that policies and policy changes have on priorities employed in the appraisal process.

Context scanning of a project assists the identification of key stakeholders and stakeholder interests that need to be included in a PLMCA exercise. The task is critical both in terms of inviting project stakeholder participation in the context of an 'open systems' appraisal or in terms of identifying which stakeholder interests (to role-play) in a 'closed systems' approach. As already indicated in Paper 2, clearly either way unrepresentative stakeholder involvement in any appraisal exercise will not only potentially skew the appraisal outcomes but can also lead to potentially unidentified risks and uncertainties. Clarity over such stakeholder roles (and omissions) in the appraisal process is important to establish at an early stage. When registering potential stakeholder involvement in a project, the relative power of each stakeholder interest (in terms of decision-making) should not, however, be a material consideration at this stage as such considerations will necessarily come into play after the appraisal exercise is complete and the results known. As noted once again in the preceding paper,

³ These workshops took place at UCL between 18th October 2013 and 22nd November 2013, funded by a UCL Knowledge Transfer and Enterprise Award.

⁴ Stakeholders are here defined as "any person, group, or organization that can place a claim on the organization's attention, resources or output, or is affected by that output" (Bryson, 1995:27)

powerful interest/lobby groups with effectively the power of veto may choose to block an option. This is only likely to take place, however, after all risks and the party beforehand in the appraisal has identified impacts.

Project Objectives	Project Appraisal Criteria	Impacts from NLE and/or associated developments				Assessment of Project Impacts	
		Quantitative indices	Qualitative indices	Risks	Opportunities	Score	Weight
1. OVERALL VISION FOR NLE AND OA							
2. ECONOMIC							
3. FINANCIAL							
4. TRANSPORT							
5. ENVIRONMENT							
6. REGENERATION							
7. SOCIAL							
8. IMPLEMENTATION							

Figure 12: Matrix developed for NLEA PLMCA workshops (Dimitriou et al., 2013)

3.4.2 PLMCA appraisal of NLEA Project: A multi-stakeholder application

Three assumptions are employed in presenting below a PLMCA approach to the appraisal of the NLEA Project ; namely:

- Although the PLMCA approach is here being applied to the ‘Preferred Option’ it can also be employed to an appraisal of several options since it has the advantage of offering a review and ‘stress test’ of the conclusions of the earlier commissioned feasibility study that supported the favoured option.
- PLMCA provides further and more in-depth insights of the distributional effects of projects, including the ‘winners’ and ‘losers’ associated with the implementation of the project over time and space, and under different scenarios, thereby highlighting effects not unearthed by more conventional appraisal methods.
- PLMCA helps identify and analyse the robustness and resilience of the project under investigation in face of both current and future challenges with the appraisal exercise potentially acting also as a ‘risk register’ that picks up risks (and opportunities) from a more holistic perspective that conventional appraisal methodologies do not identify.

Given its regional remit as the administrative body for Greater London, the GLA was considered best suited to take on the lead of the multi-stakeholder appraisal for the purposes of the NLEA PLMCA exercise outlined (with a member of the OMEGA Centre research team assigned the part of the GLA/client). A leadership role of this kind was deemed potentially more impartial than could be offered by other stakeholders. Because PLMCA lends itself from the outset to identifying and exploiting (through multiple-stakeholder dialogue) a greater number of insights and more decision options than

conventional feasibility studies this enables a greater number of potentially beneficial stakeholder trade-offs in negotiations to be made. Undertaken in these terms, an engagement of this type (i.e., involving a wide variety of 'external' stakeholders) may be viewed as an 'open systems' approach to PLMCA appraisal. A lead organisation or interest group in association with other parties best undertakes such appraisals. This is in contrast to a 'closed systems' approach which although again can be undertaken by a lead organisation or an interest group has different stakeholder positions role-played *within* these organisations employing proxy parties to role-play external stakeholders. That said, for reasons of efficiency and manageability, an 'open systems' approach to multi-stakeholder PLMCA appraisal should not be taken to include participation by every single person or organisation that may have something to say about the project; this is more properly the role of a formal public consultation exercise.

Reflecting the methodological discussion contained in Paper 2 and the principal tasks undertaken at the NLE OMEGA Centre role-playing Workshops (see Figure 13), a PLMCA appraisal exercise of the kind advocated here for application by GLA to the NLEA Project broadly comprises three phases, each incorporating a number of steps, as follows:

- **Phase 1 – Project analysis and problem structuring:** This entails the:
 - specification of the appraisal challenge (project vision) – i.e., how best to ensure the highest sustained economic, social and environmental returns are attained on an equitable basis by as many if not all key parties involved in/impacted by the NLEA Project;
 - translation of the generic PLMCA structure earlier outlined into a project tailor-made framework and attendant processes;
 - identification of principal project decision-makers and other key stakeholders/players for both open and closed systems appraisals;
 - identification of the context of the project appraisal decision-making space (political, legislative, spatial, cultural and temporal contexts) and thus the boundaries of the project appraisal process (see Figure 14);
 - clarification of the scenarios to be examined/applied and their different outcomes;
 - elaboration of possible options to the project that that may spawn different outcomes; and
 - highlighting key policy drivers and their impact(s) on the project under different scenarios.
- **Phase 2 - Model building:** This involves:
 - the formulation/clarification of project objectives, the derivation of associated project appraisal criteria and relevant project performance data; and
 - the establishment of a scheme of weights to reflect the perceived/actual importance attributed to each criteria.
- **Phase 3 - Model use:** This is where the performance of the project option against each appraisal objective is assessed. It involves:
 - assigning by stakeholders a performance score against each appraisal objective, highlighting both qualitative and quantitative qualities, and inserting this information into a PLMCA matrix; and
 - the further identification and development of emerging issues, objectives and criteria, highlighting the impact of any weighting scheme employed so as to help better determine project 'winners' and 'losers' over time and space of the completed project.

Whilst the above phases and steps appear to be a sequential process, appraisal decision-making experiences of this kind suggest that in reality they are rarely so in their entirety and frequently are not mutually exclusive. As a result, there is often in certain circumstances a need to allow for periods of reflection (and iteration) in decision-making to better capture and comprehend the dynamics of the interface of the various steps. This is a conclusion reinforced by one of the lessons derived from the OMEGA 2 Project (OMEGA Centre, 2012). It is also in line with other conclusions of the same research that suggests the appraisal of mega infrastructure projects (such as the NLEAP) need to be properly framed and treated as 'open systems' to yield the most informative and far-reaching findings. Both positions are argued on grounds of growing evidence (see Dimitriou *et al.*, 2013 and Dimitriou *et al.*, 2014) that suggests not only is much of the traditional appraisal efforts of mega infrastructure projects failing to do this but that they are typically also too narrow, focusing especially on completing projects on time, within budget and to specification. This is contrast with taking into account broader concerns, including 'agent of change' aspirations and outcomes plus any aspirations to address sustainable environmental and social issues, and important matters of governance and institutional development. The more detailed steps associated with the operationalisation of Phase 1 as developed for the OMEGA Centre PLMCA role-playing Workshops for the NLEA Project are featured in Figure 14.

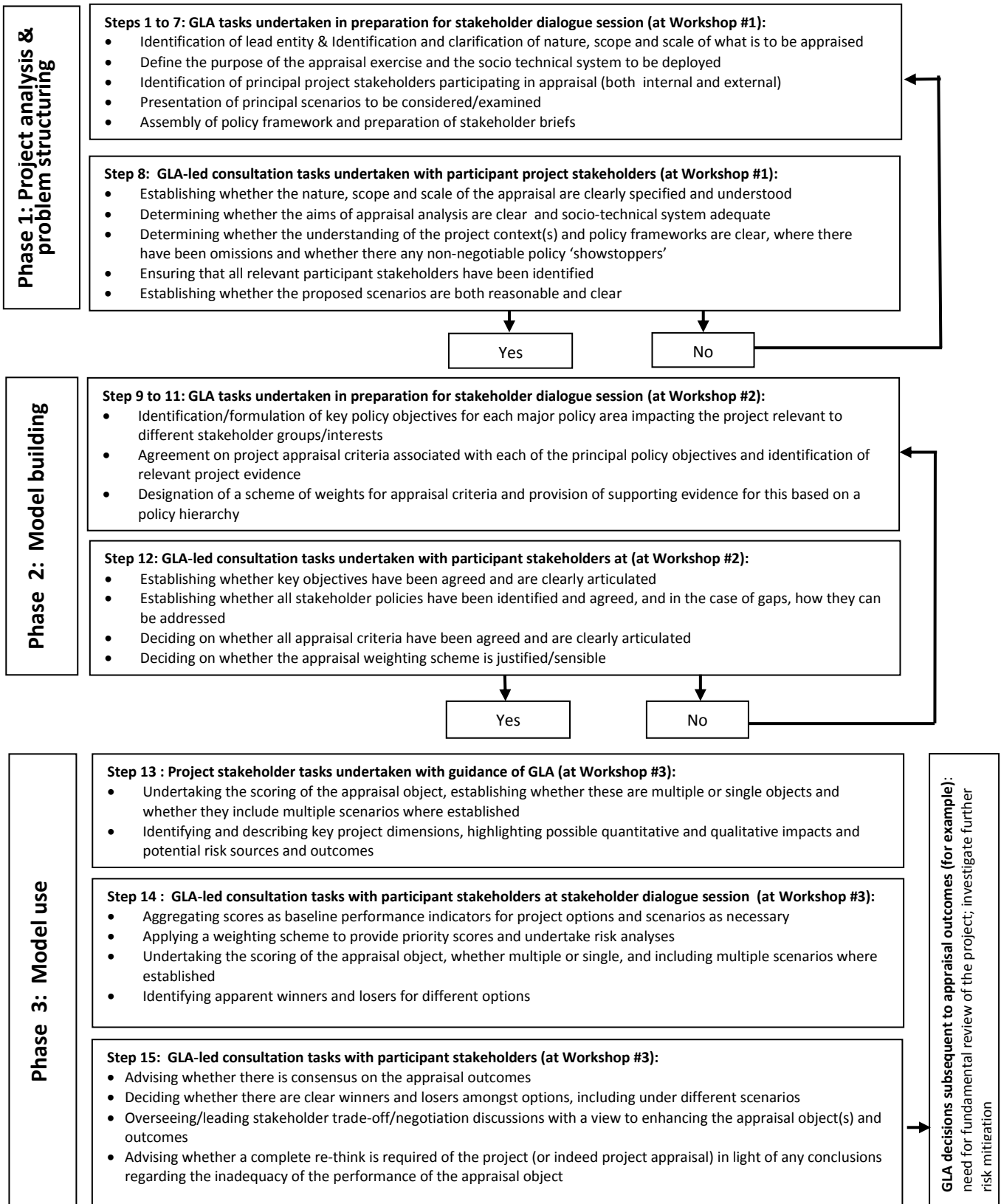


Figure 13: Steps adopted at PLMCA OMEGA Centre role-playing workshops for NLE

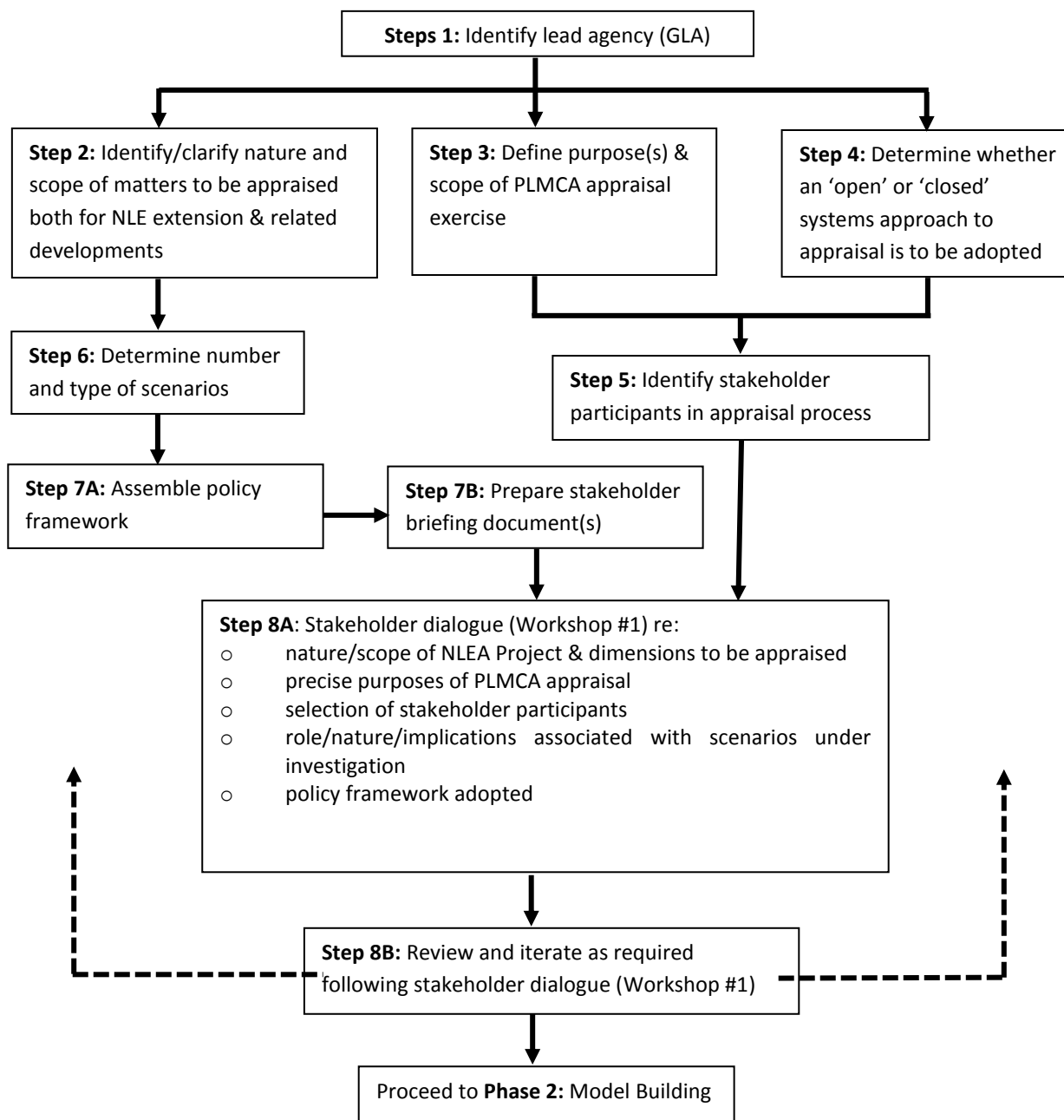


Figure 14: Decision-making Process for Phase 1: Project analysis and problem structuring

3.4.3 Phase 1: Project analysis and problem structuring

The prudent operationalisation of Phase 1 of the PLMCA appraisal of the NLEA Project is critical to the ‘success’ of subsequent phases and steps since it involves making a number of key decisions. Care needs to be taken when providing the necessary resources to enable the identification of adequate information to fully inform later stages of the process and to avoid unduly constraining the appraisal

exercise to avoid limiting its usefulness as a broad reaching tool. The important steps of phase 1 are as follows:

- **Step 1 - Identification of lead entity:** The starting point for any PLMCA appraisal approach of the kind advocated here is choosing the appropriate agency to lead the exercise (the GLA in this instance) once a decision has been made by a person, organization or group to make use of the approach. Whilst appraisal exercises are commonly both instigated and conducted by project promoters, in the OMEGA role-playing Workshop for the NLEA Project the GLA was presumed the best placed agency to drive, oversee and deliver the proposed PLMCA approach. This was assumed because:
 - it is a strategic metropolitan organisation that enjoys the strong support of HM Treasury;
 - it is more likely to adopt a holistic perspective on urban mobility and related development challenges than TfL, the project promoter; and
 - of its regional outlook and close ties with a variety of ministerial departments.
- **Step 2 - Identification and clarification of nature, scope and scale of what is to be appraised:** These characteristics need to be provided in sufficient detail and in a manner that highlights the various components of the project so as to enable their reasonable assessment by a potentially diverse range of stakeholders. This is often required with aims and agendas operating at different scales within the decision-making space. The step should include a presentation of the overall 'vision' and boundaries of the project, together with its supporting policies, plans, principal aims and objectives as specified by its promoters. It should be complemented with information regarding its status at the stage of embarking upon the PLMCA exercise to indicate how well advanced and defined the project is.

On the premise that the 'NLE Project' as presented constitutes the 'Preferred Option' together with its envisaged related developments, this step of the exercise involves the GLA (the client) assembling key information and data (from different stakeholder perspectives) relating to such matters as the:

- physical, technical and spatial characteristics of the Northern Line extension - otherwise referred to as the 'line haul' component of the project (see Figure 2);
- projected costs and revenues of the proposed rail extension project - its financing methods etc. (see Figure 3);
- the projected capacity and ridership prospects of the proposed line (see Figure 3);
- type, scale, characteristics and distribution of proposed related development areas - i.e., the VNEB OA (see Figure 7);
- key issues, problems, constraints and opportunities associated with the 'line haul' and stations - including the current poor level of public transport accessibility and capacity within the adjacent areas of to the two new NLE stations and its corridor;
- key issues, problems, constraints and opportunities associated with the related development areas concerning: the mix/balance of affordable and private housing, the mix/balance of retail, commercial and residential developments plus environmental upgrade issues that need to be addressed plus any community and crime challenges;
- key issues, problems, constraints and opportunities associated with the proposed implementation programme(s) of the 'Preferred Option' of NLE; and

- possible relevance of outputs obtained from earlier appraisal exercises of the project that can inform the PLMCA approach, including any variations in the assumptions and inputs that were adopted such as: Steer Davies Gleave Studies (2008a; 2008b; 2010), Sinclair Knight Merz Study (2009) or Volterra Study (2012).

The role-playing OMEGA Centre Workshops revealed that it is essential to ensure that all involved stakeholders are clear (and broadly agreed) about the status of the Project at the time of embarking on the PLMCA exercise, especially with regard to its vision, objectives, components, scale, scope and timing of delivery. The Workshop experiences suggest that stakeholder familiarity with the project is important for the functioning of the workshop, so information regarding these matters is best provided in advance of stakeholder meetings in the form of briefing documents for the representatives of the stakeholders involved in discussions with the GLA. However, adequate time also needs to be put aside to review the contents of these documents both before and during the PLMCA workshops to ensure all stakeholders have a certain level of understanding concerning the PLMCA appraisal.

The information presented needs to be thoroughly discussed among the multiple-stakeholders, bearing in mind that whilst some dimensions of the problem may be of relevance to a limited set of stakeholders, it may be that in other areas different parties will frequently have very different perspectives on similar issues to the point that one party's 'solution' can be another's problem. In other instances, inter-stakeholder dialogue can reveal that concerns about many issues are shared among many stakeholders (albeit at different levels of concern). Where initially inter-stakeholder dialogue throw-up divisions and conflict, perseverance at efforts to understand each other's position can eventually lead to a mutual appreciation of positions and thus how such issues can be effectively addressed by joint action. One way or another, the sharing of stakeholder perspectives and related multiple information sets by different interested parties provides an invaluable learning experience and platform for subsequent stakeholder agreements and compromises in decision-making.

- **Step 3 - Defining the purpose(s) of the PLMCA appraisal exercise:** This step is important as a means of articulating (and agreeing):
 - the aims and nature of the appraisal analysis;
 - the context of the decision-making space (in political, legislative, spatial, temporal, cultural, etc. terms);
 - the overall 'boundaries' of 'the project' (in time, space and policy dimensions);
 - the scenarios to be applied; and
 - the principal stakeholder decision-makers and other key players to be included.

Building on the progress made in the preceding step, the experience of the role-playing OMEGA Centre Workshops highlighted the importance of Step 3 in employing PLMCA as a means to structure the various project issues and problems identified by the various stakeholders. It also emphasised the importance in so doing of differentiating between 'root' and 'manifestation' problems and issues, and pointing to individual and joint actions that could address them. As alluded to above, it was imperative at the workshops to make the aims (and processes) of a PLMCA appraisal exercise clear from the outset to engage all involved stakeholders, as this was seen to

materially impact on the nature and outcome of subsequent downstream decision-making. A key question found to be particularly significant here is whether the PLMCA appraisal is essentially an exercise that informs earlier appraisal exercises.

Where PLMCA is essentially employed as an exercise that examines the viability of an already proposed infrastructure investment scheme (as is essentially the case presented here), the function of PLMCA is somewhat confined to a form of 'risk register.' Alternatively, it may be viewed as an added-value study looking for costs and benefits picked up by the more holistic perspective adopted, missed by the narrower appraisal exercises. PLMCA can also inform earlier appraisal exercises in terms of what alternatives and multiple options it would be prudent to additionally examine. In all cases, what a PLMCA exercise does do well is to identify broader stakeholder positions and agendas not apparent from more narrowly framed appraisal exercises that are much more likely to lend themselves to more inclusive collaborative and sustainable responses.

- **Step 4 - Define Choice between 'open systems' or 'closed systems' appraisal:** Of prime importance to any PLMCA exercise, as earlier indicated, is the early decision about the choice of the socio-technical system to be deployed, namely whether an 'open systems' or 'closed-systems' appraisal is to be undertaken. In an 'open' appraisal exercise, representatives of all (or as many as possible) key stakeholders participate. This contrasts with a 'closed' exercise, which is typically confined to/or is dominated by parties that largely share common aims and interests regarding the project in question. An 'open systems' appraisal was assumed in the case of the example played out at the role-playing OMEGA Centre Workshops for the NLEA Project. Once a decision is reached regarding whether the PLMCA is to be an 'open' or 'closed' appraisal exercise, this decision fundamentally affects all subsequent decision-making processes as explained below. For the record, OMEGA Project 2 lessons (see OMEGA Centre, 2012) advise that large-scale complex infrastructure investments (such as the NLE Project) are best treated as 'open systems' in light of their multiple interrelationships with the territories, communities and other sectors they traverse and/or serve.

PLMCA is more likely to take on the form of a bespoke expert 'closed-system' exercise where undertaken on behalf of a particular interest group drawn together in support of a common concern. This would be the case, for example, of a pension fund or a local community group. In such instances, the exercise would be undertaken on behalf of a particular client where (at best) discerning views are role-played rather than actually sought. It should be recognised that even appraisals undertaken on this intra-agency basis are frequently impacted by various standpoints and agendas held by different internal units of the same organisation. This highlights the important fact that all organisations do *not* necessarily 'speak with one voice'. The above raised issues reinforce the need for very careful consideration to be given by the client-lead stakeholder as to how open or closed a PLMCA approach should be, and for the need for the risks and opportunities associated with each approach to be fully explored.

- **Step 5 - Stakeholder identification:** As earlier highlighted, with the GLA as the lead entity there is a need (in consultation with other decision-makers) to decide at an early stage on the extent to which key stakeholders can (and should) assist in helping to identify/clarify the nature and context

of the PLMCA exercise. It can do this (as earlier explained) by, for example, identifying ‘boundary’ considerations, key issues/problems, other possible alternatives, as well as potential ‘winners and losers’. As acknowledged by the findings of the OMEGA 2 Project, defining project/policy boundaries (over time and space) is notoriously difficult to do, and yet, it is essentially this task which determines which stakeholders to ultimately engage (or exclude) in the appraisal exercise. Once identified, the defined ‘boundaries’ will likely need to be the subject of further stakeholder discussion and consequent iteration since different stakeholder perspectives see the NLE Project proposals as having different attributes/characteristics and potential impacts, depending on their interests and values. Additionally, it has long been recognised that reaching consensus among key stakeholders regarding the scale and nature of the project, as well as its potential impacts (whether in an ‘open systems’ or ‘closed systems’ appraisal situation), may well not be a straightforward matter and thus call for a number of iterations following consultation.

As a minimum, project stakeholders need to be grouped/classified and chosen according to their geographical association by their local, regional, national or international level of involvement. They also need to be group by their sector (i.e., whether they are from the public sector, the private sector or civil society) to ensure some balance in the distribution of participants. In this step of the PLMCA exercise it is useful to attempt to scan, identify and analyse each stakeholders’ agendas and principal priorities, and map these (as best as one can) onto some kind of policy framework/matrix. To do this, and keep the exercise manageable, the PLMCA appraisal exercise of the NLEA project undertaken as part of the role-playing OMEGA Centre Workshops reduced the potential list of stakeholders (see Appendix 1) to those parties considered key to the decision-making process; namely:

- Greater London Authority (GLA);
- Central Government (DfT and DCLG);
- the London Boroughs of Wandsworth and Lambeth;
- Transport for London (TfL);
- Community groups (such as the Kennington Planning Forum, Claylands Green NLE Action Group, Fentiman Road NLE Action Group);
- Environmental pressure groups (such as Friends of the Earth);
- Local landowners (such as Battersea Dogs & Cats Home, Royal Mail Group);
- Local employers (such as Tesco or Battersea Dogs & Cats Home); and
- Public transport users (such as Clapham Transport Users Group).

The above stakeholders have been plotted illustratively in Figure 15 on a power/interest matrix based on the perceptions of the parts that were roll-played in the OMEGA Centre NLEA Workshops.

	Power Level (Low)	Power Level (High)
Interest Level (Low)	<ul style="list-style-type: none"> ○ Local employers ○ Local landowners 	<ul style="list-style-type: none"> ○ Central Government (DC&LG & Treasury)
Interest Level (High)	<ul style="list-style-type: none"> ○ The London boroughs of Wandsworth and Lambeth ○ Public transport users within the Opportunity Area ○ Residents and community groups ○ Environmental pressure groups 	<ul style="list-style-type: none"> ○ Greater London Authority (GLA) ○ Transport for London (TfL)

Figure 15: Power and Interest Matrix of Key Stakeholders Identified for NLE Project (Source: Dimitriou et al., 2013)

To a considerable extent, the mapping of the NLE stakeholders in Figure 15 above reflects the various stakeholders’ potential impact on the appraisal decision-making processes for the project. It represents a perception of the legitimacy of the stakeholders’ claim to participate (led by judgments of the GLA), to a large degree premised on their respective investment and community interests and specialist knowledge regarding the NLE project (see discussion below). It should be pointed out that there are many more sophisticated methods of stakeholder identification and mapping than that adopted by the role-playing exercise. It is in fact a significant research and practice field in its own right (see Eden and Ackermann, 1998; Bryson, 2004). It is also useful to note that lessons from the OMEGA 2 Project urge megaproject planning and delivery agents to be acutely aware of stakeholder decision-making contexts, their agendas and the alliances stakeholders make at different stages of the project lifecycle given that these change over time. The stakeholder power/interest distribution shown in Figure 15 is illustrative and pertinent only to the stage of the project’s decision-making at the time. The stakeholder list includes parties involved in the NLE ‘line-haul’, the station development areas and other stakeholders not directly involved in the NLE itself but whose interests are linked to the related planned development areas (such the VNEB OA) and their communities.

Figure 16 indicates the actual stakeholder roles represented by those who attended the role-playing OMEGA Centre PLMCA Workshops - broken-down by their attendance for each of the three workshops. The table highlights two particular practical challenges for the organisation of PLMCA exercises of this kind: The first being that role-playing proxies such as these typically do not possess the prerequisite breadth of experience necessary to represent all key stakeholders identified in Figure 15. Secondly, from those proxy-stakeholders who were available, the time commitment required (three full days plus preparation time in the case of the OMEGA Centre Workshop events) meant that full attendance by each stakeholder to all three workshops was not possible in all cases.

Stakeholder role represented during PLMCA workshops	Attendance		
	Workshop #1	Workshop #2	Workshop #3
Project Promoter 1 Representative			
Project Promoter 2 Representative			
Local Authority Planner			
Pension Fund Representative			
Third Sector Representative			
International Bank Representative			
Environmental Lobby Group Representative			
Local Community Group Representative			
Real Estate Investor Representative			
Regional Transport Agency Official (TfL)			
Constructor/Contractor Representative			
Real Estate Developer Representative			
HM Treasury Official			
London Assembly Member			
Central Government Planner			

Figure 16: Project stakeholders roll played at PLMCA workshops (Source: Dimitriou et al.,2013)

- Step 6 – Determining whether and what scenarios to be used:** It is important at this stage of the PLMCA exercise to confirm whether to employ scenario testing, and if so, what type of scenario testing is to be undertaken. The lead entity may here wish to seek advice/agreement from key project stakeholders as to the nature and content of the scenarios to be built and tested. Findings from the OMEGA Centre (OMEGA Centre, 2012) suggest that scenario building and testing should *always* be undertaken for all but the most straightforward appraisals as this can enable multiple future contextual circumstances to be examined and addressed. This is especially important for large, complex and/or vulnerable projects with many interrelationships with the territories, communities and sectors they traverse and affect. Some scenarios may indeed, ultimately call into question the very wisdom of pursuing a particular option due to previously unidentified risks. Alternatively, scenario testing may highlight deficiencies and gaps in the prevailing overriding policy framework. Notwithstanding the fact that the starting points of the NLEA Project appraisal exercise outlined is the ‘Preferred Option’ tabled by TfL and that the same position was taken up at the role-playing NLEA OMEGA Centre PLMCA Workshops, this account extends the exercise to include:
 - Scenario 1: a ‘business as usual’ scenario (based on projected improved current economic conditions that reflect past trends);
 - Scenario 2: a ‘prolonged economic downturn’ scenario (aggravated by an unexpected pull-out of a key major investor or by some other unexpected major economic/political event), and;

- Scenario 3: an ‘unexpected economic boom’ scenario where localized real estate and passenger patronage revenues well exceed those predicted.

- **Steps 7A&B – Assembly of policy framework and preparation of stakeholder briefs:** As the fundamental plank of any PLMCA exercise is to have in place a policy framework that is as comprehensive as possible, the building of such a framework collaboratively with identified key stakeholders is a vital step of the entire PLMCA exercise. Translating this task into the NLEA Project under the supervision of the GLA, careful thought here needs to be given (*inter alia*) to identifying:
 - **All policies likely to inform the appraisal process** – These will originate from a wide variety of agencies representing different interests and hierarchical levels. They include, for example: the *National Planning Policy Framework* (DCLG, 2012), *2008 Planning Act* (DCLG, 2008), *Autumn Statements* (HMT, 2011), *Climate Change Act 2008* (DECC, 2008), *Carbon Plan* (DECC, 2011), *The London Plan* (Mayor of London, 2011) and *Vauxhall Nine Elms Battersea Opportunity Area Planning Framework* (GLA, 2012).
 - **Significant gaps in policy** - As in the case of sustainable development principles of transport orientated development (TOD) and how these are to be plugged, for example, by the identification of policy guidelines from elsewhere such as ITDP’s TOD principles (ITDP, 2014).
 - **Where policy conflicts exist and how these are to be resolved** - Policies seeking to encourage private sector development and investment may for example conflict with policies providing for certain levels of social housing.
 - **Whether the hierarchical nature of the existing policy framework directly informs weighting in the appraisal process** – And/or whether the identification of the relative importance of policies is ultimately determined by the PLMCA negotiations with inputs from relevant stakeholders.

- **Step 8A&B – Stakeholder dialogue:** Represented by Workshop #1 in the OMEGA Centre PLMCA role-playing exercise for the NLEA Project, this step helps ensure there to be a firm and broad foundation on which to proceed with the PLMCA exercise. For this to be achieved, the above information will need to be assembled, analysed and discussed by all key stakeholder participants in the appraisal process under the supervision of the lead entity (i.e., the GLA). This needs to be undertaken in a systematic and collaborative manner against a clear mutual understanding of the rationale that underpins the project. Figures 17a and 17b provide an illustration of the kind of information assembled for the NLEA Project which (in these examples), relate to local government policy objectives for both Lambeth and Wandsworth. The over-arching policy areas (see column 1 of Figure 17a) which form the starting point of the data gathering process are taken from previous OMEGA Study findings (OMEGA, 2010). The similarity between the two tables shown in Figure 17 highlights the common alignment of policies and objectives between these two neighbouring London Boroughs. This is to be expected considering both Boroughs are tasked with implementing a set of strategic policies as described in *The London Plan* (Mayor of London, 2011), resulting in documentation from both stakeholders strongly reflecting the contents of this document.

Policy areas	Key objectives
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	Over-arching objectives	Sub-objective
Economic	Promote economic development in Lambeth	Safeguarding Key Industrial and Business Areas for business [Core Strategy (CS) – policy S3]
		Supporting the location of, and investment in, major office Developments, large hotels, major leisure and cultural activities, other tourist attractions and retail development in the CAZ [CS – policy S3]
Environmental	Address climate change challenges	Development proposals should demonstrate that sustainable designs principles are integral to the proposal [Unitary Development Plan (UDP) – policy 35] [CS – policy S7, PN2 referred to Vauxhall area in particular]
		Encourage patterns and nodes of development that reduce the need to travel [CS – policy S4]
	Address flood risk management challenges	Development proposal must comply with the flood risk assessment and management requirements [CS – policy S6]
	Preserve the natural environment	Natural environment and biodiversity should be protected and enhanced [CS – policy S9]
Social	Ensure a good quality of life for all Londoners/ Improve the environment	Development proposals should incorporate appropriate measure enhancing green and open space [UDP – policy 50][CS – policy S5]
		Housing development should be of the highest quality internally and externally [UDP – policy 31, 33][CS – policy S2, S9]
	Meet challenges of population growth	Encourage mixed use development [CS – policy PN2 referred to Vauxhall area in particular]
		Meet the demand for social infrastructures and community facilities [UDP – policy 26, 30]. A number of key infrastructure have been identified to support growth in Lambeth [CS – page. 31, Annex 2]
		increasing housing supply and prevent the loss of existing housing 7,700 additional dwellings in Lambeth for the period 2011-2017 [CS – page. 30, policy S2] provide at least 3,500 new homes and 8,000 jobs in the Vauxhall area [CS – policy PN2 referred to Vauxhall area in particular]
	Provide an efficient and effective transport system	Improve the capacity and accessibility of public transport [CS – policy S4]
	Ensure accessibility for all	Set out integrated plans bringing together regeneration, development and transport proposal [UDP – policy 31] [CS – policy S4]
	Preserve buildings and streets with heritage value	Developments should incorporate heritage assets where appropriate and protect archaeological resources, landscapes and significant memories [UDP – policy 27, 31, 43, 45] [CS – policy S9]
	Ensure security and safety for all	Development should contribute to people’s sense of place, safety and security [UDP – policy 31, 32] [CS – policy S9]
	Address social exclusion and deprivation challenges	Development proposals should enhance facilities and services that meet especially the needs of those groups who experience disadvantages and socials exclusion [UDP – policy 31]
Maximize affordable housing provision At least 50 per cent of housing should be affordable where public subsidy is available, or 40 per cent without public subsidy, subject to housing priorities and, where relevant, to independently validated evidence of viability, or where there is a clearly demonstrable benefit in a different mix in the case of housing estate regeneration.		

		The mix of affordable housing should be 70 per cent social rented and 30 per cent intermediate. [CS – policy S2]
Institutional	Improve public transport infrastructure and services	Working in partnership with Transport for London, Network Rail and other public transport providers and supporting the plans and programmes for improvements to public transport infrastructure and services in the borough [CS – policy S4]
		Requiring major residential and commercial development that will have an impact on the current and future capacity of the public transport system to make a financial contribution to planned programmes for increasing public transport capacity in the borough, commensurate with the scale of the impact of the development [CS – policy S4]

Figure 17a: Policy objectives and sub-objectives derived from Lambeth’s UDP and CS (Source: Dimitriou et al, 2013)

Policy areas	Key objectives	
	Over-arching objectives	Sub-objective
Economic	Promote economic development in Wandsworth	Provision of flexible business space and regeneration initiative to promote additional employment [Core Strategy (CS) – PL 6]
Environmental	Address climate change challenges	Development proposals should demonstrate that sustainable designs principles are integral to the proposal [CS – IS 2] [Development Management Policy Document (DMPD) – DMS 3]
		Encourage patterns and nodes of development that reduce the need to travel [CS – IS 1]
	Address flood risk management challenges	Development proposal must comply with the flood risk assessment and management requirements [CS – PL 2][DMPD – DMS 5]
	Preserve the natural environment	Natural environment and biodiversity should be protected and enhanced [CS – PL 4, PL 9] [DMPD – DMO 4]
Social	Ensure a good quality of life for all Londoners/ Improve the environment	Development proposals should incorporate appropriate measure enhancing green and open space [CS – PL 1, PL 4] [DMPD – DMO 1]
		Housing development should be of the highest quality internally and externally [CS – IS 3] [DMPD – DMS 1, DMH 4, DMH 6]
	Meet challenges of population growth	Encourage mixed use development) [CS – PL 8, PL 11 on the VNEB OA] [DMPD – DMO 8]
		Support the provision and improvement of social infrastructures and facilities [CS – IS 6] [DMPD – DMC 2]
		increasing housing supply 7,500 additional dwellings in Wandsworth by 2017 and further 3,750 new homes between 2017 and 2022 [CS – PL 5]
	Provide an efficient and effective transport system	improve the capacity and accessibility of public transport [CS – PL 3]
	Ensure accessibility for all	Set out integrated plans bringing together regeneration, development and transport proposal [CS – IS 1] [DMPD – DMS 1]
Preserve buildings and streets with heritage value	Developments should incorporate heritage assets where appropriate and protect archaeological resources, landscapes and significant memories [CS – IS 3] [DMPD – DMS 1, DMS 2]	

	Ensure security and safety for all	Development should contribute to people’s sense of place, safety and security [DMPD – DMS 1]
	Address social exclusion and deprivation challenges	Regeneration initiatives should focus on priority areas presenting high levels of social deprivation [CS – PL 1]
		Maximize affordable housing provision 3,725 affordable homes to be provided between 2007 and 2017. Further 1,863 affordable homes between 2017 and 2022. A mix of intermediate (30%) and social rented (70%) will be sought [CS – IS 5]

Figure 17b: Policy objectives and sub-objectives derived from Wandsworth’s Core Strategy and Development Management Policies (Source: Dimitriou et al, 2013)

The first OMEGA Centre Workshop for the NLEA Project that role-played steps 1 to 7 of Phase 1 of problem analysis and problem structuring, which concerned:

- **The nature and scope of the NLEA project and what dimensions are to be appraised:** Among the most important issues here were:
 - improving accessibility to all transport systems including within the local area;
 - creating genuine benefits for local communities with a particular emphasis on supporting local job opportunities and providing adequate social infrastructure and services including affordable housing and crime reduction measures;
 - providing adequate and transparent support from the government including the provision of sufficient funding;
 - improving the quality of local environment including noise reduction, better design of the public realm and principles of sustainable design;
 - providing strong political vision and leadership; and
 - providing accurate demand forecasting and accelerated project delivery.
- **The purposes of the PLMCA appraisal exercise and attendant processes to be applied:** These were seen to provide a robust and defensible appraisal in a decision-making space that is transparent and which lends itself to systematic decision-making that leads more holistic mutually supportive responses to problem solving than typically permitted by more traditional appraisal methods such as CBA. All stakeholders subscribed to this stated purpose.
- **The reasoning behind the ‘open systems’ nature of the PLMCA appraisal exercise pursued:** This may be summarised as permitting and encouraging project stakeholders with different interests and agendas to identify common and conflicting interests, aims, objectives and policies to help derive possible options to address them. There was some indication at the workshop that power play could impact this objective to some degree without a strong impartial facilitator running the event.
- **The rationale behind the selection of the key stakeholder participants:** Whilst the initial stakeholder identification was undertaken by the workshop facilitators (acting in the name, ostensibly, of the GLA), no further groups were identified during the workshops by the role-playing stakeholders. Depending on circumstances, in reality this may in fact not reflect reality.
- **The role, nature and implications associated with the scenarios under investigation:** The three scenarios identified for the PLMCA exercise prior to the workshop were ratified by the participants. In a real-life situation, however, it would be expected that other possible scenarios may emerge from stakeholder discussions as new information is brought to the discussion by the various parties.

- **The suitability of the assembled policy framework and the inherent hierarchy of aims associated with this:** Participant feedback regarding this suggested there was some concern as to whether it is realistic to expect each stakeholder to provide complete and very transparent contributions to the PLMCA framework. It was suggested this would very much (*inter alia*) depend on which stakeholders are present, the relative power of the lead entity (on whose behalf the PLMCA is being undertaken), the quality of the workshop facilitator (in terms of being able to elicit stakeholders' true positions) and ability of other participants to detect any 'disingenuous' inputs. It was generally seen, however that since all stakeholder inputs to the PLMCA approach would be auditable, this would provide for a degree of mitigation especially if the appraisal is being undertaken by a public sector organisation subject to Freedom of Information legislation.

In discussions and negotiations concerning all the above among the workshop participants, it became apparent that allowance should be made by the GLA (as the sponsor of the PLMCA Process) for stakeholders to suggest and debate whether the presented information is sufficiently clear and comprehensible for their needs. It is also necessary to establish whether there are 'gaps' in (for example) the policy framework and plans and coverage of stakeholders. Most importantly in this step, it is critically important to acknowledge that stakeholder interpretations and perceptions of prevailing policy (and plans) will not only vary quite widely but that many parties will seek to mould and present policy statements in such a way as to best reflect the needs and wants of those parties. Discussion and debate in this regard clearly needs therefore to be recorded properly during negotiations, not least because this will facilitate better understanding of participant stakeholder agendas and afford greater transparency.

While consensus building in relation to decisions about the outputs of the appraisal exercise from Steps 1-7 is necessary, it was not possible at the role-playing workshop to foster complete agreement on all matters covered (a situation likely to be reflected in reality). With this in mind, it is advocated that the lead entity for future PLMCA workshops will need to consider which course of action represents the most suitable way forward, which may entail:

- making a series of substantive amendments/additions to the briefing document to better reflect stakeholder views; and
- deciding that the briefing document is generally acceptable to the majority of stakeholders (with minor amendments) and this thus represents a suitable way forward, albeit that major dissenting opinions are recorded.

3.4.4 Phase B - Model building

As noted above, the principal activities in this phase of the PLMCA exercise concern the construction of the appraisal matrix through the formulation and clarification of project objectives, the derivation of associated project appraisal criteria, and the establishment of a scheme of weights to reflect the actual and perceived importance attributed to each project criteria. This is explained in more detail below (see Steps 9-12). An input very relevant to the structure adopted for the model building phase is whether during phase 1 it was decided to structure the PLMCA in an 'open systems' manner (involving all key stakeholders) or by use of a 'closed systems' approach, whereby both objectives and appraisal criteria are primarily set by the lead entity. The latter mode being considerably less

demanding on resources than the former at the expense of depth of insights yielded by the processes. Whichever approach adopted, and this will vary according to the overall aims of the project and the appraisal exercise (as well as the context that surrounds the object of the appraisal), iteration(s) are invariably required for consensus to be reached. This is especially the case regarding the nature and scope of project objectives and choice of project criteria and weights.

As earlier conceded, it is highly likely that stakeholder interests for projects of the scale and complexity of the NLEA Project will require consideration of policies, objectives and criteria that are not (public) policy-led alone. They will, in other words, also reflect the aspirations and aims of other parties (especially from the private sector and perhaps increasingly from the third sector) that frequently have an important bearing on the project appraisal process and project outcomes. As advocated in the case of Step 8, the identification and consideration of these additional policies and agendas benefit from discussion and debate in a multi-stakeholder dialogue setting of the kind undertaken by the OMEGA Centre for its PLMCA role-playing appraisal exercise for the NLEA Project. An example of a cut down version of the PLMCA appraisal matrix, featuring policy input from both the public and private sector is presented in Appendix 2 and will be referred to in the below discussions. Discussions of steps 9 to 11, where pertinent, include reference to findings from the role-playing OMEGA Centre PLMCA Workshop #2 for the NLEA.

- **Step 9 – Formulation and clarification of policy objectives:** In this step (see Figure 18) it is first necessary for the promoter of the PLMCA exercise (the GLA) to formulate, clarify and clearly articulate the objectives emanating from the various public sector policies (and plans). These will have been identified in Step 7, and are those that contribute significantly to the overall policy framework (including those injected by private and third-sector stakeholders). In this regard, it is of utmost importance that:
 - **Each policy and related objectives are readily comprehensible to all involved stakeholders:** There is a need here for a consistent understanding of these policies and related objectives in terms of the opportunities they present and/or constraints they impose on the appraisal exercise (see Appendix 2).
 - **Each policy and related objectives are to be constructed so as to enable their further translation into appraisal criteria:** This needs to be done in a manner whereby they can be measured in some way either quantitatively or in a qualitative fashion (or both). This was achieved for NLEA project by identifying both higher level strategic policy objectives and related sub-objectives - the latter of which are often of a more operational nature and therefore lend themselves more directly to measurement via qualitative or quantitative criteria.
 - **Potential policy ‘gaps’ and related gaps in the coverage of planning objectives should be addressed:** This is most important and can be achieved in conjunction with the stakeholder dialogue/negotiations that take place, whether as part of an internal (‘closed’) PLMCA appraisal exercise or as an external (‘open’) one. In the case of the NLEA policy gaps identified concerning the concept of TOD and sustainable development, were partially informed by policies and related objectives transferred from sources outside the EU, notably in North America and Asia (see: Véron-Okamoto and Sakamoto, 2014; ITDP, 2013).
 - **Adequate thought be given to the issue as to whether the policies and related objectives selected are fully capable of addressing all scenarios considered:** This test of policy

resilience to different scenarios (whether they have their origins in changes that take place locally, nationally and/or internationally) is most significant to ensure the robustness of the PLMCA exercise. It in effect forms part of the risk/opportunity register that could be offered as a result of completing the PLMCA exercise.

- **Due regard is given to identification of over-arching project appraisal dimensions and hierarchy of objectives from broader policies that fall under each dimension:** This aspect is especially important given it may be used to inform subsequent weighting of objectives and related appraisal criteria. Such clarification should include re-confirmation and clarification of those policies and objectives that are deemed non-negotiable 'showstoppers', together with associated implications of this. The role-playing OMEGA Centre NLEA PLMCA Workshops yielded a number of such objectives identified by participants as 'showstoppers'. These included, amongst others, objectives relating to:
 - integrating transport policy with land-use policy;
 - promoting mixed use development;
 - improving safety of the transport system;
 - tackling climate change; and
 - addressing social exclusion and deprivation.
- **Due regard is given to ensuring that perceived risks (and/or opportunities) to the Project associated with the adopted policies and plans are clearly identified and articulated.** Where possible, these need to be measured in monetary and/or proxy quantitative terms. During the role-playing OMEGA Centre NLEA PLMCA workshop, risks were identified concerning the limited creativity deployed by the current OA development strategy. Here, some of the participants expressed concerns that the regeneration objectives for the 'opportunity area' for its transport and development proposals ("to maximise the transformational impact of regeneration") posed potential risk to investors and the local communities alike. This was so on account of the fact that current proposals do not fully explore the transformation potential of new development/regeneration not foreseen by the proposals.
- **Step 10 – Formulation of project appraisal criteria:** Subsequent to the preceding step and in accordance with the advocated PLMCA approach, the lead agency is required to identify and articulate the project appraisal criteria for each key policy and related set of objectives. As earlier suggested, this in essence demarcates the boundaries of the decision-making space for the appraisal which follows and the negotiations among project stakeholders. It should be appreciated here, as in the case of the earlier task of formulating policies and related objectives, that all selected project appraisal criteria need to be readily understood by the stakeholders participating in the PLMCA exercise.

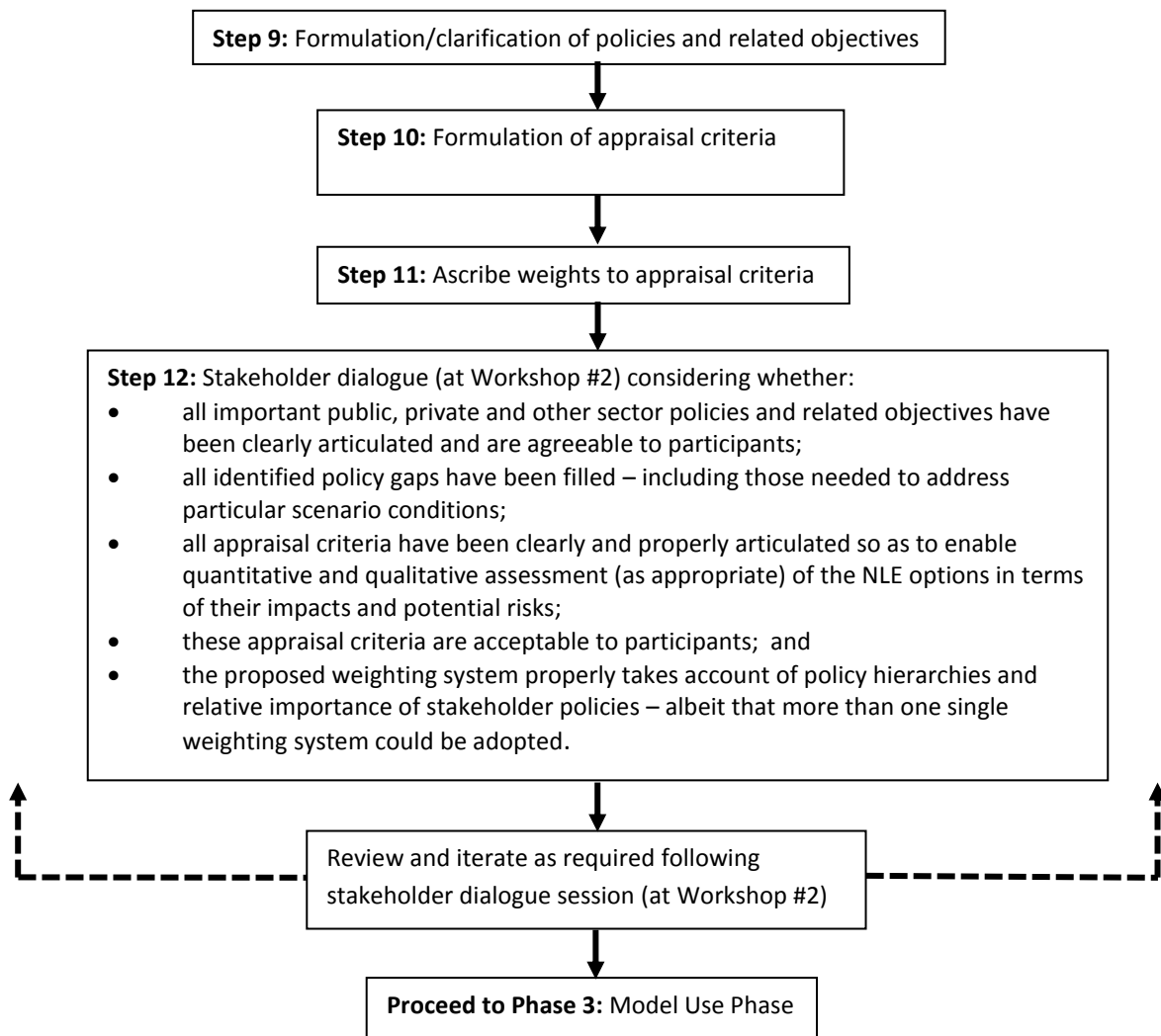


Figure 18: Process flow for Phase 2 - The model-building phase for NLEA project

Translating the above into the context of the NLEA Project, and drawing from the experiences of the OMEGA Centre role-playing PLMCA Workshops, the most important project appraisal criteria were drawn from the following sources:

- **The National Planning Policy Framework (NPPF) (DCLG, 2012):** This document sets out planning policies for England and indicates how these are expected to be applied. It provides guidance for local planning authorities and private sector investment decision-makers, both in drawing up plans and making decisions about planning applications. An important underlying purpose of the NPPF is to ensure proposed future developments contribute to the achievement of assigned sustainable development goals by encouraging local planning authorities to pursue development (in terms of providing homes, jobs and infrastructure) in a way that is consistent with the principles of sustainable development. The main objectives established by the NPPF which are consistent with the VNEB OA include: building a strong, competitive economy; promoting sustainable transport; meeting the challenge of climate

change and flooding; conserving and enhancing the natural environment; ensuring the vitality of town centres; delivering a wide choice of high quality homes; requiring good design of the built environment; facilitating social interaction and creating healthy, inclusive communities; and conserving and enhancing the historic environment.

- **The Mayor's Transport Strategy (Mayor of London, 2010a):** As earlier indicated, this strategy aims to implement an efficient and effective transport system better able to support economic development and population growth. Its achievements are to be assessed in terms of: additions to transport capacity and connectivity; easement of crowding and congestion; encouragement in a shift away from the private car; smoother traffic flow, the continuation of the 'cycling revolution' in London and making walking count. Overall, the strategy also seeks to reduce the need for travel via mixed used developments and by utilising London's waterways and innovative information systems. It looks to enhance the quality of life of all Londoners, assessed in terms of: improvements to journey experience; enhancement of the built and natural environments; improvements to air quality; and reduction of noise impacts. The strategy, furthermore, aims to improve the safety and security of the public transport users, assessed in terms of: reducing crime, fear of crime and anti-social behaviour on public transport services. It also looks to improve road safety and public transport safety as well as enhance transport opportunities for all citizens (assessed especially in terms of Improving physical accessibility) and reducing transport's contribution to climate change (assessed in terms of reductions in CO2 emissions and adapting to climate change).
- **The Department for Transport's (DfT) New Approach to Transport Appraisal (NATA):** This forms the basis of the WebTAG guidance offered by DfT (2015) which assesses transport projects against their contribution to and impacts on five core objectives, namely: the environment, safety, accidents and security, the economy, accessibility and integration. Taking each of these aspects in order:
 - The environment – aspects of the environment are appraised against objectives and related criteria that seek to protect the built and natural environments (assessed in terms of noise, local air quality, greenhouse gases, landscape, townscape, heritage of historic resources, biodiversity, water environment, physical fitness and journey ambience).
 - Safety – aspects of safety are appraised against objectives and related criteria that seek to improve human safety (assessed in terms of accident rates, security threats and incidents).
 - The economy – aspects of the economy are appraised against objectives and related criteria that seek to support economic activity that provide good value for money to project investors, including the government (assessed in terms of public accounts and transport economic efficiency that look at costs and benefits to business users, transport providers, transport service consumers in terms of reliability, and wider economic impacts).
 - Accessibility – aspects of accessibility are appraised against objectives and related criteria that especially seek to improve the physical access to facilities and opportunities for those without a car and to reduce severance brought about by motorised traffic and its infrastructure (assessed in terms of option values, physical severance and physical access to the transport system).

- Integration – aspects of integration are appraised against objectives and related criteria that seek to ensure all investment decisions are taken in the context of the Government’s integrated transport policy (assessed in terms of transport interchange facilitated, land-use policy adherence and compliance with other Government policies that seek to advance integrated development across transport modes and sectors).
- **The London Plan** (Mayor of London, 2011): This provides the overall planning contexts for the NLE and for areas adjacent to the line-haul section of the project plus areas surrounding the two new stations, including VNEB Opportunity Area. Appraisal criteria that may be derived from this source, by illustration, include measures: within the institutional dimension ensuring coordination between the different Mayor of London’s agencies and the social dimensions of the plan that contribute to people’s sense of place, safety and security. They also include those that demonstrate sustainable designs principles are integral to the proposal and those within the economic dimension that bring forward development capacity and supporting infrastructures and services to sustain and enhance the redevelopment area.
- **Local Authority Policies and Plans of the London Boroughs of Wandsworth and Lambeth** (London Borough of Lambeth 2007, 2011; London Borough of Wandsworth, 2010, 2012): Documents that articulate and disseminate local authority plans and policies for the vicinity of the NLEA need to be scrutinised and mined for criteria that can be employed in the appraisal process. These typically span across a range of sectors that together emphasise the importance of the delivery of a development that is sustainable and closely linked with transport provision (see Figures 17a and 17b).

An additional feature of PLMCA earlier explained, is its capability to offer an appraisal framework and attendant processes that are more holistic and thus more suited to project assessments that can give priority to goals of sustainable development (at all levels) if so directed. To capture this agenda, findings of the OMEGA 2 Project (OMEGA Centre, 2012) suggest that MTPs such as the NLE are best seen as potential ‘agents of (sustainable) change’ rather than engineering feats alone. In this sense, they advocate that appraisal criteria need to include measures and indicators that go well beyond the operational performance and efficiency concerns of the transport system and its services. International sources that offer valuable guidance and insights into the choice of these broader criteria and how to operationalise the concept of sustainability in the transport sector include: Zegras (2011), a DfT Report entitled *Developing a Sustainable Transport System* (DfT, 2008) and an ADB Working Paper entitled *Toward a Sustainability Appraisal Framework for Transport* (ADB, 2014).

Over and above organising project appraisal criteria for PLMCA exercises in terms of the traditional three pillars of sustainability (i.e., dimensions of social, economic and environmental sustainability) (UN, 2002), following the work of Brinkerhoff and Goldsmith (1992), Dimitriou and Thompson (2001) introduce a fourth pillar, namely, ‘institutional sustainability’ which includes concerns of governance. The argument forwarded here is that *unless* institutional and governance frameworks, as well as agency capacities (especially in the public sector), in the planning, appraisal and delivery of major infrastructure investments are themselves sustainable, and unless they share in the visions of sustainable development, it is highly unlikely that the aspired after/promised economic, environmental and social goals of sustainability associated

with major transport investments projects can be delivered. This is a stance echoed in the *2013 Global Report on Human Settlements* (UN-Habitat, 2013). Building on this position it is here advocated that the PLMCA framework and attendant processes for the NLE Project also incorporate this fourth pillar of sustainability.

Efforts to include the institutional (and governance) dimension of sustainability in the appraisal of mega infrastructure projects were reflected in work the OMEGA Centre undertook for the Institution of Civil Engineers (ICE) and the Actuarial Profession (AP) in the UK in its study of *How Better to Incorporate Social and Environmental Issues of Sustainability in the Appraisal of Critical Infrastructure Projects* (The OMEGA 3 Project) (OMEGA Centre, 2010) alluded to in Paper 2. This was commissioned by the two parties to update their RAMP Handbook on Project Management and to inform UK Government's *Green Book on Infrastructure Appraisal* (HMT, 2013). Among other things, the OMEGA 3 Project sought to integrate appraisal criteria of sustainability across a whole spectrum of project outcomes and outputs within an organisation of the four pillars of sustainability by adapting the HalSTAR Model developed at Halcrow (Pearce 2008) also referred to in the preceding papers.

Central to the HalSTAR Model analysis is its sustainability wheel providing a generic framework of sustainability criteria derived from the definitions implicit in over 400 reviewed existing approaches to sustainability (see Figure 2 in Paper 1 of this publication). These include assessment methods, indicator sets, legislation, planning policies, corporate responsibility reports, and the requirements of key stakeholder groups. The HalSTAR approach affords a clear picture of the multiple criteria mostly associated with assessing progress toward achieving sustainability which in turn enables stakeholder conflicts and trade-offs to be drawn out much more easily thus facilitating transparency. The HalSTAR sustainability wheel has been modified to highlight the four (rather than three dimensions) of sustainability that the OMEGA Centre employed in its OMEGA 2 Project research and to bring out the importance of the treatment of risk, uncertainty, complexity and the importance of context. It also alludes to the impact on project appraisal of values imbedded in stakeholder perceptions about particular concepts, issues and techniques.

- **Step 11 – Ascribing weights to project criteria:** Also in this model-building phase is the need to ascribe weights to the project appraisal criteria which identify their relative importance. Potentially, this is among the most challenging tasks of the PLMCA exercise. Although project stakeholders may finally agree (following extensive dialogue) on criteria to be employed across the four pillars of sustainability for the line-haul component of the project (i.e., the NLE itself) and for adjacent redevelopment areas (such as the VNEB Opportunity Area), significant differences can occur as to which set of criteria (and which project component) should take priority. There is then, furthermore, the issue of which criteria to select that best measures/reflects the 'agent of change' benefit the completed project may deliver.

Resolving the latter two dilemmas very much depends on the standpoint and policy priorities of the lead entity which is why the type of MCA approach advocated here is referred as being 'policy-led'. Decisions regarding the stance and choice of the policy priorities of the GLA, as role-played in the OMEGA PLMCA Workshops, essentially looked to an 'open systems' appraisal that:

- encouraged individual external stakeholders (in a closed internal exercise) to systematically set weights for appraisal criteria according to their particular agendas;
- subsequently, facilitated a ‘share-and-compare’ exercise of these criteria and the priorities adopted with other stakeholders participating in the appraisal exercise so as to identify commonalities, differences and conflicts; and
- finally, involved undertaking a further ‘share-and-compare’ exercise, this time set against criteria and priorities ascribed by the GLA as a basis for later discussion/negotiation between the lead agency and the stakeholders as to the revisions to be made (minor or otherwise).

Where stakeholder positions and agendas are widely varied, and where reconciliation of divergent views is simply not possible, it is recommended that the weights derived in this open approach are adopted alongside ones in which the weighting system is formulated by the lead entity. These can then be taken forward to the Model Use Phase of the PLMCA exercise to enable the overall appraisal outcomes to be examined and debated in a final stakeholder dialogue (workshop) setting. In both ‘open systems’ and ‘closed systems’ appraisal approaches it is only sensible (as implied earlier) that due regard should be given to the overall ‘policy-objective-criteria’ hierarchy provided by the lead-agency. This inevitably, in part, is likely to be inherited from broader national guidance articulated in documents such as the *National Planning Frameworks* (DCLG, 2012) which point to some criteria being of greater importance than others. This is especially pertinent to those policies-objectives legitimately considered to be non-negotiable ‘showstoppers’ as in the case, for example, of ‘Improving safety of the transport system’ or ‘Integrating transport policy with land-use policy’ - both key policy objectives from the *Mayor’s Transport Strategy* (Mayor of London, 2010a).

For illustrative purposes alone, Figure 19 reports in a rather basic manner the assignment of a variety of weights to particular project criteria ascribed by four broad stakeholder groups at the NLE PLMCA role-playing OMEGA Workshops for two scenarios. The four broad groups included: Central Government (CG), Transport for London (TfL), environmental pressure groups (EPGs) and public transport users (PTUs). The role-playing exercise revealed that CG and TfL considered that economic criteria be weighted highly if not the highest, whilst the EPG (perhaps unsurprisingly) maintained that preservation of the natural and built environments should take precedence over economic concerns. The PTUs, by comparison, expressed a distinct preference for improvements in the NLE’s accessibility and capacity attributes. Interestingly, in some cases, there was evidence to suggest there were differences in the weights ascribed by the same stakeholder to a criterion under the two different scenarios. For instance, the relative importance attributed to social and environmental concerns by all four stakeholder groups were higher in the economic recovery scenario (Scenario 3) as compared with the economic downturn scenario (Scenario 2).

Examples of project appraisal criteria	Stakeholder ascribed weights (0-100)								
	Scenario 2 (Economic Recession)				Scenario 3 (Economic Recovery)				
	CG	TfL	EPG	PTU	CG	TfL	EPG	PTU	

Average level of PTALS ⁵ within VNEB area	70	80	70	95	80	85	75	95
Accessibility to disabled	80	90	65	90	80	90	65	90
Level of integration between different transport networks	70	75	70	80	80	85	75	90
Reduction in number of accidents	75	75	50	80	75	75	50	80
Reduction in level of overcrowding on public transport	65	80	50	90	75	85	50	90
Public transport passenger capacity achieved	80	95	75	85	85	95	80	90
Energy spending in transport sector	80	75	90	55	90	80	95	65
CO2 emissions by transport sector	85	75	90	55	95	80	95	65
Level of noise emitted by transport sector within VNEB OA	40	45	60	60	40	45	60	60
Pollution levels	65	70	85	70	70	75	95	75
Historic buildings retained and /demolished	60	40	65	55	65	40	65	55
Cost Benefit Analysis Ratios	95	95						
No. of new jobs provided/displaced	95	75	40	50	90	90	35	45
	?	?	50	50	90	65	45	45

Figure 19: Example of illustrative weights ascribed to appraisal criteria by different stakeholder groups
 (Source: Dimitriou et al, 2013)

The role-playing PLMCA exercise for the NLE Project undertaken at the OMEGA Centre Workshops revealed that efforts at formulating weights for project criteria by individual stakeholders entailed researching, reviewing and in some cases exposing policies, agendas, priorities not previously readily appreciated. In some instances, these revelations came about as a result of the more focused thought required by the PLMCA exercise. In other instances, they arose from efforts to resolve internal conflicts of priority among a stakeholder's own organisation. Interestingly, the proceedings of the stakeholder dialogue highlighted some counter-intuitive outcomes. The most notable was a convergence of interest (beyond the rhetoric) of some third sector parties and local authority representatives with the more progressive real estate stakeholders who together concluded that the policy and planning leadership of the GLA was insufficiently innovative and visionary and offered together to come up with an improved scheme. The original proposals were seen by these stakeholders to be constrained by 'line-haul' transport operational priorities on the one hand and by real estate imperatives on the other. The parties concerned concluded that had more integrated thinking existed between the Treasury, DfT and DCC, especially, the current crowding-out of more social, community and environmental concerns would, if taken on forward, offer the potential to enhance the viability of real estate projects beyond the more conventional appraisal envelope both in terms of density and quality of design.

⁵ PTAL: Public Transport Accessibility Level

- **Step 12 – Stakeholder dialogue:** At this point in the PLMCA process the GLA was advised in the role-playing PLMCA workshop to hold a further workshop with key stakeholders (Workshop #2) to discuss and confirm output from the PLMCA model-building phase, to address a number of key questions, including whether:
 - all important public, private and other sector policy objectives have been clearly articulated and are agreeable to participants;
 - all identified policy gaps have been filled – including those needed to address particular scenario conditions;
 - all appraisal criteria have been clearly and properly articulated so as to enable quantitative and qualitative assessment (as appropriate) of the NLE options in terms of their impacts and potential risks;
 - these appraisal criteria are acceptable to participants; and
 - the proposed weighting system properly takes account of policy hierarchies and the relative importance of stakeholder policies – albeit that, as mentioned above, more than one single weighting system could be adopted.

It should be noted that some participants at this Workshop considered the adopted ‘weighting system’ could prove misleading as it would be difficult to attribute meaningful values concerning strategic issues using a scale range from 1-100. It was thus suggested that for future applications of PLMCA a scale be adopted which addresses this issue via a simple ranking system (1-3).

3.4.5 The model use phase

In the model use phase the ‘performance’ of the NLE ‘Preferred Options’ is assessed in terms of its qualitative and quantitative impacts and outcomes (including outputs from CBA and other modelling exercises) plus potential risks and opportunities they produce (see Figure 20).

- **Step 13 – Stakeholder dialogue:** It is in the final workshop (Workshop #3) that project stakeholders are tasked with assessing the ‘Preferred Option’, discussing and debating appraisal outcomes and making recommendations concerning the options themselves. This involved a number of sub-steps as highlighted below:
 - Sub-step 13.1 – option performance appraisal: Here each stakeholder participant assigns a performance score for the NLE ‘Preferred Option’ on the PLMCA framework matrix (see Appendix 2) using a pre-determined numeric scale against the appraisal criteria identified in the model-building phase. As part of this process, stakeholders are required to identify, describe and (wherever possible) dimension the qualitative and quantitative impacts of the ‘Preferred Option’ against each policy and related objectives using the agreed project appraisal criteria. Concurrently, each stakeholder participant needed to identify, describe and dimension all potential risk sources and impacts – again, these may be qualitative or quantitative. During Workshop #3 it was suggested to adapt the earlier recommended 5-point scoring system so that any subsequent appraisal also incorporates the possibility of negative values. Consequently a scoring system that included ranges: +2; +1;0;-1;-2 was adopted as in Figure 21.

Step 13: Appraisal Stakeholder Workshop #3

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Step 13B: Aggregate

Step 13A: Option performance appraisal & consideration of risks and opportunities

Figure 20: Process flow for Phase 3 - the model use phase for NLE project

Project Criteria Score	Project Criteria Performance	Project Criteria Elaboration
-2	Negative performance	Criteria not fulfilled at all
-1	Somewhat negative performance	Criteria substantially not fulfilled
0	Neutral performance	Unclear whether criteria has been met or performance has a mix of both positive and negative aspects
+1	Slightly positive performance	Criteria partially fulfilled
+2	Positive performance	Criteria fulfilled

Figure 21: Suggested modification to scoring system

- Sub-step 13.2 – aggregation of scores: Once Sub-step 13.1 has been completed all the stakeholders’ numeric scores are aggregated by the lead authority (the GLA) for the NLE ‘Preferred Option’ under each scenario with relative performances identified against each criteria to provide a ‘baseline’ performance indicator. Following this, the overall ‘scores’ for both performance and risk are adjusted using the previously identified weighting scheme to provide a new ‘weighted score’ and risk analysis. This enables cross-comparison of the outcomes of the weighting scheme and the identification of the degree of sensitivity to weight changes each option displays.

Following sub-steps 13.1 and 13.2 it is critically important for participant stakeholders to thoroughly examine and discuss both the scores and risk analyses derived from the appraisal (including under different scenarios). This is done together with the impact of the weighting scheme(s) applied to determine the nature and extent of 'winners and losers' produced by the NLE 'Preferred Option' or particular aspects of it (preferably distributed over time and space) by pursuing the following sequence of steps:

- Sub-step 13.3 – examination of results: Subsequent to sub-steps 13.1 and 13.2, it is critically important for participant stakeholders to thoroughly examine and discuss both the scores and risk/opportunity analyses derived from the appraisal (including under different scenarios). This is done together with the impact of the weighting scheme(s) applied to determine the nature and extent of 'winners and losers' produced by the NLE Preferred Option or particular aspects of it.
- Sub-step 13.4 – trade-off and negotiation: Given the likelihood that the 'Preferred Option' does not score equally highly against all policies, objectives and criteria, and that some previously unidentified risks (and opportunities) are highlighted by stakeholders, it will be necessary for stakeholders to engage in negotiations and make trade-offs during negotiations with a view to determining whether (*inter alia*):
 - further sensitivity testing is required of the option (e.g. by varying the weights ascribed to individual criteria) which can be undertaken at the workshop;
 - scores allocated by individual stakeholders are seen to be reasonable by others – again, this can be undertaken at the workshop; and
 - there are certain aspects of the 'Preferred Option' that could be amended so as to enhance its relative performance under each scenario.

Discussions at the role-playing workshop indicated the need for a full review of the 'Preferred Option' in light of either/both perceived unacceptable performance levels or unacceptable risk levels. These outcomes may well require additional examination of the Option by the GLA and the holding of a further stakeholder workshop in a format which essentially repeats sub-steps 13.1-13.3. Alternatively, at this juncture, the GLA had the option choose to close the process if it is decided that a sufficiently clear 'steer' has been obtained from stakeholders.

The outcomes of the OMEGA Centre role-played PLMCA Workshop for the third NLEA Project stakeholder workshop (Workshop #3), however, differed from the set of planned procedures presented above for Step 13. This was because there was a certain amount of resistance from the participants to 'close down' the process by establishing an agreed set of scores for the project option at this point. There were also a number of discussions focusing on the appropriateness of the scoring system, not only concerning the range it offered but also regarding how scores and weighted scores should be visualised.

One suggestion emanating from the workshop was the potential use of a 'Rank Score Matrix' (see Figure 22) for project criteria weighting. Here, instead of combining the aggregated weights and scores to provide a set of weighted scores and overall appraisal score as a single

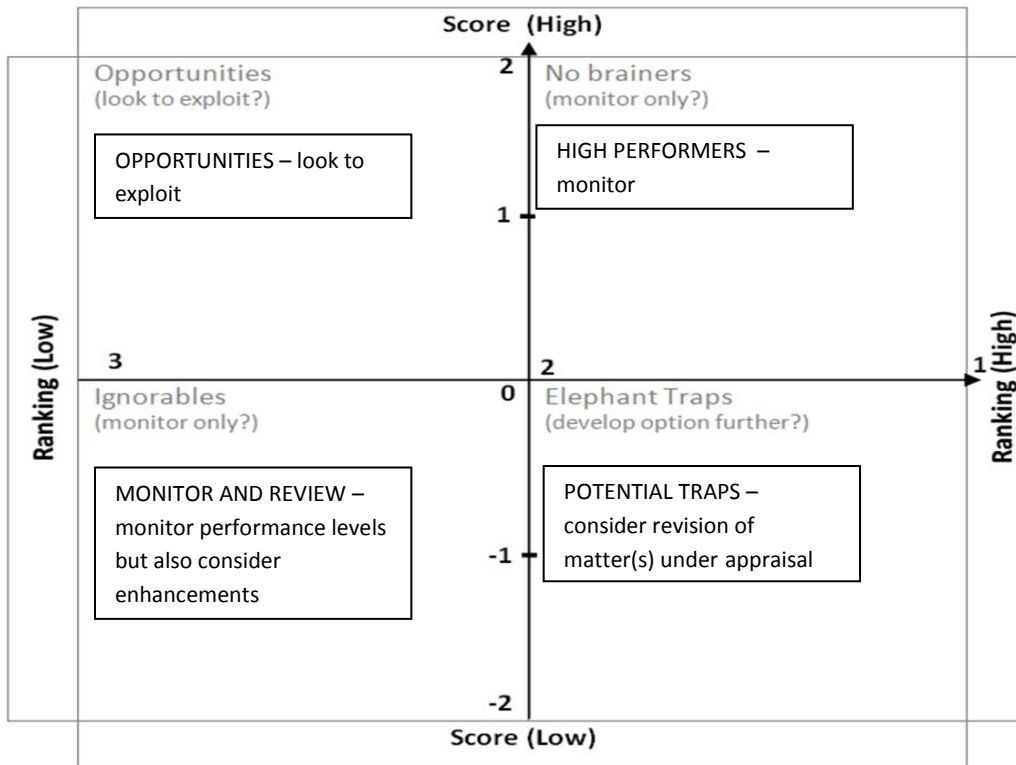


Figure 22: Rank-score matrix (Source: Dimitriou et al. 2013)

metric (as per the output of CBA), the Rank Score Matrix plots disaggregated scores and weights (termed rankings) for each appraisal on a two dimension grid consisting of four aspects concerning:

- Opportunities: These relate to low ranking but high scoring aspects of the matter(s) under appraisal which may usefully be further exploited by the lead entity in discussion with stakeholders.
- Monitor and review: This relates to low ranking and low scoring aspects of the matter(s) under appraisal likely to be monitored by the lead entity on an on-going basis. Some thought here may need to be given to identifying ways in which performance levels might be improved (not least because policy objectives currently rank 'low' may become more significant over time).
- High performers: These relate to high ranking and high scoring aspects of the matter(s) under appraisal. Such aspects represent particularly good responses to key policy and related objectives but should again be monitored by the lead entity on an ongoing basis.
- Potential traps: These concern high ranking but low scoring aspects of the matter(s) under appraisal. They need further, very careful consideration by the lead entity in conjunction with stakeholders to determine whether it is possible to alter the matter(s) under appraisal to improve its/their performance.

Figure 23 was used during workshop 3 to illustrate how the rank-score matrix would work in practice. The red crosses depict poor performing objectives – such as the high ranking (1) but low score (-1) objective related to the projects potential as an 'agent of change'. The location of this cross indicates the workshop participants view that the potential of the NLE had been fully

exploited in this regard. Conversely other high priority objectives, such as those related to ‘plans for mixed use’, fared better, as indicated by the green cross. Participants at the third role-playing NLEA OMEGA Centre stakeholder workshop felt comfortable with the Rank Score Matrix since it avoided an over-aggregation of data, thereby keeping in with the spirit of PLMCA as a transparent and holistic decision-making tool, whilst flagging up those appraisal dimensions/aspects or appraisal objectives where underperformance is an issue.

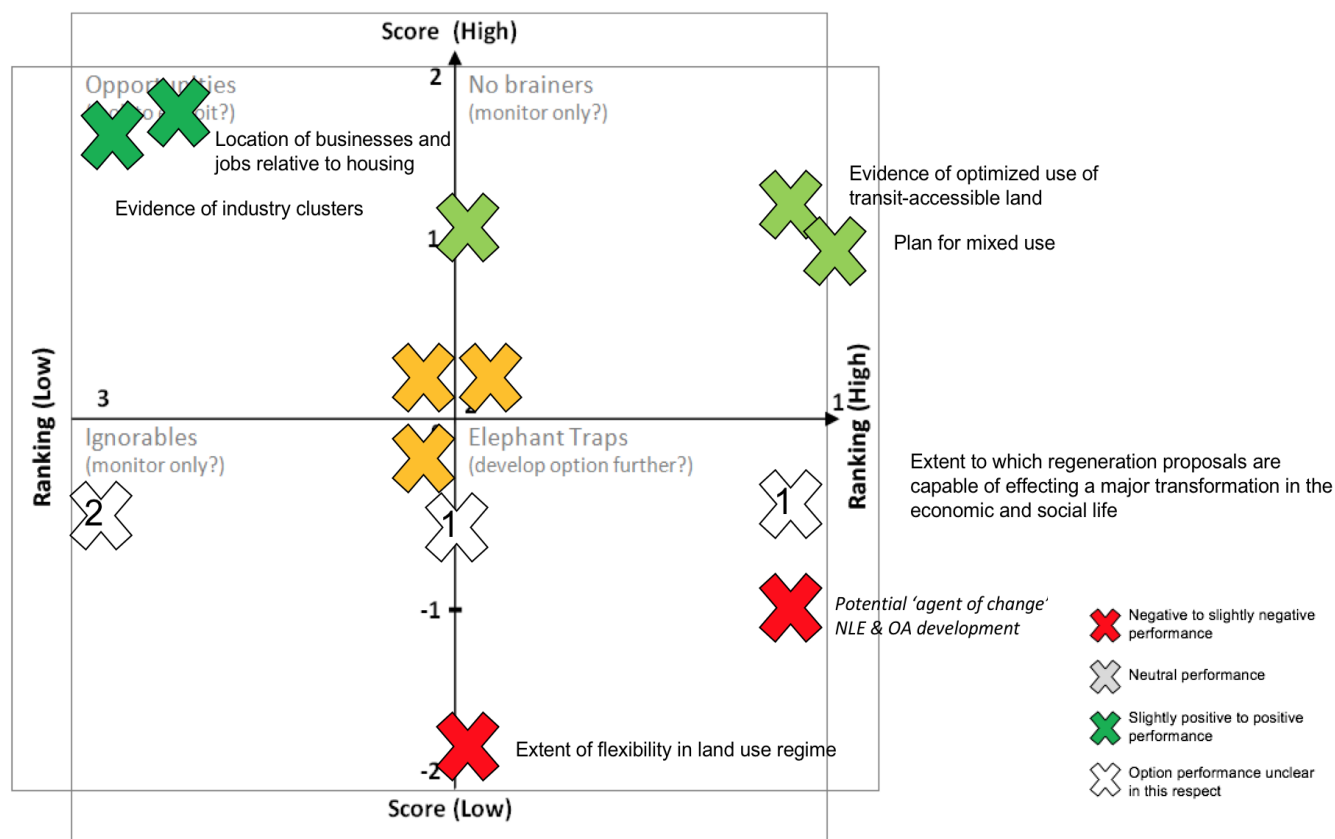


Figure 23: Illustrative example of partially completed rank-score matrix (Source: Dimitriou et al, 2013)

Another principal focus of the same workshop concerned the question of the utility of project outcomes representing a ‘single solution’ to a (presumed) known problem. In the case of the project under scrutiny here, it would strongly appear from the documentation provided and the evidence that emerged that the case for the proposed NL extension was *initially* primarily made as a means to unlock the real estate and other developmental benefits of areas in the project’s immediate vicinity. Subsequent dialogue and analyses undertaken by various stakeholders at the OMEGA role-playing workshops, suggest however that over and above these initial opportunities identified by the project promoters, there were a number of additional unacknowledged risks that also needed to be scrutinised (especially, under certain scenarios). Feedback from the role-playing OMEGA Centre Workshop participants, furthermore, suggested that PLMCA not only provided an invaluable means of scrutinising the potential opportunities (and risks) where/when development schemes such as the NLEA Project are pursued in a more collaborative form by the different stakeholders. It also communicated, following extensive stakeholder discussions at the workshop between private sector and community group representatives, that there were

potentially more innovative, profitable and sustainable schemes open for development than those presented in the absence of such multiple stakeholder discussion - and that these schemes should be considered in any appraisal exercises going forward.

3.5 Conclusions

Building on the findings presented in Papers 1 and 2 of this monograph, by way of illustration, this paper has presented the application of the PLMCA framework and its attendant processes to the appraisal of the Northern Line Extension Project and its related developments in London, collectively referred to as the NLEA Project. It has sought to not only present the over-arching principles of more holistic megaproject appraisal introduced by past OMEGA Centre research but also detail the logistics and steps that need to be taken by a lead entity (in this case the GLA) in setting-up and executing a PLMCA exercise *via* a series of three multi-sector stakeholder role-playing workshops. Looking back at the workshops and writing-up the experience of this role-playing exercise, feedback from stakeholder contributors reveal a number of valuable observations. Among other things, these notably include how PLMCA can help identify and map out the most relevant policies, related plans plus stakeholder agendas affecting the project. This information platform proved invaluable as a basis for identifying areas of shared and/or divergent stakeholder interests with a view to capitalising on the former where advantageous, and mitigating risks related to the latter where possible. One aspect of the participatory PLMCA approach described that cannot be emphasised enough are the benefits it offers to all those engaged in it as a mutual stakeholder learning and knowledge sharing exercise - especially through stakeholder workshops. This is so because the stakeholder dialogue revealed the potential to not only identify 'show-stopper' actions earlier than would otherwise be the case but also to unlock new options that more traditional appraisal approaches would not have done. A summary of the key findings and lessons from the role-playing NLEA stakeholder workshops ensue as a conclusion to the paper.

Workshop participants saw the PLMCA approach employed as particularly effective in mapping out and tracking (auditing) political and policy positions plus the imperatives that affected the project. They also saw merit in keeping track of stakeholder negotiations and the decision-making trade-offs agreed, meanwhile recognising the changing types of stakeholders involved in the project as it moved from one decision-making stage to another. PLMCA and its attendant processes also offer the added advantage of providing a basis for monitoring relative alterations in stakeholder powers to influence decision-making as the project moves from one stage/location to another.

In jointly developing and populating the advocated PLMCA framework with relevant information, documentation and metrics, it became clear to many stakeholders that the approach also offers the potential to accommodate a multiplicity of appraisal tools within the same decision-making space, realising in so doing that different appraisal tools serve some stakeholder interests better than others do. This realisation helps lead agencies falling victim to appraisal specialist competing claims as to which is 'best' by instead acknowledging the benefits of a more inclusive and collaborative approach whereby CBA and its derivatives, for example, can be used with other appraisal techniques *to inform* PLMCA exercises.

Another acknowledged advantage of the kind of appraisal approach advocated for the NLEA project here concerns the importance PLMCA gives to contextual matters/influences – whether stakeholder or scenario based (or indeed both). A PLMCA approach provides an especially useful framework for potentially identifying, tracking and making sense of contextual changes and changing stakeholder positions as they relate to different progressions of project developments. This can prove especially useful in terms of understanding (from different perspectives) how these changes affect the development/formulation of project visions using multiple stakeholder inputs. Some stakeholders involved in the role-playing workshop exercises for the appraisal of the NLEA project saw an approach of this kind much less risky as compared to more common situations when/where some stakeholders are engaged in the decision-making much later on in the project lifecycle. The premise employed here then is that earlier stakeholder involvement assists in promoting a ‘buy-in’ to the project thereby reducing opposition to it.

Building consensus among project stakeholders concerning which policies, project objectives and related criteria to give priority to is of critical importance to all/most project stakeholders in a PLMCA appraisal exercise. Of more critical importance (from the outset), is who to include/exclude in this stakeholder participation, and who decides whom to include/exclude as stakeholder decision-making participants. The PLMCA role-playing exercise undertaken for the NLEA by the OMEGA Centre revealed that the inclusion in the appraisal process (ostensibly by the GLA) of stakeholder participants representing local community interests was particularly significant to the final outcome of the exercise. This is so given the strong collaboration that emerged between certain real estate parties and local community groups who together (albeit after much negotiation) arrived at a more innovative urban development vision for the NLEA project with earmarked local schemes seen by them to be socially and environmentally more attractive, sustainable and profitable than those outlined in the ‘Preferred Option’. It was acknowledged by all concerned that had such engagement taken place earlier, it would have enabled potential conflicts between stakeholders to be addressed sooner and enabled resources to be put to better and more effective use from an earlier stage of project development.

Quite apart from the above advantages of PLMCA, workshop participants also benefited from becoming aware that the approach is potentially applicable to *all* stages of the project lifecycle rather than to project appraisal alone. The potential for PLMCA to facilitate enhanced transparency and better consensus building in decision-making *via* its employment of a policy-led holistic framework - combined with its early identification and mitigation of potential risks (and opportunities) – was seen to be invaluable. This was so on account of the fact that it provides a much clearer picture of key project objectives and appraisal criteria as compared to the more ‘opaque’ picture frequently presented to lay stakeholders by specialist appraisers.

Notwithstanding the cited merits of PLMCA, some workshop participants expressed concern regarding whether it is reasonable to expect each project stakeholder to provide complete and very honest contributions/inputs to the process. It was suggested that this would depend (*inter alia*) on which stakeholders were included in the exercise, the relative power of the lead entity (on whose behalf the PLMCA would be taking place), the quality of the workshop facilitator(s) (in terms of being able to elicit the stakeholders’ true positions) and the ability of other participants to detect ‘disingenuous’ inputs. It was generally seen, however, that, since all stakeholder inputs to the PLMCA exercise would be

auditable, this would provide for a degree of mitigation if the appraisal is being undertaken by a public sector organisation that would be subject to Freedom of Information legislation.

Other general observations worthy of note from the role-playing PLMCA exercise is that there was a clear recognisable need for those driving the PLMCA approach to ensure that all stakeholder's opinions, views and inputs are treated with equal respect, *irrespective* of their apparent 'power' to affect decision-making. It was also noted that there is a need for careful thought to be given to the use of clear and unambiguous language in setting-out policies, related objectives and appraisal criteria - in a manner that these are fully comprehensible and meaningful to all stakeholders. For the PLMCA approach to be fully effective it was, additionally, noted that stakeholders needed to be fully committed and able/willing to devote considerable time and effort to preparing their individual inputs to the PLMCA exercise, as well as ensure a sustained representation at the workshops. Finally, some participants suggested that whilst certain basic IT tools were usefully used during the workshops, more could be made of these to enable (for example) remote data entries by stakeholders and to permit enhanced interactive displays to be provided to assist the manipulation of appraisal outputs/scenario outcomes. One way or other, it is well appreciated by the authors (as the facilitators of the workshops) that PLMCA as presented here represents a platform for further development of the approach rather than posing as a fully-fledged template to be repeated elsewhere, irrespective of client, type of project or context.

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APPENDIX 1 - 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 - 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: - Wandsworth mobility forum - Camden mobility forum - Hounslow mobility forum	Regional Accessibility groups, approx. 10 groups including: - Inclusion London - Royal London Society for the Blind - Greater London Forum for Older People	National Accessibility groups, approx. 15 including: - Disability Rights for UK - Guide Dogs for the Blind - Trailblazers Network	
Local transport groups: - Clapham Transport Users Group	Regional transport groups: - London Travel Watch - London Underground Royal Society	National transport groups: - Travel Watch UK - Passenger Focus	
Local Action groups, approx. 70 including: - 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 Froum - Claylands Green NLE Action Group, - Fentiman Road NLE Action Group - Fentiman Road and Richborne Terrace Residents Association - VNEB DATA group - Harmsworth Street			

<p>Action Group</p> <ul style="list-style-type: none"> - 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>Natural England The Environment Agency English Heritage</p>	
<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 - 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>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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<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 -
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Appendix 2 Part 1: Objectives considered to represent statutory requirements and/or relate to elements that are 'fixed' in terms of the overall planning for the NLE and VNEOA		
	Criteria	Comment
LAND USE-TRANSPORT PRINCIPLES		
Integrating transport policy with land-use policy [Ref.: London Plan 2011 - policy 2.13, 2.14, 3.29, 6.1; Mayor's Transport Strategy 2010 - policy 22, 23; Lambeth Core Strategy 2011 - Policy S4; Lambeth Unitary Development Plan 2010 - Policy 31; Wandsworth Core Strategy 2012 - policy IS 1; Wandsworth Dev. Management Policy Document 2012- Policy DSM 1]	Compatibility of transport initiatives with London planning & policy (as advised by TfI)	All National, Regional and Local policy documents support the NLE Project, recognizing its fundamental role in relation to the VNEB OA development
Promoting mixed use development [Ref.: London Plan 2011 - policy 2.12, 2.13; Lambeth Core Strategy 2011 - Policy PN2; Wandsworth Core Strategy 2010 - policy PL 8, PL 11; Wandsworth Dev. Management Policy Document 2012 - Policy DS0 8]	Extent to which proposals promote mixed use development Proportion of area devoted to mixed-use	The VNEB OAPF support the delivery of a high density mixed use development [Ref. GLA, 2012]
TRANSPORT		
Improving safety of the transport system [Ref.: Mayor's Transport Strategy 2010 - policy 19, 20]	Number of accidents per year	Proposed transport facilities will meet all necessary safety guidelines/regulations
NLE to be developed to a high standard specification so as to support the development of the OA and its 'branding' as a significant new centre in London	Level of specification for the NLE compared with other similar projects	NLE will be provided to an appropriate standard commensurate with prevailing guidelines/regulations
Increasing transport capacity [Ref.: London Plan 2011 - policy 2.13, 6.1, 6.2; Mayor's Transport Strategy 2010 - policy 2, 43; Lambeth Core Strategy 2011 - Policy S4; Wandsworth Core Strategy 2010 - policy PL 3]	Passenger/hour	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) [Ref. SDG, 2010]
Promote an efficient and reliable transport system [Ref.: Mayor's Transport Strategy 2010 - policy 3, 10]	Time travel savings	The NLE will result in substantial reductions in overall journey time for public transport users travelling to and from the OA.
Improving inter-change between different transport modes [Ref. London Plan 2011 - policy 6.1, 6.2]	Reduction in between-platform passenger hours	New stations will have appropriate interchange facilities
Promote a more sustainable transport system [Ref.: Mayor's Transport Strategy 2010 - policy 11, 14, 15, 24]	Modal shift/reduction of car use	The NLE will result in 2,4 million of car trips removed per annum [Ref. SDG, 2010]; NLE will result in 13,5 million vehicle kilometers removed per annum [Ref. SDG, 2010]
ENVIRONMENT		
Tackling flood risk [Ref.: London Plan 2011 - policy 5.12, 5.13; Lambeth Core Strategy 2011 - Policy S6;	Adequacy of flood protection measures for the NLE and OA developments	The VNEB OAPF includes strategic flood mitigation measures [Ref. GLA, 2012]

Wandsworth Core Strategy 2010 - policy PL 2; Wandsworth Dev. Management Policy Document 2012 - Policy DSM 5]		
Protecting and enhancing the natural environment and biodiversity [Ref.: London Plan 2011 - policy 2.18; Lambeth Core Strategy 2011 - Policy S9; Lambeth Unitary Development Plan 2010 - Policy 35; Wandsworth Core Strategy 2010 - policy PL 4, PL9; Wandsworth Dev. Management Policy Document 2012	Evidence that proposals are likely to enable the achievement of the highest possible environmental standards with regard to air, noise and water quality	Following an assessment of the construction and operational impacts on sensitive biodiversity receptors, it is concluded that the residual effect of developing the NLE will be negligible across all receptors. (NLE EIA)
Protecting the heritage of historic resources [Ref.: London Plan 2010 - policy 7.8, 7.9; Lambeth Core Strategy 2011 - Policy S9; Lambeth Unitary Development Plan 2010 - Policy 27, 31, 43, 45; Wandsworth Core Strategy 2010 - policy IS 3; Wandsworth Dev. Management Policy Document 2012 - Policy DSM 1, DMS 2]	Evidence of impact on historic sites and resources resulting from proposals	Statutory requirement. Potential slight impact (NLE stations & infrastructure) [Ref. SKM, 2009]
Tackling climate change [Ref.: London Plan 2011 - policy 5.1, 5.3, 6.1; Mayor's Transport Strategy 2010 - policy 11, 25; Lambeth Core Strategy 2011 - Policy S4, S7; Lambeth Unitary Development Plan 2010 - Policy 35; Wandsworth Core Strategy 2010 - policy IS 1, IS2; Wandsworth Dev. Management Policy Document 2012 - Policy DSM 3]	Variation in CO2 emissions (% or #.)	The NLE + bus package will result in a reduction of 230 tonnes of CO2 emission per annum through a reduction of about 2,4 million of car trips per annum [Ref. SKM, 2009 and SDG, 2010]
	Trips generated (to/from the VNEB OA)	It is evident that the NLE significantly reduces passenger journey times to large parts of London, including most importantly the rest of central London as well as east London including Canary Wharf (via interchange with Crossrail). The Underground is a sustainable transport mode and the NLE will be constructed to the most up-to-date design and environmental standards. The NLE will contribute to making the area more typical of central London in terms of providing alternatives to car use.
SOCIAL		
Provide for full engagement with local communities and other concerned stakeholders at all stages of the NLE and OA planning and development.	Extent to which proposals accommodate full engagement through the establishment of a community partnership	Provision to be made in accordance with prevailing guidelines/regulations
Minimise disruption to local communities during the implementation stages of the NLE and OA developments	Evidence that proposals have taken due regard of the need to minimise disruption during implementation.	Implementation of proposals to be made in accordance with prevailing guidelines/regulations concerning the avoidance of disruption

<p>Addressing social exclusion and deprivation - Maximizing affordable housing provision [Ref.: London Plan 2011 - policy 3.1, 3.2, 3.8, 3.11, 3.12, 3.13; Lambeth Core Strategy 2011 - Policy S2; Lambeth Unitary Development Plan 2010- Policy 31; Wandsworth Core Strategy 2012 - policy PL 1, IS 5]</p>	<p>Extent and quality of affordable housing provision</p>	<p>On sites in Lambeth, with the exception of the areas surrounding the proposed station at Nine Elms, 40% affordable housing will normally be expected. In the Wandsworth part of the OA, by comparison, 15% affordable will normally be considered [Ref. GLA, 2012]</p>
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Part 2 – Objectives for which the PLMCA appraisal applies

Objectives	(Possible) Appraisal Criteria	(Anticipated) Impacts from NLE and/or associated developments			
		Quantitative impacts	Qualitative impacts	Risks & potential mitigation	Opportunities
1. LAND USE-TRANSPORT PRINCIPLES					
<p>1.1 Foster development projects, land and water conservation, transportation and housing that have a regional or multi-community benefit. Consider the long-term costs and benefits.</p>	<p>Potential ‘agent of change’ capabilities of NLE & OA development</p>				
<p>1.2 Construct and promote developments, buildings, and infrastructure that conserve natural resources by reducing waste and pollution through efficient use of land, energy, water, and materials.</p>					
<p>1.3 Regeneration: OA’s transport and development proposals are to maximise the transformational impact of regeneration</p>	<p>Extent to which regeneration proposals are capable of effecting a major transformation in the economic and social life of the area</p>				
<p>1.4 Flexibility and robustness: Land use policies are to retain flexibility in relation to the application of specific zoning types and densities so as to enable development to respond to prevailing need/demand</p>	<p>Extent of flexibility in land use regime</p>				

1.5 Make regulatory and permitting processes for development clear, predictable, coordinated, and timely in accordance with smart growth and environmental stewardship	Extent to which regulatory processes meet these requirements				
1.6 Develop neighbourhoods that promote walking	Evidence of: Safe and complete pedestrian network				
1.7 Create dense networks of streets and paths	Evidence of Short, direct, and varied routes for walking and cycling trips				
1.8 Plan for mixed use	Evidence of Mixed and complementary uses that reduce trip distances and foster activation of the pedestrian realm through land-uses peaking at different times of the day.				
1.9 Match density and transit capacity	Evidence of optimized use of transit-accessible land, and customer base for high quality public services, amenities, and local commerce.				
1.10 Create compact regions with short commutes	Evidence of Short trips and optimized use of land by locating development in previously urbanized areas				
1.11 Attract businesses and jobs to locations near housing, infrastructure, and transportation options.	Location of businesses and jobs relative to housing				
1.12 Promote economic development in industry clusters.	Evidence of industry clusters				
1.13 Expand access to education, training, and entrepreneurial opportunities.	Evidence of access to education, training, and entrepreneurial opportunities.				
1.14 Support the growth of local businesses.	Evidence of support for local businesses				
2. ECONOMIC					
2.1 Supporting the development of the VNEB OA [Ref.: London Plan 2011 - policy 2.10, 2.13; Mayor's Ec. Dev. Strategy 2010 - Action 4A, 5A, 5B; Mayor's Transport Strategy 2010 - policy 23; Lambeth Core Strategy 2011 - policy S3, S4; Wandsworth Core Strategy 2010 - policy PL 6]	Increase in the number of jobs (% or #)				
	Number of jobs within 2minute walk of tube station				
	Extent of provision of a full range of jobs				
	Increase in retail floorspace (% or #)				
	% of retail floorspace within 2minute walk of tube station				

	<i>Extent to which proposed retail floorspace is appropriate to forecast demand</i>				
	Increase in office floorspace (% or #)				
	<i>% of office floorspace within 2minute walk of tube station</i>				
	<i>Extent to which proposed office floorspace is appropriate to forecast demand</i>				
	Increase in industrial areas (% or #.)				
	<i>% of industrial floorspace within 2minute walk of tube station</i>				
3. FINANCIAL					
3.1 Financial feasibility of project [Ref.: HM Treasury - Green Book, 2003]	Financial feasibility of the VNEB OA development proposal				
3.2 Maximizing benefits from investment [Ref. Mayor's Ec. Dev. Strategy 2010 - Action 5F] <i>Development proposals should encourage private sector investment in new development, including foreign direct investment</i>	Delivery of Wider Economic Benefits (WEBs)				
	Increase in the taxation revenue (% or #.)				
	Potential for increase in global inflows of foreign direct investment (FDI) (% or N.)				
4. TRANSPORT					
4.1 Support high quality public transport	<i>Transit accessibility ensured by locating development within walking distance of high-quality public transport.</i>				
4.2 Provide for full connectivity of the OA with all surrounding areas	<i>Extent of potential for full connectivity of the OA with surrounding areas</i>				
4.3 Maintain and expand transportation options that maximize mobility, reduce congestion, conserve fuel and improve air quality.	<i>Evidence of the extent to which proposed development maintains and expands transportation options</i>				
4.4 Prioritize rail, bus, boat, rapid and surface transit, shared-vehicle and shared-ride services, bicycling, and walking.	<i>Evidence of priority accorded to these modes</i>				
4.5 Invest strategically in existing and new passenger and freight transportation infrastructure that supports sound economic development	<i>Extent to which there is evidence of strategic investment</i>				

<p>4.6 Improving inter-change between different transport modes [Ref. London Plan 2011 - policy 6.1, 6.2] <i>Maximise bus and tube interconnectivity</i></p>	<p><i>Evidence of extent of bus and tube interconnectivity</i></p>				
<p>4.7 Prioritize cycle networks</p>	<p>Evidence of:</p> <ul style="list-style-type: none"> • Safe and complete cycling network • Secure cycle parking availability • Cycle access into all buildings 				
<p>4.8 Increase mobility by regulating parking and road use</p>	<p><i>Reduction of impact of motorized vehicles and the land they occupy</i></p>				
<p>5. ENVIRONMENT</p>					
<p>5.1 Protect and restore environmentally sensitive lands, natural resources, agricultural lands, critical habitats, wetlands and water resources, and cultural and historic landscapes. Increase the quantity, quality and accessibility of open spaces and recreational opportunities.</p>	<p><i>Evidence of protection and restoration measures</i></p>				
<p>5.2 Maximize energy efficiency and renewable energy opportunities. Support energy conservation strategies, local clean power generation, distributed generation technologies, and innovative industries.</p>	<p>Evidence of:</p> <ul style="list-style-type: none"> • Maximisation of energy efficiency and renewable energy • Support for energy conservation clean power generation, distributed generation technologies, and innovative industries 				
<p>5.3 Reduce greenhouse gas emissions and consumption of fossil fuels.</p>	<p><i>Potential for proposed development to reduce greenhouse gas emissions and fossil fuel consumption</i></p>				
<p>5.4 Tackling flood risk [Ref.: London Plan 2011 - policy 5.12, 5.13; Lambeth Core Strategy 2011 - Policy S6; Wandsworth Core Strategy 2010 - policy PL 2; Wandsworth Dev. Management Policy Document 2012 - Policy DSM 5] <i>Make provision for the NLE and OA to remain fully operational under flood conditions</i></p>	<p><i>Capability of the NLE and OA to operate under flood conditions</i></p>				

<p>5.5 Protecting and enhancing the natural environment and biodiversity [Ref.: London Plan 2011 - policy 2.18; Lambeth Core Strategy 2011 - Policy S9; Lambeth Unitary Development Plan 2010 - Policy 35; Wandsworth Core Strategy 2010 - policy PL 4, PL9; Wandsworth Dev. Management Policy Document 2012 - Policy</p>	<p><i>Evidence of the potential to increase biodiversity in the OA</i></p>				
<p><i>5.6 Provide for appropriate measures to enable the full clean-up and restoration of former industrial areas</i></p>	<p><i>Evidence that appropriate measures will be implemented</i></p>				
<p><i>5.7 Promote sustainable design approaches in the OA, including the removal of existing physical barriers and enhancement of the public realm</i></p>	<p><i>Evidence that sustainable design approaches are to be adopted for in the OA</i></p>				
<p>5.8 Providing green areas/open spaces [Ref.: London Plan 2011 - policy 2.18, 5.10; Lambeth Core Strategy 2011 - Policy S5; Lambeth Unitary Development Plan 2010 - Policy 50; Wandsworth Core Strategy 2010 - policy PL1, PL4; Wandsworth Dev. Management Policy Document 2012 - Policy DMO 1] <i>Provide high quality open spaces that are readily accessible</i></p>	<p><i>Amount of open space provided</i> <i>Quality of open spaces provided</i> <i>Accessibility of open spaces provided</i></p>				
<p>6. SOCIAL</p>					
<p><i>6.1 Promote equitable sharing of the benefits and burdens of development.</i></p>	<p><i>Evidence of equitable sharing of burdens and benefits</i></p>				
<p><i>6.2 Provide technical and strategic support for inclusive community planning and decision-making to ensure social, economic, and environmental justice.</i></p>	<p><i>Evidence of technical and strategic support</i></p>				
<p><i>6.3 Ensure that the interests of future generations are not compromised by today's decisions</i></p>	<p><i>Evidence that future generation's interests are protected</i></p>				

6.4 Support the construction and rehabilitation of homes to meet the needs of people of all abilities, income levels, and household types.	Evidence that new housing provision is likely to meet anticipated needs				
6.5 Build homes near jobs, transit, and where services are available.	Location of homes relative to jobs and transport services				
6.6 Foster the development of housing, particularly multifamily and smaller single-family homes, in way that is compatible with a community's character and vision and with providing new housing choices for people of all means.	Evidence that new housing provision will be compatible with community character				
6.7 The provision of community infrastructure is to be both appropriate to forecast needs well located relative to these needs.	Provide full audit of quality, number and location of community facilities and open space				
6.8 Meet the challenge of population growth [Ref.: London Plan 2011 - policy 2.1] 6.9 Increasing housing supply [Ref.: London Plan 2011 - policy 3.1] Provide adequate rehousing for local residents affected by the development of the NLE and OA	Number of: <ul style="list-style-type: none"> • new residents accommodated • number of rehousing units provided • timing of delivery of new housing/rehousing units 				
6.10 Providing high quality social infrastructures [Ref.: London Plan 2011 - policy 3.1: Lambeth Unitary Development Plan 2011 - Policy 31]	Number, quality and accessibility of infrastructures and facilities delivered				
6.11 Provide for the prompt delivery of a full range of social and community facilities in appropriate locations	Ability of proposed implementation programme to deliver facilities in a prompt manner				
7. IMPLEMENTATION					
7.1 Support the development and implementation of local and regional plans that have broad public support	Evidence of broad community support				

<p>7.2 Provide for:</p> <ul style="list-style-type: none"> • rapid delivery of all infrastructure to provide more certainty for developers • implemented to take place in a logical sequence of development • provide for development to function effectively at different stages 	<p>Evidence of:</p> <ul style="list-style-type: none"> • rapid delivery of infrastructure • extent to which proposals can be implemented in a logical sequence • extent to which development is sufficiently robust 				
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