

**TRANSPORT AND WORKS ACT 1992  
TOWN AND COUNTRY PLANNING ACT 1990**

**PLANNING (LISTED BUILDINGS AND CONSERVATION AREAS) ACT 1990**

**PROPOSED LONDON UNDERGROUND  
(NORTHERN LINE EXTENSION) ORDER**

**PROOF OF EVIDENCE**

**OF**

**Bridget Rosewell  
Economic and Business Case**

**FOR**

**TRANSPORT FOR LONDON (TfL)**

**DOCUMENT TFL6/A**

**October 2013**



## Contents

S1. SUMMARY PROOF OF EVIDENCE .....	S1
1. INTRODUCTION AND EXPERIENCE .....	1
2. CREDENTIALS .....	2
3. THE NLE .....	4
4. THE ECONOMIC CONTEXT .....	8
4.1 The Scenarios .....	8
4.2 London .....	8
4.3 The Central Activities Zone (CAZ).....	10
4.4 The VNEB Opportunity Area .....	11
4.5 Agglomeration .....	12
5. EVALUATION .....	15
5.2 Local Impacts .....	17
5.3 Local Jobs .....	17
5.4 Commuting Potential.....	20
5.5 Temporary Impacts .....	20
6. VALUE FOR MONEY.....	22
6.2 Cost Benefit Analysis .....	22
6.3 Costs Within Economic Appraisal .....	22
6.4 Updated Economic Appraisal .....	23
6.5 Financial Analysis .....	24
6.6 Public Sector Exposure .....	25
7. ISSUES RAISED BY OBJECTORS.....	27
8. STATEMENT OF MATTERS .....	29
9. CONCLUSION .....	31
10. STATEMENT OF TRUTH .....	32



**LIST OF FIGURES**

Figure 1	Output Shares and Productivity Levels 2011
Figure 2	Employment Density of Central London
Figure 3	Central London Opportunity Areas
Figure 4	Population Profile of Major Schemes
Figure 5	Working age population
Figure 6	Wards in the Local Area
Figure 7	Sector Percentages by Type of Job
Figure 8	Construction Employment
Figure 10	Updated Cost Benefit Results

**LIST OF APPENDICES**

1	JLE Impact, Jones Lang Lasalle – Summary
2	Knight Frank, Impact of Crossrail
3	GLA Labour Market Projections
4	Valuing infrastructure spend: supplementary guidance to the Green Book, HM Treasury, November 2011

**GLOSSARY**

BPS	Battersea Power Station
CAZ	Central Activities Zone
DCLG	Department of Communities and Local Government
DfT	Department for Transport
GVA	Gross Value Added
M2MPJ	Move to More Productive Jobs
NUTS3	Nomenclature of Units of Territories – Level 3 has 5 Units in London
QRA	Quantified Risk Assessment
OAPF	Opportunity Area Planning Framework
VNEB OA	Vauxhall, Nine Elms and Battersea Opportunity Area



**S1. SUMMARY PROOF OF EVIDENCE**

- S2. I am Bridget Rosewell and I am senior partner of Volterra Partners. I have been responsible for the development of the economic case for the extension of the Northern Line (NLE) for several years, working with the Greater London Authority, for Transport for London and with various developers.
- S3. My evidence presents the current economic context to the site and its potential and summarises the economic analysis which supports the need for this extension to the Northern Line. I have prepared an analysis of the costs and benefits of the proposed investment.
- S4. The primary aim of the NLE is to encourage economic growth in London and the wider UK economy by making possible the sustainable regeneration and development of the Vauxhall Nine Elms Battersea (VNEB) Opportunity Area (OA). It is envisaged that the VNEB OA will be a major new sustainable residential, business and leisure district.
- S5. This opportunity area is included in London's Central Activity Zone (CAZ), which is an agglomeration of high value and high productivity activities, but has not so far achieved the density of occupation that enables it to fulfil this role effectively. The case for the NLE is that it generates the level of accessibility that will make it possible to extend this high value centre into the Vauxhall and Nine Elms area. High levels of accessibility are a key element in generating the density of occupation that characterises the CAZ.
- S6. The most recent example of this effect can be found in the Jubilee Line Extension, which facilitated employment growth and house price impacts around all its stations.
- S7. London is the UK's only global centre, accounting for over a fifth of the country's total output as measured by its Gross Value Added (GVA). The importance of the Central Activities Zone to the economies of London and the UK as a whole can be gauged from an estimate of Inner London output which is 70% of that of London.
- S8. London's employment is projected to grow by 850,000 jobs by 2036 and more central London locations will need to be opened up to make this possible. I expect the roles that are created in this location to be part of the effective extension of the CAZ described above. As a result it will generate higher levels of productivity and economic activity than would otherwise be possible. This is the result of the economic process generally known as agglomeration, which describes the benefits of a high density location.

- S9. Agglomeration is the ability to generate economies of scale and develop businesses in new markets. It is also the ability to be efficient in business, generate new ideas and create knowledge transfer. Some of these effects will be specific to a particular sector, while others will cut across all industries. Finally, a larger labour market is more likely to match effectively jobs with workers and a larger market will also be more competitive. The importance of this effect is recognised in, for example, the case for Crossrail.
- S10. My assessment of the economic impact is focused on the employment generation aspects of the investment and the additional 14,000 jobs for which there is capacity as a result. These will contribute to the economic success of London, and the ability to provide productive jobs for a growing population.
- S11. An initial evaluation of the benefit of the new jobs can be based on the guidance which is most generally used in the assessment of the economic impact of developments. Using rules developed by English Partnerships for DCLG and widely used in assessing development benefits, the net benefit is estimated at £6.7bn over a period of 60 years, discounted back to the present using HM Treasury rules.
- S12. A narrower approach, developed by the DfT, excludes on principle any potential to create new jobs or net activity. The only possibility is that creating activity in one place rather than another will increase productivity. In the case of the NLE, this is not the case. Only the transport investment enables the full development to take place and so the net development benefits can be associated with the scheme. The DfT approach can be used to estimate the value of these net benefits.
- S13. The economic benefits estimated in this way are £4.7bn in Present Value terms. This is based on the net additional productivity of the central scenario and the analysis that a proportion of the new jobs would otherwise not exist in the UK at all, based on the proportion of jobs generated by foreign inward investment.
- S14. The project will also generate non-monetary benefits. These are traditionally assessed as time savings accruing to users of the scheme who would otherwise have longer journeys. This is added to the economic benefits to give a central case which generates £5.1bn.
- S15. The approach that I have used is more restricted than that generally used to assess economic benefits of development, but not as narrow as the approach used by the DfT. My approach allows for an element of new investment to be attracted to the development, creating new jobs which would not otherwise exist. This is based on the proportion of jobs in London which are the result of inward investment.

- S16. The estimates of economic benefits rest on a range of assumptions. Sensitivity tests have been applied to these. Different assumptions on the source of displacement make little difference, while removing any inward investment reduces benefits by £1bn. The sensitivities produce a range of benefits from £3.9bn to £5.7bn, when transport benefits are included, compared to a central case of £5.1bn. (**NLE/D1** Table 5.6, p 53).
- S17. Sensitivity analysis has, in my view, focused more on the conservative side. In addition, I have not included in an evaluation of the benefits either the value of the temporary construction work, or the roles created on the NLE itself. It is estimated that 79 roles will be created on the railway itself, while the construction itself will also generate economic activity.
- S18. I conclude that the estimate of benefits used in the appraisal of this investment is conservative and the central estimate of £5.1bn of benefits in present value terms is a reasonable one.
- S19. Of the total jobs created in the VNEB area, around 5,300 are likely to be entry level or lower skilled, which can help unemployed people back into work. Of course, many will be higher skilled roles, which will also attract new residents occupying newly built accommodation. More local jobs can also attract the inactive back into work.
- S20. The majority of jobs would be office based, whether with or without the NLE. Office based jobs themselves cover a wide range of roles from clerical and administrative to professional and technical ones. In addition there are also a range of retail and other employment sectors which will provide a range of skill opportunities.
- S21. While the economic benefits are measured in terms of output and productivity, the new development will also provide the basis for new community development. The residential regeneration, and the Embassy sites, will also provide employment opportunities and funding for community facilities. The largest component of the additional employment generated by the NLE is that at the Power Station site, where the widest range of opportunities, including commercial and retail roles will be focused. These will be easily accessible to local residents in both boroughs served by the NLE, from around Kennington as well as Nine Elms.
- S22. Taking benefits against the costs of the scheme shows an excellent benefit to cost ratio of 9.8:1 as seen in Figure 9. In principle a ratio greater than one shows that a project is worth doing. However, the DfT usually view a ratio of 2 as a good standard. The NLE is substantially better.
- S23. In cash terms, it is planned that the revenues generated by the scheme will pay off the debts before the end of the Enterprise Zone designation.

- S24. The scheme will be owned by the public sector as part of the Underground. However, the capital outlay will be covered by a mixture of developer contributions and additional rates revenue. The public sector is exposed to the risk that some contingencies have not been fully captured. If the cost of the scheme exceeds the permitted borrowing, it will need to be covered from elsewhere in TfL's budgets. However, there is a strong prospect that the loans will be paid back within the life of the Enterprise Zone.
- S25. I conclude that the value for money of this project is high both for an urban transport scheme and as a scheme that fosters economic development and that it will be funded by that development as it emerges.

## 1. INTRODUCTION AND EXPERIENCE

- 1.1.1 I am Bridget Rosewell and I am senior partner of Volterra Partners. I have been responsible for the development of the economic case for the extension of the Northern Line (NLE) for several years, working with the Greater London Authority, for Transport for London and with various developers.
- 1.1.2 My proof of evidence presents the current economic context to the site and its potential and summarises the economic analysis which supports the need for this extension to the Northern Line. I include a description and analysis of the economic benefits of the investment. I explain how this analysis fits into the general framework of cost benefit analysis.
- 1.1.3 The primary aim of the NLE is to encourage economic growth in London and the wider UK economy by making possible the sustainable regeneration and development of the Vauxhall Nine Elms Battersea (VNEB) Opportunity Area (OA). It is envisaged that the VNEB OA will be a major new sustainable residential, business and leisure district.
- 1.1.4 This opportunity area is included in London's Central Activities Zone (CAZ), which is an agglomeration of high value and high productivity activities, but has not so far achieved the density of occupation that enables it to fulfil this role effectively. The NLE generates the level of accessibility that will make it possible to extend this high value centre into the Vauxhall and Nine Elms and Battersea area. High levels of accessibility are a key element in generating the density of occupation which characterises the CAZ.
- 1.1.5 Section 3 describes the project and its background. It identifies the expansion and development which is made possible by this transport investment. Section 4 looks at the economic background and the importance to London and the UK of enabling this expansion, while Section 5 looks at how to evaluate this. Section 6 summarises the estimates of how this generates additional activity which will not otherwise be available to support economic growth in the UK.
- 1.1.6 I start by describing my credentials.

## 2. CREDENTIALS

- 2.1.1 I am an economist with specialist experience in economic development and analysis over several decades. I am Senior Partner of Volterra and until May 2012 I was Chief Economic Adviser at the Greater London Authority. I hold non-executive directorships at Network Rail and at the Ulster Bank Group. I was awarded an OBE for services to the economy in June 2013.
- 2.1.2 I have also led GLA Economics between 2002 and 2012, which advises the GLA, Transport for London and the London Development Agency on economic matters. I have been responsible for analysis and forecasts of the London economy and its constituent parts as well as for advice on the economic impact of mayoral policies.
- 2.1.3 I advise on major projects. In particular, I was responsible for developing the economic case for Crossrail and the significant changes to evaluation techniques which this required in order to take into account the benefits of delivering more people into central London. I developed innovative techniques relating accessibility to employment and population change to support the case for the Thames Gateway Bridge at Gallions Reach and more recently I led a team looking at the integrated needs of the Thames Estuary. This includes the consideration of aviation capacity needs and the feasibility of new airport capacity in the Estuary.
- 2.1.4 I prepared an expert report in connection with the judicial review of the proposal to expand Heathrow Airport with a third runway. I was also instructed as an expert witness by Hertfordshire and Essex County Councils on the case concerning a proposed second runway at Stansted Airport, a proposal which was subsequently withdrawn.
- 2.1.5 I have prepared the employment forecasts which underlie the London Plan (which sets out an integrated economic, environmental, transport and social framework for the development of London over the next 20 to 25 years) and have given evidence in their support at successive Examinations in Public into the London Plan. As Chief Economic Adviser at the Greater London Authority, I had an on-going responsibility to ensure that the case for investment in London is made to central government.
- 2.1.6 I have been responsible for advising a number of clients on the economic case for developments in a variety of sectors including industrial plants and leisure facilities as well as office and housing developments. I advised on the developments at Ebbsfleet in Kent and on a proposed new cement plant in Medway. Most recently, I have advised on a quarry in Kent, a glasshouse development in Sussex and film studios in Buckinghamshire.

- 2.1.7 I founded my previous consultancy, Business Strategies Ltd, in 1988 which developed methods of localised economic forecasting and impact analysis which are widely used by local authorities.
- 2.1.8 I took my first degree at the University of Oxford in 1974 and subsequently took the MPhil in Economics at the University of Oxford in 1976. Prior to entering consultancy, I taught at the University.

### **3. THE NLE**

- 3.1.1 In the context of my evidence, the NLE is concerned with the regeneration of the South Bank of the Thames, including the reuse of the Battersea Power Station, and ensuring the continued success of the London economy. Considerable investment is now flowing into the area in residential and embassy investments, but the challenge remains to ensure that this regeneration also assures the London economy's progress as well as the reinvestment in the power station.
- 3.1.2 As well as supporting growth of the economy, the NLE should also support improvements in the quality of life, extending transport opportunities and helping to control carbon emissions. Mr. Rhodes (TFL5/A) describes these impacts in more detail.
- 3.1.3 The South Bank of the Thames in London has had a considerable industrial history with use by wharves, breweries, warehouses and power stations. The Battersea Power Station was built in two phases, one in the 1930s and one during wartime. It has become a symbol both of the industrial past and for its distinctive contribution to the skyline. However, the re-use of these large industrial sites has proved both a challenge and an opportunity.
- 3.1.4 The renewed growth of London in the late twentieth century and the realisation that cities offer the most effective source of increasing productivity has resulted in rising interest in the regeneration opportunities of these sites near the main city centre and considerable redevelopment has occurred along the river.
- 3.1.5 The Vauxhall and Nine Elms and Battersea (VNEB) Opportunity Area has been identified as an area offering significant development potential. It reaches from Lambeth Bridge in the east to Battersea Park in the west and encompasses several empty sites. The attraction of the area in principle is underlined by the decision of the American Embassy to relocate in this area.
- 3.1.6 Considerable work has been done to establish the capacity of the site physically to support built development. This was undertaken in the development of the Opportunity Area Planning Framework (OAPF), which was adopted in 2012. The development of this plan is described in detail in Mr. Rhodes' (TFL5/A) evidence.
- 3.1.7 As part of the plan development, the analysis developed a set of scenarios to guide the consideration of deliverability and the supporting facilities that would be required. These scenarios included both residential and employment capacity and covered the whole of the VNEB area.

- 3.1.8 These initial scenarios were the basis for analysis of the accessibility required to enable their delivery. The preferred option was described as 'Revised Option 5', with 25,000 new jobs and 16,000 new homes. This was judged both to be feasible in capacity terms and to create the opportunity to generate funding to support the refurbishment of Battersea Power Station (BPS). This is an important consideration since the power station needs considerable work to be returned to use. It has had no roof over the main building since the early 1980s, when the turbines were removed, and it has a listed control room. This part of the VNEB area needs to generate sufficient activity to support this funding.
- 3.1.9 It is well known that this has proved challenging with successive developers pulling out of the project.
- 3.1.10 Having considered the capacity of the area for development, a further issue is to establish what facilities such development will need. A crucial one is transport. The VNEB OAPF Transport Study (**NLE/C2/1 and 2**) by SKM looked at the transport needs. It concluded that the maximum development that can be adequately supported with public transport in the VNEB area without an extension of the Northern Line (NLE) would supply only 8,000 jobs and 8,500 homes. With the NLE, the Revised Option 5 became possible.
- 3.1.11 The more restricted option essentially sees the area as a residential location, with job generation only in a supporting role. The area would remain distinct from the rest of central London, operating only as an inner residential suburb. Mr. Bowers' (TFL7/A) evidence shows that in spite of planned improvements, public transport accessibility would remain relatively poor in the area in comparison with the rest of central London. For Option 5 to be feasible, a greater capacity transport system is needed.
- 3.1.12 The evidence of Mr. de Cani (TFL1/A) and Mr. Rhodes (TFL5/A) describe the process by which the decision to invest in the NLE was made and how different options were analysed, discussed and consulted upon. They show how the policy to support the VNEB area as part of the CAZ was arrived at and the interplay between transport needs and the density of activity which is associated with central London.
- 3.1.13 These feasibility studies provided the background for the further consideration of the need for, and benefits of, increased density and whether this justified the investment into the NLE. The Economic and Business Case, EBC (**NLE/D1**), has updated my initial study into this question and provides a more detailed and a higher benefit to cost ratio than the earlier study. The study showed wider economic benefits ranging from £1.4bn to £7.9bn. The results have been further refined and developed in the analysis which has

been provided in the EBC. The differences are described in detail in **Appendix G to NLE/D1**.

- 3.1.14 The EBC has a more up to date description of the capacity of the VNEB area than that available when the original study was undertaken, and this is described in detail in Mr. Rhodes' (TFL5/A) evidence. It is based on existing applications for development in the area and an estimate of the capacity of the remaining sites where applications have yet to come forward.
- 3.1.15 There is also a revised transport model providing a more detailed analysis of the trips that will be needed to support the development and the mix of modes that will be possible. Both the planning and the transport analysis are inputs to the estimates of the impact that the NLE will have on the economy of the VNEB area.
- 3.1.16 New rail access has a marked effect on local areas. Such provision provides capacity to allow employees access to jobs but it also allows residents access to a wider range of jobs. This in turn attracts more investment and raises rents and house prices in the surrounding area. The most recent example of this effect can be found in the Jubilee Line Extension (JLE), which facilitated employment growth and house price impacts around all its stations. Estimates of the scale of the impacts vary, but for example the study undertaken by Jones Lang LaSalle in 2007<sup>1</sup> concluded that in Canary Wharf it would be reasonable to assign 30,000sq m per year of construction to the JLE between 1998 and 2002. They estimated that this would approximate to between 20,000 and 25,000 jobs over 5 years. This estimate applies only to the immediate impact; there is no reason to suppose that the effect ceased in 2002. Indeed the service was such a success that a seventh car was introduced in January 2006, ahead of schedule, increasing capacity by 6,000 passengers in the peak.
- 3.1.17 The success of the Jubilee line has rested on how it has opened up development in Docklands and along the South Bank in London Bridge and Bermondsey, as well as offering better connections into the West End for commuters into Waterloo, for example. This success was not originally predicted and the transport case for the line did not produce a positive benefit to cost ratio.
- 3.1.18 At that time, the thinking behind wider economic benefits had not been developed, and benefits did not include either productivity increases or any potential for new investment. The decision to build the Jubilee line extension was taken at the time by the Prime Minister.

---

<sup>1</sup> See Appendix 2 for the summary

- 3.1.19 Another example in which thinking about dynamic economic response has been important is in making the case for Crossrail. This case has rested on the facilitation of access to central London and the ability to support some 35,000 new jobs in central London as a result. Without the line, congestion of both stations and trains had the potential to restrict the ability of the central zone to expand. Central London has high productivity and the productivity differential between this and the rest of London was estimated as a key benefit of the new line.
- 3.1.20 Although the line has yet to open, the fact that it is clearly under construction is already encouraging investment, especially in the areas around the new stations. For example, Knight Frank<sup>2</sup> have estimated that house prices within a 10 minute walk of central London Crossrail stations have risen 8 per cent faster than the market average since 2008 even though the railway will not open until 2017 . This shows that the attractiveness of the access offered by Crossrail is already having an effect.
- 3.1.21 The Northern Line Extension is not as large an investment as either the Jubilee line extension or Crossrail. However, like the JLE it has the capacity to open up a part of London which is currently underused and which has experienced industrial decline over a long period. Moreover, the VNEB area is close to the rest of the central area and sits alongside other areas which are undergoing renewal. Its potential success is much more likely than the development of Docklands as a major business hub, yet that achievement has been realised.
- 3.1.22 The next section of my evidence reviews the economic context in which the NLE will be opening and how the jobs created will contribute to the success of the London and the UK economy as well as the local area.

---

<sup>2</sup> See Appendix 3

## **4. THE ECONOMIC CONTEXT**

### **4.1 The Scenarios**

- 4.1.1 I start from the scenario laid out in the evidence of Mr. Rhodes (TFL5/A), which shows the additional jobs and houses which cannot be delivered without the capacity of the NLE to deliver people to jobs and jobs to people. This analysis takes into account recent planning applications in the VNEB area, the conditions on the Battersea Power Station application, and sites which have yet to come forward. It is a much more detailed assessment than the earlier options appraisal. The transport capacity is necessary both to attract employers to the area and to enable residents to access better employment opportunities. The scenario developed in Mr. Rhodes' (TFL5/A) evidence shows that the NLE will make possible an additional 14,000 jobs and 5,600 homes, compared to the baseline without this investment. The majority of the additional jobs are on the Battersea Power Station site and cannot come forward without the NLE.
- 4.1.2 The additional homes will support London's ability to house its growing population, whether as owner occupied or rental properties. To the extent they add to London's economic output, this will be indirectly by reducing pressure on housing supply, household costs and wage pressure. Although this mechanism exists, its effect is small and hard to estimate for any individual scheme. I have not included it in the economic impact of the scheme, which therefore is likely to underestimate the economic benefits.
- 4.1.3 My assessment of the economic impact is therefore focused on the employment generation aspects of the investment and the additional 14,000 jobs for which there is capacity as a result. The Economic and Business Case (NLE/D1) sets out how these contribute to the economic success of London, and the need to provide productive jobs for a growing population. Within London, the Central Activities Zone (CAZ) supports the highest density and productivity activities and the VNEB area has been designated as part of this zone.

### **4.2 London**

- 4.2.1 London is the UK's only global centre, accounting for over a fifth of the country's total output as measured by its Gross Value Added (GVA). At the same time, the number of employees in London is only 16% of total employment in the UK, highlighting the high productivity of the city's employees compared to other parts of the country<sup>3</sup>.

---

<sup>3</sup> ONS Regional Accounts and Annual Survey of Employment Hours and Earnings

- 4.2.2 Over the past few decades, London has seen increasing levels of employment and economic activity. Between the early 1990s and 2013, the capital has seen an increase in over 1 million jobs, and current employment levels are now above the previous peak of 2008. The projections published in 2013 by the GLA show that London's population aged between 16 and 64 (working age population) will increase from 5.7 million in 2011 to over 6.6 million by 2036. Meanwhile, the number of jobs in London is expected to increase from 4,896,000 in 2011 to 5,757,000 in 2036<sup>4</sup>.
- 4.2.3 This equates to annual average growth of just over 35,000 jobs per year and results in over 850,000 more jobs in London by 2036. These projections rest on the pattern of growth exhibited by particular business sectors and underlying productivity trends. The employment growth expected is largely in services and office based activity. These jobs will require investment by businesses, by inward investors and in infrastructure if they are to emerge.
- 4.2.4 These latest projections show the strength of the London economy, where employment has stood up well to the stress of the recent recession. Indeed, the loss of economic output was less than during the 1990s recession and is now estimated to be only 1% below the previous peak, while employment has already passed the previous peak level.
- 4.2.5 The latest employment projections published by the GLA show that the forecast pace of growth over the next twenty years will continue, on average, at the same rate as it has been over the past twenty years<sup>5</sup>.
- 4.2.6 Previous employment projections based on a similar methodology have provided good results, being broadly correct in identifying trends. These long term forecasts do not attempt to identify cycles, so are sometimes too low and sometimes too high on a year by year basis.
- 4.2.7 Two-thirds of these jobs are expected to be generated in the boroughs of Inner London and a quarter in the three most central boroughs of the City of Westminster, the Royal Borough of Kensington and Chelsea and the City of London.
- 4.2.8 This analysis takes into account not just output projections but a view of site availability and transport connections. It therefore incorporates constraints as well as opportunities. The projections themselves depend on releasing policy constraints where necessary, including the development of Opportunity Areas such as VNEB.

---

<sup>4</sup> Based on the projections of the Greater London Authority, London Labour Market Projections, April 2013. The Summary is Appendix 4

<sup>5</sup> See Appendix 4

### **4.3 The Central Activities Zone (CAZ)**

- 4.3.1 The CAZ includes the whole of the City of London, the majority of the City of Westminster and some of the Royal Borough of Kensington and Chelsea. It also includes parts of other Inner London boroughs including Islington, Hackney, Tower Hamlets, Camden, Lambeth, Southwark and Wandsworth.
- 4.3.2 The importance of the Central Activities Zone to the economies of London and the UK as a whole is highlighted through its contribution to overall output. While GVA data is not available at a district level, it is available for slightly larger regions, designated as NUTS3 across the EU. In Inner London, it is broken down into Inner London East and Inner London West.
- 4.3.3 As shown in Figure 1, Inner London as a whole accounted for 70% of London's GVA in 2011 (or 15% of the UK's total) and over 65% of the output in Inner London is due to Inner London West. However, Inner London East has been catching up with its share of Inner London's output rising from 32% to 35% over the past ten years, much of which came through a boost in productivity related to the growth of Docklands, where significant transport improvements have taken place, including the last significant tube extension in central London, the Jubilee line extension.
- 4.3.4 In terms of relative productivity improvements in the period 2001 to 2011, Inner London East was the second best performer out of all NUTS3 regions in the country and Inner London West ranked in fourth place.
- 4.3.5 While Inner London is not strictly the same as the CAZ, the boundaries of the latter are all contained within Inner London boroughs so it closely reflects the importance of the CAZ. Employment in the CAZ accounts for half of Inner London's total.
- 4.3.6 It also has more productive jobs than the other parts of Inner London, with the City of London and City of Westminster representing the most productive districts in London and the country as a whole. Indeed, the designation of London's CAZ is intended to relate to the area with the greatest economic activity. Figure 2 shows that the CAZ is characterised by a considerably higher density of employment than its hinterland.
- 4.3.7 The VNEB area is, however, conspicuously less densely occupied than much of the rest of the CAZ, with the exception of the parks. This is not surprising, given its lack of accessibility and its dereliction over a number of years.
- 4.3.8 Density of occupation is associated with higher wages and higher productivity. Below a threshold, earnings do not respond to the level of activity but as it rises, earnings rise too. This in turn enables the provision of better facilities and higher rents. Indeed, the evidence of higher productivity in parts of Inner

London East such as Canary Wharf shows the potential for a similar transformation in the VNEB OA.

#### **4.4 The VNEB Opportunity Area**

- 4.4.1 The GLA's Opportunity Area Planning Framework (**NLE/E17**) recognises the scale of the development opportunity in central London and sets out the land use scenario for the VNEB Opportunity Area. It is described in detail in the evidence of Mr. Rhodes (TFL5/A) and Mr. de Cani (TFL1/A).
- 4.4.2 London's employment growth over the past decades has been accomplished through a combination of increasing the density of the existing CAZ and pushing out its boundaries. More tall buildings have been built but fringe areas have been brought into higher density occupation as capacity became constrained in the core part of the CAZ. Given its proximity to the core part of the CAZ and its capacity for high density development, VNEB represents a valuable opportunity for the further expansion of the CAZ.
- 4.4.3 The first such expansion was to Canary Wharf and to Broadgate at Liverpool Street in 1991. More recently, Paddington Basin (2000) and the King's Cross/St Pancras redevelopments (2007 onwards) have created new business centres closer to central London. The redevelopment of Earls Court, and the spread of high tech businesses around Old Street is adding to the trend of incorporating the fringe.
- 4.4.4 South of the river, there are successful developments along the water front from Tower Bridge (More London) through to a revitalised South Bank. The VNEB area fits into this trajectory. It is noticeable that all of the sites mentioned are close to transport hubs. Mainline termini and good interchange make it easier to exploit agglomeration benefits and thus in turn attract investors.
- 4.4.5 By contrast, Canary Wharf and the expansion of Docklands have required an extension of transport connections to create the capacity needed to make possible this high density development. The VNEB area currently lacks public transport access as David Bowers explains in his evidence (TFL7/A). While there are connections at either end of the area, access to these is limited. The Vauxhall interchange exists at one end of the VNEB area, with buses, National Rail, and Underground. For example, the NLE would make it possible for people travelling to and from the VNEB area to go direct to central London and through to other parts of London without needing to interchange at Vauxhall.
- 4.4.6 Despite additional planned investment, and given the development in the VNEB OA, crowding will exist on NR links in the VNEB OA, and Clapham Junction to London Waterloo is expected to remain crowded, including

between Queenstown Road and Vauxhall. While the eastern and western ends of the VNEB OA are served by National Rail and Underground, the middle section of the OA is comparatively poorly served.

- 4.4.7 In the heart of the VNEB area is the Battersea Power Station. This iconic landmark will be a major trip attractor. The King's Cross redevelopment currently underway uses a mix of station architecture, new buildings and refurbished ones to create a location with character. The power station is likely to have the same effect.
- 4.4.8 In summary, London employment is projected to grow and more central London locations will need to be opened up to make this possible. This growth is highly productive, and extending the CAZ will therefore serve to raise average productivity levels. The VNEB OA is central to London's planning policy framework, as explained by John Rhodes (TFL5/A).
- 4.4.9 The scale of potential development associated with the VNEB OA and other OAs in central London is shown in Figure 3. This shows that, in terms of jobs, the VNEB OA has the potential to deliver a similar number to each of King's Cross and London Bridge/ Borough/ Bankside, both already highly accessible locations, and the potential to deliver more housing than other central London OAs. Overall it is therefore the largest OA in central London.
- 4.4.10 The proximity of the VNEB area to central London underpins its strategic role in supporting the growth of the London economy. It is in this context that this assessment is carried out and the assumptions that underpin the analysis are made.
- 4.4.11 I expect the roles that are created in this location to be part of the effective extension of the CAZ described above. As a result it will generate higher levels of productivity and economic activity than would otherwise be possible. This is the result of the economic process generally known as agglomeration.

## **4.5 Agglomeration**

- 4.5.1 The benefits of a high density location are generally described as the economics of agglomeration. The roots of such analysis go back to the earliest economists, and their explanation of why there was such an effective and profitable concentration of the cotton industry in Lancashire. There are several themes.
- 4.5.2 An important theme is the ability to generate economies of scale and develop businesses in new markets. Although most firms are small, London firms are bigger than the average in the UK. Alongside this, is the ability to be efficient in business, generate new ideas and create knowledge transfer. Some of these effects will be specific to a particular sector, while others will cut across all industries. Finally, a larger labour market is more likely to match effectively

jobs with workers and a larger market will also be more competitive. All of these themes explain why larger centres are more likely to be more productive. Indeed, as a centre grows it will increase the productivity of existing members as well as offer opportunities to new entrants.

- 4.5.3 The additional productivity generated by agglomeration is part of the benefit of any investment which offers the opportunity to increase the density of activity and the connections between people and businesses. The estimates of such benefits were important to making the case for Crossrail, for example.
- 4.5.4 Although in theory there are a number of ways in which agglomeration can be thought of, the guidance developed by the DfT has identified four elements which will not be captured in traditional transport analysis. The guidance is summarised in Appendix D of the EBC (**NLE/D1**). The elements are:
- i. Moving to more productive jobs
  - ii. The density effect – pure agglomeration
  - iii. Imperfect competition effects
  - iv. Bringing more people into the labour market
- 4.5.5 First, there is the potential for more people to take higher output roles. If these do not exist because of constraints on access or site availability, then people will still work, but their jobs will be in less productive activity. There has been extensive debate about the decomposition of this effect between the attributes of the person and of the role. A highly skilled person could still be productive in some other role. The question remains whether they are able to develop their skills and exploit them in the same kind of way. The fact remains that output per head is higher in central locations compared to what is produced elsewhere. If someone moves to a more productive job than they were previously able to access, this is a benefit to the economy in total. This aspect has been called the Move to More Productive Jobs (M2MPJ) and methodologies exist to estimate it, which have been used in the EBC and are reviewed in the next section.
- 4.5.6 Second, as the agglomeration becomes larger there is an overall density effect which applies to everyone, whether they are there already or not. This is essentially about the ease of doing business, the ability to exploit scale and so on. This has been called ‘pure agglomeration’. Again there are methodologies to estimate its effect. Saving time during working hours can be seen as related to this. If the effective density is increased because I can now meet more people more easily then my productivity is increased.
- 4.5.7 The third effect is based on the possibility that increasing the size of an agglomeration increases competition and improves the efficiency of the economy, while the fourth captures the potential for enlarging the total size of the labour force by attracting more people into work.

- 4.5.8 The first two effects assume that everybody who wants to work does so, so the additional impact of expanding an agglomeration is the difference between a less productive role and a more productive one. However, there are two further additional possibilities. One is that new investment is attracted, creating jobs which otherwise would not exist at all. The other is that roles are created for disadvantaged and unemployed people who would otherwise be unable to work.
- 4.5.9 Both of these will be of benefit to the total economy but the output effect of the first is likely to be more significant in creating high value roles. However, the local impact on the unemployed and new residents is also relevant.
- 4.5.10 There are already a variety of planning permissions which have been given for the VNEB area and which are described in Mr. Rhodes' (TFL5/A) evidence. These are more focused on residential developments, where the employment generated is local in character and in support of the housing. The existing planning permissions, excluding those parts of the BPS development conditional upon the NLE, provide for 12,800 homes and 9,900 jobs.
- 4.5.11 The NLE adds significantly more to the employment numbers than to the housing units and this is the source of the greatest economic benefit. It would allow the creation of a more balanced set of developments, providing in total for 18,300 homes and 23,800 jobs.
- 4.5.12 The new housing developments will generate considerable increases in the working age population. The plans for the four largest planned developments suggest the adult population will be around 90% of the total, while in the local areas, the current working age population is around 80% of the total. This is shown in Figures 4 and 5.
- 4.5.13 The estimates of population with the NLE indicate a rise of 34,400. It is therefore reasonable to estimate that the VNEB area will generate a working age population of 80% of this, which means there will be 27,500 people who will mostly be economically active and needing work. It will be important to generate the range of employment opportunities for this population, as well as for the existing residents in the surrounding area.
- 4.5.14 My evidence describes the ways in which higher growth, output and employment can be achieved by facilitation of a high density location. The NLE makes it possible to turn the VNEB area into a high density location with associated high productivity and to allow it to play a full role as part of the CAZ. In doing so, it will play a role similar to other areas on the edge of the CAZ.

## 5. EVALUATION

- 5.1.1 The Economic and Business Case (**NLE/D1**) has described the evaluation of the economic benefits of the scheme. This is based on its ability to unlock development potential and extend CAZ levels of productivity. The area has already attracted several developers for both housing and other uses including the American Embassy. A new developer for the power station site has taken on the commitments of the previous investors.
- 5.1.2 An initial evaluation of the benefit of the new jobs can be based on the guidance which is most generally used in the assessment of the economic impact of developments. This method is described in detail in Section 5 of the EBC. It starts by assessing the value of the output created on the scheme, which, by the time it is completed in 2031, would be £1.3bn per annum based on Gross Value Added (GVA) per worker in London. This is an estimate of the gross value: it would be higher if a productivity measure for Inner London were used. Using rules developed by English Partnerships for DCLG and widely used in assessing development benefits, the net benefit is estimated at £6.7bn over a period of 60 years, discounted back to the present using HM Treasury rules.
- 5.1.3 The rules associated with such an assessment use judgement on the scale of the extent to which a project will displace growth from elsewhere, and the extent to which activity will create multiplier impacts within the surrounding area. There is thus a presumption that the net effect is to increase activity and employment in the economy.
- 5.1.4 A narrower approach, developed by the DfT, excludes on principle any potential to create new jobs or net activity. The only possibility is that creating activity in one place rather than another will increase productivity. The implication of this approach is that private development investment will always take place if there are any economic benefits to be had, so that transport can make no direct contribution to the total number of jobs in the economy.
- 5.1.5 In the case of the NLE, this is not the case. Only the transport investment enables the full development to take place and so the net development benefits can be associated with the scheme. This is why the use of a Land Use Transport Interaction model does not add anything, since it is already apparent what additional development will be generated. The net development benefits will be associated with both productivity benefits and with the creation of new activity. The DfT approach can be used to estimate the value of these net benefits.

- 5.1.6 This is the thinking behind the benefits analysis which is presented in the Economic and Business Case in Sections 4 and 5. The analytical methodology employed is based on that proposed by the Department for Transport in its WebTAG guidance and the detailed technical description is in Appendix D of the EBC (**NLE/D1**). The economic benefits related to the additional output generated are £4.7bn in Present Value Terms. This is based on the net additional productivity of the central scenario and the analysis that a proportion of the new jobs would otherwise not exist in the UK at all, based on the proportion of jobs generated by foreign inward investment.
- 5.1.7 The approach that I have used is more restricted than that generally used to assess economic benefits of development, but not as narrow as the approach used by the DfT. The EBC allows for an element of new investment to be attracted to the development, creating new jobs which would not otherwise exist. This element of additional investment is based on the proportion of jobs in London which are the result of inward investment. This approach means that 87% of the investment is displaced, compared with only 75% in the 'high' displacement guidance for DCLG. In addition, my approach has not added anything for a multiplier effect, as is usual in the DCLG approach, but instead estimated only the productivity differential achieved by displacement of growth to a higher productivity environment.
- 5.1.8 The estimates of economic benefits provided in the EBC rest on a range of assumptions. These are in turn based on empirical estimates. The key steps are the proportion of the jobs which are likely to be generated by inward investment, and the size of the productivity differential. Sensitivity tests have been applied to both elements. Different assumptions on the source of displacement make little difference, while removing any inward investment reduces benefits by £1bn. A somewhat larger fall is only achieved by assuming that the VNEB area achieves CAZ densities but at existing Wandsworth levels of productivity. This reduces benefits by £1.2bn.
- 5.1.9 In summary, the sensitivities produce a range of benefits from £3.9bn to £5.7bn, when transport benefits are included, compared to a central case of £5.1bn. (**NLE/D1 Table 5.6, p 53**)
- 5.1.10 Sensitivity analysis has, in my view, focused more on the conservative side. The bulk of the additional jobs will be on the Battersea Power Station site. A new opportunity, on the edge of central London, near a new US Embassy and focussed around the revived power station might well be expected to attract a higher than average rate of inward investment. The sensitivity chosen is for 20%, but it might even be higher. As far as the productivity differential is concerned, the level of productivity assumed is the average for Inner London. A new investment would be expected to achieve potentially more than this, so this is also conservative.

- 5.1.11 I have not included in an evaluation of the benefits either the value of the temporary construction work, or the roles created on the NLE itself. It is estimated that 79 roles will be created on the railway itself, while the construction itself will also generate economic activity.
- 5.1.12 I therefore conclude that the estimate of benefits used in the appraisal of this investment is conservative and the central estimate of £5.1bn of benefits in present value terms is a reasonable one.
- 5.1.13 The benefits so far assessed are direct economic ones, generating economic output which will be reflected in jobs, wages, profits, rents and taxes.
- 5.1.14 The project will also generate non-monetary benefits. These are traditionally assessed as time savings accruing to users of the scheme who would otherwise have longer journeys. The Economic and Business Case uses transport modelling to estimate the size of these time savings and they have been valued at £0.4bn in Section 4. This is added to the economic benefits to give a central case which generates £5.1bn.

## **5.2 Local Impacts**

- 5.2.1 The value of the economic impact will be captured within the local area in two ways. Firstly, new roles will become available to local residents, while secondly the ability to reach good opportunities elsewhere is enhanced. The local population has been growing faster than the London average, and the planning applications which have already been accepted will add to population growth. London's population grew by almost 1 million between 2001 and 2011, representing a 14% increase. LBW's population grew by 18% to 307,000 and LBL grew by 14% to 303,000. The local impact area has a high proportion, 81%, of working age residents (aged 16 – 74 years). This compares to 78% in LBL, 79% in LBW and 75% in London a whole.

## **5.3 Local Jobs**

- 5.3.1 The 2011 Census recorded 4,500 people as economically active and unemployed in the wards surrounding the VNEB. The unemployment rate in the local area is higher than the London average. Moreover, 18,800 people of working age are inactive. There are particularly high levels of unemployment in Stockwell, Larkhall and Princes wards, where the proportion of unemployed economically active residents increases to 8% or 9% compared to 6% in Queenstown, Oval and Clapham Town wards. These wards are shown in Figure 6.
- 5.3.2 According to claimant count data, which provides a measure of the number of people who are claiming unemployment related benefits whilst actively seeking employment, there were over 3,500 claimants living within the Local

Impact Area (May 2013). The claimant count does not include those unemployed people who are not actively seeking employment or may not be eligible for unemployment related benefits.

- 5.3.3 Figure 6.3 in the EBC (**NLE/D1, p57**) illustrates the increase in claimant count rates over recent years. Lambeth has a substantially higher level of unemployment, Stockwell ward has a claimant count rate of 6.1% whereas the average rate for the impact area is 4.9%. This is significantly higher than the London average of 3.8% and LBW's low rate of 2.3% (although the rate in LBW's Queenstown ward is higher, at 4.3%).
- 5.3.4 According to Claimant Count Data for June 2013 over 58% of those seeking employment are looking for entry level and low skilled employment in the Impact Area. In particular retail, leisure and hospitality create high levels of these kinds of jobs. There are over 1,800 people living in the impact area currently seeking employment within these sectors.
- 5.3.5 The EBC shows that of the total jobs created in the VNEB area, around 5,300 are likely to be entry level or lower skilled, which can help unemployed people back into work. Research into the general skills profile of occupations in London's retail and office industries, demonstrated in Figure 6.4 of the EBC (**NLE/D1, p58**), shows that almost half of the retail jobs in London are made up of low skilled jobs, whereas over 66% of office jobs are highly skilled. It is notable that whilst the majority of office jobs are highly skilled, a significant proportion, approximately one third, are low and medium skilled. From this we can establish that whilst office spaces will yield predominantly high skilled employment, they will also generate jobs for people at the medium and low skill level who are seeking employment. This indicates that significant opportunities will be created through employment growth in the VNEB area for people within the local labour market who are seeking entry level jobs.
- 5.3.6 Of course, many will be higher skilled roles, which will also attract new residents occupying newly built accommodation. More local jobs can also attract the inactive back into work.
- 5.3.7 The majority of jobs would be office based, whether with or without the NLE. The Battersea Power Station Site is more office oriented, with 75% in these sectors as Figure 7 shows. However, office based jobs themselves cover a wide range of roles from clerical and administrative to professional and technical ones. In addition there are also a range of retail and other employment sectors which will provide a range of skill opportunities.
- 5.3.8 While the economic benefits are measured in terms of output and productivity, the new development will also provide the basis for new community development, with retail and community facilities as well as an Employment and Skills Framework to ensure that existing local residents are well placed to

take up new roles. The developer contributions include contributions to training and community facilities as well as to infrastructure. The detail of this is set out in Mr. Rhodes' (TFL5/A) evidence.

- 5.3.9 The benefits of the regeneration of the VNEB area are wider than the benefits which are the particular focus of the NLE, and the NLE itself needs to be set in the context of the other proposals and investment which is taking place. The residential regeneration, and the embassy sites, will also provide employment opportunities and funding for community facilities. The largest component of the additional employment generated by the NLE is that at the power station site, where the widest range of opportunities, including commercial and retail roles will be focused. These will be easily accessible to local residents in both boroughs served by the NLE, from around Kennington as well as Nine Elms.
- 5.3.10 The wards of Clapham Town and Larkhill will see considerable improvements in access to both new stations, as these Lambeth wards are on the boundary with Wandsworth and the BPS site. Whether residents here want to access local jobs or those further into central London, opportunities will be greatly improved.
- 5.3.11 So far, the 2011 Census has provided information on the mode of travel by workers in the local area, although there are as yet no updated estimates on detailed commuting patterns. Thirty-nine per cent already use some form of public transport to get to work, and 24% are using the Underground. It is unlikely that the proportion of people working outside their borough of residence has fallen since 2001, when it was over 70%. So there are already a variety of travel patterns, and the NLE will help increase the use of public transport.
- 5.3.12 The catchment of businesses in VNEB will also be dramatically improved: Battersea Station would be reached by an additional 582,000 people within 45 minutes – an increase of 28%. For Nine Elms the comparable estimate is 566,000 or 24%.
- 5.3.13 The 2010 Annual Population Survey showed that some 30% of economically inactive residents in Lambeth and Wandsworth would like to work. This accounts for some 5,600 people. A wide range of opportunities for them would be opened up by this investment. Notably, the estimate of entry level jobs available, at 5,300, is similar to that of the economically inactive who would like to work.
- 5.3.14 Without the NLE, an additional working population of some 18,000 will be balanced by only around 9,800 jobs. While of course many new residents will work outside the borough, on existing patterns 6-7,000 will want to work inside it, limiting the extension of new opportunities to existing residents.

- 5.3.15 Widening the range and number of new jobs will be a benefit to both existing residents and to new ones and is made possible by the NLE. With the NLE, there is the potential for 23,800 jobs and an additional working population of about 27,000. Of these, based on current commuting patterns, around 8,000 might want to work in the area, leaving far more opportunities open to existing residents than would otherwise be the case.
- 5.3.16 The NLE will require the compulsory purchase of land with existing business use. All these effects are capable of being mitigated and these matters are addressed further in the evidence of Mr. Caten (TFL4/A). Any such temporary effects would be strongly outweighed by the transformation of the area into a new high productivity part of London.

#### **5.4 Commuting Potential**

- 5.4.1 Residents will also be able to reach jobs elsewhere in London more easily. The evidence of Mr. Bowers (TFL7/A) shows how the time to reach a number of central London locations is substantially reduced, both making the VNEB area a more attractive place to live and improving accessibility for existing residents. There will be considerable construction employment generated by the NLE construction itself and the projects dependent upon it. The details are shown in Figure 8.
- 5.4.2 Key destinations in Westminster and the City can be accessed up to 20 minutes more quickly than without the NLE for example. From Battersea Station an additional 332,000 jobs can be reached within 45 minutes – an increase of 12%, while from Nine Elms the equivalent is 260,000 or a 9% increase.

#### **5.5 Temporary Impacts**

- 5.5.1 The construction period for the NLE itself lasts 5 years and will generate 5,000 person years of construction employment over that period, while the Battersea Power Station site construction period is planned to last 14 years and will generate 25,200 person years of employment in total. Of these, 3,400 are associated with Phase 1, which can go ahead without the NLE, leaving 21,800 person years over the period.
- 5.5.2 During the construction period, there will be limited local disbenefits. Commuters through Kennington will be affected by platform closures, and there will be some highway restrictions at some locations.
- 5.5.3 These are described in detail by Mr. Bowers (TFL7/A). He concludes that the impacts of these on traffic and on passengers is relatively limited. As such, it is not expected that this will have a significant impact on smaller local businesses. In turn these will in due course benefit from the increased

residential and business use of the VNEB area as a whole. This will be particularly true at the western end of the VNEB area.

- 5.5.4 The local benefits of improvement to stations and to access are also addressed by Mr. de Cani (TFL1/A).

## **6. VALUE FOR MONEY**

6.1.1 The economic objective of the NLE is to make possible the development of the VNEB area at densities which fit its designation as part of the Central Activities Zone. Other objectives include improvements to the quality of life, safety and security for Londoners, opening up travel opportunities and providing carbon mitigation. I have not dealt with these secondary objectives directly in my evidence.

6.1.2 However, the improvements in access for commuters clearly contribute to the quality of life and to opening up travel opportunities. Underground systems are generally safe and secure and environmentally sustainable.

### **6.2 Cost Benefit Analysis**

6.2.1 Cost benefit analysis is a methodology for calculating a ratio between the costs and benefits of a project in comparable terms. It involves assessing all of the benefits of a scheme, preferably with a value attached, and bringing all the costs and benefits into prices of one particular year, with future costs and future benefits being also less important the further away they are.

6.2.2 Transport analysis has established that integrating VNEB into the CAZ requires greater accessibility and that the NLE is the best way to achieve this. From a public policy perspective, then, an important aspect of the value of the NLE is the additional output achieved by the increased density which it makes possible. This should be set against the net cost of achieving the investment. This is also laid out in the supplementary guidance on Valuing Infrastructure Spend. The net cost is the cost after direct revenues from fares and charges.

### **6.3 Costs Within Economic Appraisal**

6.3.1 The cost estimate needs to adjust both for inflation and for a discount rate. The guidance on the treatment of costs within the economic appraisal also suggests that the costs should include the base cost, the Quantified Risk Assessment cost at the p50 value, plus the addition of optimism bias at the p80 minus p50 value.

6.3.2 In the April 2013 costs (reported in the EBC (**NLE/TFL/D1**)) the QRA plus optimism bias represented an additional £97m in PV 2010 prices. These were applied in the economic appraisal to generate the total discounted costs of £810m.

6.3.3 Following the review of risk and contingency, the QRA has been updated and the p80 value (equivalent to the p50 plus the optimism bias) is included within the current overall cost estimate. As a result, the cost for appraisal, inclusive

of QRA and optimism bias, has reduced from £810m (2010 prices) to £710m (2010 prices). This is also explained in more detail in Mr. de Cani's (TFL1/A) evidence.

- 6.3.4 The present values are calculated by discounting future costs and revenues back to an agreed date (in this case 2010). The discount factor reflects the fact that things in the future are less valuable to us than current spending. It is set by the Treasury at 3.5% for the first 30 years and 3% thereafter.

## **6.4 Updated Economic Appraisal**

- 6.4.1 Figure 9 sets out the revised economic appraisal results on the basis of the updated costs. The reduction in capital cost decreases the net financial impacts from £620m PV to £520m PV. A small change to the inflation analysis also makes a little difference to the benefits. As a consequence, the Benefit Cost Ratio increases from 8.2:1 to 9.8:1, further strengthening the economic case of the NLE.
- 6.4.2 In principle a ratio greater than one shows that a project is worth doing in that its benefits exceed its costs. However, the DfT usually view a ratio of 2 as the standard at which a project should definitely be done. The NLE is substantially better.
- 6.4.3 Both the Treasury Green Book itself and additional guidance on, for example, PFI schemes, say that tax revenues should be taken into account where they would make a difference to the analysis. In this case there are fares, contributions and tax revenues which exist as a result of the scheme and should be taken into account.
- 6.4.4 In the case of the NLE, the fares generated are expected to cover the operations and maintenance charges. These are estimated at £8.45m per annum, or £7.86m in 2010 prices, plus £205m (2010 prices) over the following 50 years for renewals. This equates to a PV of £300m over 60 years, against expected revenues of £400m as seen in Figure 9. The investment therefore makes a contribution to the appraisal of the net cost of the investment but will not cover all of it. Fares are set for London as a whole with the aim of enabling use of the system for all and to support it as a whole, so this is not surprising. After net revenues, the total cost of the NLE in present value terms was £620m in the EBC and is now a revised £520m.
- 6.4.5 In policy terms, as Figure 10 shows, the benefits of the project are £5.1bn against costs of £520m, which generates a ratio of benefits to costs of 9.8:1. This is an excellent cost benefit ratio.

## 6.5 Financial Analysis

- 6.5.1 The comparison of costs and benefits is an appraisal analysis to establish the overall value of a project, in both monetary and non-monetary terms. It is distinct from the financial analysis of the revenues which will cover the costs of the project and pay back the loans taken out to construct it. To cover these, to which must be added interest costs, the developer can make a contribution to the remaining costs out of the profit on the scheme. Traditionally this has been done by arrangements under section 106 of the Town and Country Planning Act, 1990. This has been replaced or sometimes supplemented by the Community Infrastructure Levy (CIL). This represents a contribution from the developer to ensure that the suitable infrastructure comes forward so as to make the scheme possible. These contributions do indeed make a major contribution. They are estimated to provide £266m (2012/13 prices) towards the cost of the project and approximately one quarter of the outturn capital costs. The breakdown of these contributions between the boroughs is set out in Mr. de Cani's (TFL1/A) proof.
- 6.5.2 However, this will not cover the whole scheme costs, or the interest upon the debt. Moreover, the asset being built will not be in the ownership of the private sector developer but be part of the London Underground network. It is therefore appropriate that some slice of the additional taxes generated by the developments scheme can be used to cover the remaining costs. How this will be done is described by Mr. de Cani (TFL1/A).
- 6.5.3 The cash revenues generated by the scheme include fares, direct developer payments and indirect payments collected through the Business Rate mechanism. Thus all the payments are generated by development which would not otherwise exist and which therefore generates private funds to pay back the loan. However, the repayments are being collected through the normal mechanisms of taxation.
- 6.5.4 It is expected that the bulk of the repayments will come through the rates system, although a significant proportion of early payments will come through S106 and CIL payments. It will be some years into the scheme before the rates revenues cumulatively outweigh these.
- 6.5.5 A government guarantee allows for a potential five year extension of the Enterprise Zone, which protects the GLA against the risk that payments will be slower than planned to emerge and that some debt remains beyond the deadline for the end of the Enterprise Zone.
- 6.5.6 However, cash availability also constrains the initial capital spend. The GLA is only permitted to borrow £1 billion to fund this project. Even though the benefits substantially outweigh the costs, these benefits are measured in jobs and incomes, and taxes which go to central government. They are not all

available to fund borrowing. Moreover, funding will only come in once the railway is operational. Capital spend comes first.

- 6.5.7 In cash terms, financial modelling suggests that the incremental business rate revenues generated by the scheme will pay off the debts within the 25 year Enterprise Zone period.

## **6.6 Public Sector Exposure**

- 6.6.1 The analysis which is described in this evidence and in more detail in the Economic and Business Case uses a variety of appraisal methodologies. These include both standard transport appraisal methods and standard development appraisal methods. The central case uses both of these and the guidance developed for estimation of wider economic benefits of transport schemes. All of these methods show a significant ratio of benefits to costs for the public sector, which will finance the investment through borrowing.

- 6.6.2 The scheme will be also be owned by the public sector as part of the Underground. However, the capital outlay will be covered by a mixture of developer contributions and additional rates revenue. The public sector – TfL - is exposed to the risk that some contingencies have not been fully captured. If the cost of the scheme exceeds the permitted borrowing, it will need to be covered from elsewhere in TfL's budgets.

- 6.6.3 There is also an exposure to any delay in the pace of development and to the generation of rates revenues. If the development revenues are insufficient to repay debt and meet debt service costs then there is the option to extend the Enterprise Zone by up to five years under the Government guarantee. In the event that incremental business rates and developer contributions are insufficient to repay NLE debt after a 30 year Enterprise Zone, the decision on how to make up any shortfall across the GLA Group will be for the Mayor, after consulting a TfL-GLA steering group.

- 6.6.4 The finance will be provided through the borrowing capacity of the GLA. This borrowing capacity is in place and there is confidence that the borrowing can be sustained and paid back.

- 6.6.5 The ratio of benefits to costs is high both in policy and in public sector terms. The test generally applied to such investments by the DfT is passed. However, in another sense the test is not really relevant. The tests are put in place to allow limited departmental funding to be allocated between transport schemes. In this case, the source of funding does not come from a departmental budget but from the GLA which wishes to support the transport scheme for its wider benefits rather than its transport benefits. It is not competing with other transport schemes, for which purpose the DfT guidance has been put in place.

6.6.6 I conclude that the value for money of this project is high both for an urban transport scheme and as a scheme that fosters economic development and will be funded by that development as it emerges.

## 7. ISSUES RAISED BY OBJECTORS

- 7.1.1 Banham Locks (OBJ101), Chivas Brothers (OBJ81) object that their business will be affected by the NLE, as do Cory Environmental (OBJ214), London Concrete (OBJ229), the Battersea Dogs and Cats Home (OBJ46), DB Schenker (OBJ 252), Southern Gas Networks (OBJ 193). All of these will be affected either by construction changes or by land take.
- 7.1.2 There will be some loss of employment potential, but this can be mitigated by accommodation arrangements made with the businesses concerned. This is addressed in more detail in the evidence of Mr. Caten (TFL4/A).
- 7.1.3 Lansdowne Residents Association (OBJ111), Dr Philip Iglesias (OBJ153), Carl & Susanna Callaghan (OBJ191), Laura Swaffield (OBJ195), Duncan MacAskill (OBJ198), KG Project Ltd (OBJ212), Mary Davies (OBJ226), Linda Suggate (OBJ231), Simon Hughes MP (OBJ250) and The Kennington Association Planning Forum (OBJ206) contend that a full cost benefit case has not been made. This is published in the Economic and Business Case (NLE/D1) and further evaluated in this proof of evidence.
- 7.1.4 Several objectors, such as Kennington Association Planning Forum (OBJ206), Claylands Green NLE Action Group (OBJ254), and the Oval Partnership (OBJ44) argue that the benefits will accrue to outside investors, rather than local people. I have argued in this evidence that attracting foreign investors is an asset as it brings new funding and jobs into an area. The roles created are just as readily taken by local residents. It is equally open to UK based investors to invest. Lambeth based objectors, such as these groups, are particularly concerned about costs being borne by Lambeth residents, while the benefits are to Wandsworth. I have shown in Section 6 that Lambeth wards border the Battersea Power Station sites where the majority of the roles directly associated with the NLE will be located. It is not the case that Lambeth residents cannot benefit. Moreover, there is considerable expected growth in Lambeth's population who can also access these roles.
- 7.1.5 The Coalition of Lambeth and Wandsworth residents (OBJ190) [recently renamed the 'Northern Line Extension Community Action'], Gerald Bowden (OBJ251), Claylands Green NLE Action Group (OBJ254), and Kennington Association Planning Forum (OBJ206) have argued that assumptions have not been published. Karen Crawcour (OBJ1), Robert Lentell (OBJ71), Gill Lucas (OBJ72), Lansdowne Residents Association (OBJ111), Carl & Susanna Callaghan (OBJ191), KG Project Ltd (OBJ212) Mary Davies (OBJ226) and Simon Hughes MP (OBJ250) stated that inadequate evidence to justify the costs of the NLE had been published.

- 7.1.6 All assumptions are available in the Economic and Business Case, and in this proof of evidence.
- 7.1.7 Claylands Green NLE Action Group (OBJ254), Vauxhall Liberal Democrats (OBJ157) and VNEB DATA (OBJ123) all argue that there are risks that the rates revenues planned to fund the investment will not be forthcoming. While this risk is clearly apparent, the scheme is robust to this. Scenario analysis has been undertaken and even with delays to the development, there is a strong prospect that payback occurs within the Enterprise Zone period. The government guarantee offers protection against further delays. This is dealt with in Section 6 of my evidence.

## 8. STATEMENT OF MATTERS

<b>Matter</b>	<b>TfL position</b>	<b>Sections of Proof for further information</b>
1. The aims and objectives of, and the need for, the extension of the Northern line (Charing Cross branch) from Kennington to Battersea.	The primary objective of the NLE is to support the growth of the London economy. It achieves this by enabling higher density development in the VNEB area which makes it possible for this area to generate central London productivity levels and public transport use.	Section 3
2: The justification for the particular proposals in the draft TWA Order, including the anticipated transportation, regeneration and socio-economic benefits of the scheme.	The justification for the particular proposals in the draft TWA Order is the regeneration and economic benefits of the scheme. These include the productivity benefits of higher density activity, but also the access to a wider range of jobs for local residents and to entry level jobs for the unemployed and economically inactive	Section 5
5f: The likely impact on local residents, others visiting or passing through the area, businesses and the environment of the scheme during construction and operation, including impacts on land use, including the effects on commercial property and the viability of businesses and the effects on the right of access	Without the NLE, there are already planning constraints on the main source of employment development on the Battersea Power Station site. This will have a significant impact on land use and on the prospects for commercial development. As explained by Mr. Caten (TFL4/A), mitigation is proposed for each of the businesses whose land is required for the scheme These effects are strongly outweighed by the transformation of the area achieved by the development	Section 4
12: TfL's proposals for funding the scheme	The investment will be financed by borrowing by the GLA. The operating and renewal costs will be covered	Section 6

<b>Matter</b>	<b>TfL position</b>	<b>Sections of Proof for further information</b>
	by fares generated, while the capital costs will be paid back (including interest) by a combination of direct developer contributions and additional rate revenue generated by the new development.	

## 9. CONCLUSION

- 9.1.1 The objective of the NLE is to make possible the development of the VNEB area at densities appropriate to its location and inclusion in the CAZ. The transport and planning analysis shows that such a transport system will make possible an additional 14,000 jobs and 5,600 homes which would not otherwise exist. The role of the transport system in London in supporting new jobs and homes is supported by the experience of the Jubilee line extension as well as the extensive new developments around the major termini in recent years.
- 9.1.2 This evidence has focussed on the economic benefits of these additional jobs in particular. It has reviewed the potential demand for these roles and the likely role of inward investment in creating them. I conclude that a reasonable, if not conservative, position is to take the proportion of London's employment supported by foreign direct investment as the basis for estimating this net effect.
- 9.1.3 I also review the evidence for a productivity differential to be applied to the jobs likely to be created as a result of the NLE. I conclude that there will be agglomeration benefits as a result of the increased density on this site and this will mean higher productivity than would otherwise be the case. Jobs created here will generate more output than if created in lower density locations in London. This differential is robust to a variety of assumptions.
- 9.1.4 I conclude that the economic benefits of the scheme are substantial at a central estimate of £4.7bn.
- 9.1.5 I also conclude that there will be substantial benefits to local residents, where unemployment is higher than average and the scheme will provide lower level as well as higher level employment. Relatively rapid population growth will also require employment growth.
- 9.1.6 The net cost of the investment, after net fare revenue is taken into account, is £520m in present value terms. Although the finance for this will be covered by the public sector in the first instance, the outstanding capital costs will be covered by a mix of developer contributions and additional rate revenues, so that the net impact on the public balance sheet will be negligible over time.

## **10. STATEMENT OF TRUTH**

10.1.1 I confirm that insofar as the facts stated in my report are within my own knowledge I have made clear which they are and I believe them to be true, and that the opinions I have expressed represent my true and complete professional opinion.

10.1.2 I confirm that my report includes all facts which I regard as being relevant to the opinions which I have expressed and that attention has been drawn to any matter which would affect the validity of those opinions.

10.1.3 I confirm that my duty to the Inquiry as an expert witness overrides any duty to those instructing or paying me, that I have understood this duty and complied with it in giving my evidence impartially and objectively, and that I will continue to comply with that duty as required.