



Date: 17 October 2013

Item 9: Northern Line Extension to Battersea

This paper will be considered in public

1 Summary

- 1.1 This paper seeks the recommendation of the Committee that the Board approves an increase in the Project Authority to progress the design, implementation and bringing into service of the Northern line extension to Battersea Power Station (NLE).
- 1.2 It also seeks the recommendation of the Committee that the Board:
 - (a) approves the implementation of the funding strategy between Government, local authorities and the GLA to deliver the NLE and to the entry into of related legal agreements; and
 - (b) approves the entry into of a funding and delivery agreement and related documentation between TfL and the developer of Battersea Power Station (BPS), committing both parties to an agreed funding and delivery strategy for the NLE including TfL's commitment to deliver the NLE, subject to conditions precedent being met.
- 1.3 It also seeks the approval of the Committee, with the authority delegated by the Board, to enter into certain advance land acquisitions as described in Part 2 of the agenda.
- 1.4 The paper also reports on progress with obtaining an Order under the Transport and Works Act (TWAO) and with procuring the design and construction of the NLE.
- 1.5 The paper included on Part 2 of the agenda contains exempt supplemental information. The information is exempt by virtue of paragraph 3 of Schedule 12A of the Local Government Act 1972 in that it contains information relating to the business affairs of TfL. Any discussion of that exempt information must take place after the press and public have been excluded from this meeting.

2 Recommendations

2.1 The Committee is asked to:

- (a) note the paper and the related paper on Part 2 of the agenda;

- (b) under the terms of a specific delegation of authority in relation to approval for land acquisitions and related matters granted by the Board on 25 September 2013:**
 - (i) approve the early acquisition of land from and entry into of related commitments with Sainsbury's, Banham, Battersea Dogs and Cats Home and Covent Garden Market Association as described in, and up to the maximum sum set out in, the paper on Part 2 of the agenda; and**
 - (ii) authorise the TfL Officers and Subsidiaries (defined in paragraph 2.2 below) the ability to agree and execute (whether by deed or otherwise) on behalf of TfL or a Subsidiary (as appropriate) any documentation to be entered into in connection with such acquisitions and commitments and to do such other things as they consider necessary or desirable to facilitate the proposed acquisitions and commitments;**
- (c) recommend that the Board:**
 - (i) grant an increase in Project Authority to £1,044m to proceed with the extension of the Northern line to Battersea Power Station (NLE), subject to all necessary consents being granted;**
 - (ii) grant approval for the implementation of a funding strategy between Government, local authorities and the GLA to deliver the NLE;**
 - (iii) grant approval to a funding and delivery agreement and related documentation with the developer of Battersea Power Station, committing both parties to an agreed funding and delivery strategy for the NLE; and**
 - (iv) authorise the TfL Officers and Subsidiaries (defined in paragraph 2.2 below) to agree and execute (whether by deed or otherwise) on behalf of TfL or a Subsidiary (as appropriate) any documentation to be entered into in connection with such commitments and to do such other things as they consider necessary or desirable to facilitate such commitments.**

2.2 The following TfL Officers and Subsidiaries shall have delegated authority:

- (a) TfL Officers: the Commissioner, Managing Director Finance, General Counsel, Managing Director Planning and Managing Director Rail and Underground; and**
- (b) Subsidiaries: all subsidiary companies of TfL including Transport Trading Limited and any other subsidiary of Transport Trading Limited (whether existing presently or to be formed): any of the directors shall be authorised to act for or on behalf of any such subsidiary.**

3 Background and Scheme Development

- 3.1 The NLE is a key catalyst to the development of the Vauxhall Nine Elms Battersea Opportunity Area as a major new employment and residential district located on the edge of central London. The Mayor and TfL have worked with both central and local government to ensure that TfL would be in a position to be able to submit a TWAO application by April 2013.
- 3.2 Alongside the work on preparing for the TWAO submission, work has continued with stakeholders to develop a funding and financing solution, based around public sector debt borrowed by the GLA and serviced through Section 106/Community Infrastructure Levy funding and a tariff on development and incremental business rates paid in the area.
- 3.3 In November 2011, the Government confirmed its willingness to designate an Enterprise Zone in the Opportunity Area, which would enable incremental business rates to be retained locally for a period of at least 25 years. In December 2012, the Chancellor confirmed that up to £1bn of Public Works Loan Board (PWLB) borrowing, supported by a guarantee under the UK Guarantee Scheme, would be available to the Mayor for the NLE.
- 3.4 The scope includes the construction of two 3.2km bored tunnels connected to the existing loop on the Northern line south of Kennington station. These pass through a new intermediate station at Nine Elms on Wandsworth Road before serving a new terminus just south of the BPS. The construction is proposed of two permanent ventilation and intervention shafts in Kennington Park and Kennington Green.

4 Current Status

Design

- 4.1 The design has been developed to RIBA Stage C (and beyond for construction planning drawings), which is a suitable level for a TWAO application. It also covers the proposed maintenance and operational requirements. The project budget includes the five additional trains required to operate the service. Once operational, trains from the Charing Cross branch will serve the NLE – with an initial frequency of around 16 trains per hour (tph), increasing to a potential 28 tph by 2031 with the Northern Line Upgrade 2.

Planning

- 4.2 The TWAO was submitted to the Secretary of State for Transport on 30 April 2013. This triggered a statutory consultation period, which ended on 18 June 2013.
- 4.3 The Department for Transport's (DfT's) TWA Unit received 256 objections of which six were subsequently re-categorised, 22 representations and 39 messages of support. In addition, 46 objections were received to the Conservation Area Consent applications affecting Kennington Green and Kennington Park, and a further three objections to the listed buildings Consent

applications relating to the BPS jetty and Kennington station. TfL has sent responses to 273 of those who have submitted objections and representations, and is in dialogue with the remainder.

- 4.4 The aim is to provide sufficient information and reassurance to enable as many individuals, groups and companies as possible to withdraw their objections. Four have been withdrawn to date and many more are expected to have been so before the start of the public inquiry. The most common issues raised by the objectors are:
- (a) impact on Kennington Park;
 - (b) impact on Kennington station and Northern line;
 - (c) quality of the consultation process;
 - (d) noise and vibration;
 - (e) alternatives to Kennington Green shaft location and design of its head house;
 - (f) ground movement;
 - (g) construction traffic; and
 - (h) specific property concerns.
- 4.5 The DfT has appointed an inspector and the public inquiry into the proposed scheme will commence on 19 November 2013. In advance of this, Statements of Case have been produced by TfL and 63 of the objectors. A pre-inquiry meeting was held on 13 September 2013.
- 4.6 TfL has produced an addendum to the Environmental Statement (ESA) to reflect changes to the scope that have occurred since the original April 2013 submission, notably the adoption of the gallery tunnels option for constructing the links to the existing Kennington loop and the removal of the proposed community building in Kennington Park following advice from the London Borough of Lambeth. The ESA, along with various other supporting documents, was submitted on 27 August 2013 and statutory consultation is scheduled to end on 8 October 2013.
- 4.7 TfL's witnesses at the public inquiry are currently preparing their Proofs of Evidence, which need to be finalised and submitted four weeks before the commencement of proceedings.
- 4.8 A significant number of objectors have identified an alternative location for the permanent shaft at Kennington Green. While this site was considered and rejected earlier in the design development process, further engineering and environmental work is currently being undertaken in order to support TfL's view that the currently proposed location is the best one available. As the ESA addendum is still open to comment, additional objections may arise.

Property

- 4.9 In order to construct the extension, there is a need to acquire land and rights from third parties, powers for which are included in the TWAO application.

The vast majority of the surface land required is associated with the two station sites, although some land is also required for construction of the intervention/ventilation points. At Battersea, the proposals for the station are integrated with the wider plans for the development of the BPS site and the land TfL will be acquiring will effectively be for the station and access points, with development above being the responsibility of the Battersea Power Station Development Company (BPSDC). There is no cost to TfL of acquiring this land, but there is also no potential for any additional commercial development over the station at Battersea.

- 4.10 At Nine Elms, the land for the station is being acquired from three landowners, all of which have active development proposals for their sites. TfL is in advanced stages of negotiation with all three parties and would hope to have agreements in place in advance of the Public Inquiry. In this location, TfL will be the landowner of the station and the air rights above, where there is significant potential for an over station development. TfL has worked with Lambeth to put in place a planning policy framework that sets out the planning principles supporting a major mixed use development above the station box.
- 4.11 TfL will be required to enter into agreements in advance of the Inquiry which, in some cases, commits TfL to incurring cost associated with relocations. If the NLE does not proceed then these costs would have been incurred but in most cases TfL will be in receipt of the land and is therefore able to recover the majority of the value.
- 4.12 The principal landowners where agreements are being progressed are:
- (a) The developer of Battersea Power Station;
 - (b) Battersea Dogs and Cats Home;
 - (c) Banham Patent Lock Ltd;
 - (d) Sainsbury's;
 - (e) Covent Garden Market Authority;
 - (f) Chivas Brothers (Beefeater Distillery);
 - (g) Network Rail; and
 - (h) National Grid.
- 4.13 Approval is being sought from the Committee for such advance acquisition arrangements.

Procurement

- 4.14 The procurement strategy for the NLE Programme is to package the civils, tunnelling, stations, track and power works into a main design and build (D&B) contract, which will be in the form of a single-stage NEC3 Option C Contract, under a target price. For other programme elements (e.g. signalling, rolling stock, radio, etc.) the procurement approach will depend on the nature of the contractual arrangements currently in place and applicable regulation:
- (a) where existing PFIs or contracts are in place (e.g. Connect radio,

Prestige), works are expected to be instructed by London Underground under existing contractual arrangements, but the D&B Contractor will be responsible for co-ordination of the works;

- (b) signalling – the Northern line signalling is currently being upgraded as part of the Northern Line Upgrade. TfL is analysing the technical and other issues arising in order to determine the appropriate procurement strategy; and
 - (c) rolling stock – TfL is analysing the most appropriate procurement strategy.
- 4.15 Prequalification questionnaires were submitted by six major construction consortia and, following evaluation, a shortlist of four bidders was agreed in June 2013. The technical dialogue phase of the programme commenced on 4 July 2013, with a series of structured sessions with the shortlisted bidders aimed at addressing specific project issues so as to enable TfL to issue a fully informed Invitation to Tender (ITT).
- 4.16 It was originally intended to issue the main D&B ITT in September 2013, with tenders to be returned in January 2014 and Contract Award in spring 2014. However, negotiations with key objectors to the TWAO are taking longer than anticipated and, therefore, some aspects of project scope definition remain uncertain and may not be resolved prior to the Public Inquiry.
- 4.17 Therefore, the date of issue of the ITT will be deferred until 2 December 2013 to ensure better scope certainty. Tender responses will now be sought in February 2014, with Contract Award in summer 2014 (subject to approvals). This date will be before the TWAO is granted (expected autumn 2014) in order to achieve the planned opening date in late 2019. There is a risk of abortive expenditure on design works should the TWAO not be granted or onerous conditions be attached to any approval and TfL decide not to proceed with the project. The contract will contain a break clause to enable TfL to cancel the contract before main construction commences.

5 Capital Costs

- 5.1 The latest estimated final cost (EFC) is £1,044m in outturn prices, which includes risk at an 80 per cent probability (P80) and excluding costs to be recovered from future property redevelopment. This represents a reduction from the Quarter 1 Forecast of £1,117m and has been achieved by incorporating value engineering initiatives (such as the removal of temporary shafts south of Kennington) plus a reassessment of the internal resources required to deliver the programme.
- 5.2 The project is pursuing a number of initiatives to achieve greater certainty on project costs:
- (a) a full review of the NLE Quantified Risk Assessment to ensure no double counting of risks across the business;
 - (b) that risks associated with the TWAO process remain valid where appropriate;

- (c) further value engineering of the project to identify cost and programme saving opportunities;
 - (d) benchmarking against recent procurement exercises such as Crossrail and Bank Station Capacity Upgrade project to better reflect current market rates; and
 - (e) continuing the Technical Dialogue stage with the four shortlisted bidders to identify additional opportunities for innovation particularly around construction methodology.
- 5.3 As noted in paragraph 4.16 above, Contract Award is planned for spring 2014 and is likely to be prior to the granting of TWAO powers. To meet the in service date of end 2019, it will be necessary for TfL to commence design, site surveys and early enabling works (where these do not require TWAO powers) in advance of powers being granted.
- 5.4 This would result in 'at-risk' external commitments being entered into by TfL prior to powers being granted. At this stage it is not anticipated that significant advance purchasing of plant (e.g. Tunnel Boring Machines) will be required prior to powers being granted.

6 Overall Programme

6.1 The key milestones for the project are:

Key Milestones	Date
Commence Public Inquiry	19 November 2013
Issue invitation to tender for the Design and Build Main Works	2 December 2013
Funding & Delivery Agreement (FDA) and Land & Works Agreements agreed with BPS; final agreement reached with public sector stakeholders (HM Treasury, Boroughs, GLA)	December 2013
Public Inquiry completed	January 2014
Receive tenders for the Design and Build Main Works	28 February 2014
Contract award Design and Build Main Works	early July 2014
Decision by Secretary of State announced	autumn 2014
Contracts for rolling stock and signalling awarded	autumn 2014
Necessary land acquired	January 2015
Satisfaction of conditions precedent under the FDA; main works commenced on site	spring 2015
Service to Battersea commenced	end 2019
Financial close of the Programme (realisation of OSD receipts and expiry of authority)	30 June 2021

* indicative dates only

7 Economic appraisal

7.1 The economic appraisal for the extension has been assessed over a 60 year period, with the service assumed to commence in 2020. A discount rate of 3.5 per cent per annum is applied for the first 30 years and thereafter three per cent per annum.

7.2 The wider economic impact (WEI) benefits have a present value (PV) of £5,080m. Central to this is the assumed relocation of workers to city centre jobs where they will be more productive, which is enabled by the transport investment. The TfL revenue benefits are £400m PV with a national rail revenue benefit of £90m PV. The capital, renewal, operating and

maintenance costs total £1,110m PV. The benefit to cost ratio (BCR) for the scheme is 8.2:1 and it has a positive net present value (NPV) of £4,470m.

- 7.3 The appraisal utilises 2010 prices, the DfT approach allows comparison between schemes. A summary of the economic appraisal is shown in the table below.

Economic Costs and Benefits over 60 years at 2010 prices

Description	Economic costs and benefits PV £m (2010 prices)
Financial Impacts	
Capital Costs	810
Renewal Costs	90
Operating and Maintenance Costs	210
TfL Revenues	-400
National Rail Revenues	-90
<i>Financial Impacts</i>	620
Economic Impacts	
Relocation of Workers to More Productive Jobs	4,100
Agglomeration Benefits	600
Public Transport Benefits	290
Highway benefits	50
Accidents, GHG and Air Quality	40
<i>Total Benefits</i>	5,080
<i>Net Present Value</i>	4,470
<i>Benefit Cost Ratio</i>	8.2 : 1

- 7.4 The total capital cost used in the economic appraisal is £1,032.5m (in Q1 2010 prices). This is the same as the Quarter One Forecast estimate of £1,117m (in outturn prices) mentioned in paragraph 5.1. If the economic appraisal were to be repeated using the more recent estimate, there would be

a minor improvement. The build up of this cost is shown in the paper on Part 2 of the agenda¹.

- 7.5 The additional annual operating costs utilised in the economic appraisal are provided in a table on Part 2 of the agenda². These figures are based on a future peak train service of 28 tph and an off-peak service of 24 tph.
- 7.6 The assumption is that 41 additional train operators will be required by 2031 plus an additional 29 station staff. The additional staff numbers have been profiled over the life of the appraisal to match operational demands. Staff costs are assumed in the appraisal to grow at 1.15 per cent above inflation for the appraisal period, which is based on a 3.65 per cent p.a. nominal increase in maintenance costs and an inflation assumption of 2.5 per cent.
- 7.7 The additional annual maintenance costs are summarised below. It is assumed that maintenance costs will increase from a 2020 service pattern to a 28 tph peak, 24 off-peak service by 2031.

TfL Maintenance Cost Breakdown

Cost Element	Cost £m (2010 prices)
Track, Signals and Power	1.18
Civils and Vent Shafts	0.16
Fleet	1.45
Lifts and Escalators	0.50
Stations	0.70
Risks and contingency 10%	0.40
Total Maintenance Costs	4.39

TfL Asset Renewal Costs

- 7.8 Asset renewal costs are based on the whole life costs of the NLE assets out to 60 years and are profiled against LU current asset management practice for relevant interventions at interim, mid-life and whole life points for the various asset types.
- 7.9 The total renewal cost over the 60 year appraisal period at 2010 prices is £205.6m plus a 20 per cent contingency. Notable renewal costs at the 40 year (2059) point are signalling replacement at £25.3m (2010 prices) and rolling stock at a cost of £80.8m (2010 prices).

¹ Some text and the table referred to were removed from this section and included in the related paper on Part 2 of the agenda after initial publication, as it was considered commercially sensitive.

² This text was amended after initial publication to confirm that the table referred to was on the related paper on Part 2 of the agenda.

Sensitivity Analysis

- 7.10 The move to more productive jobs (M2MPJ) benefits accounts for 81 per cent of the wider economic benefits totalling £5,080m (PV). The M2MPJ benefit of £4,100m (PV) assumes that 13 per cent of the jobs created in the Vauxhall Nine Elms Battersea Opportunity Area are net additional jobs. The application of a sensitivity of zero per cent for net additional jobs results in a M2MPJ benefit of £3,000m, resulting in a scheme NPV of £3,980m and a BCR of 6.5:1.
- 7.11 Labour productivity growth is expected to contribute to the Wider Economic Impact benefits. The economic appraisal used an adjusted productivity index (PI) for the London Borough of Wandsworth, if an unadjusted PI is applied based on the DfT's expectations, the resulting M2MPJ benefit is £2,900m. The NPV is £3,880m with a BCR of 6.3:1.

Conclusion

- 7.12 The economic appraisal demonstrates a BCR of 8.2:1, this falls to a BCR of 6.3:1 under a worst case sensitivity analysis of the WEI benefits. There is a surplus of revenue income for TfL of £100m (PV) over 60 years. The economic appraisal results fully justify the NLE investment in terms of value for money and sustainability.

8 Funding

- 8.1 TfL's business plan assumes that net costs will be met by external funding received from the GLA of £1bn.

9 Key Impacts

Environmental Considerations

- 9.1 Throughout the design process TfL has sought to minimise environmental impacts wherever possible through amendments to the design or through proposed mitigations. As part of the TWAO application, the proposals to construct the NLE have been subject to a full environmental impact assessment which include recommendations concerning appropriate mitigation of impacts that it has not been possible to avoid or design out.
- 9.2 The extension will be designed in accordance with LU's Noise and Vibration Asset Design Guidance. This will require mitigations to meet the ground-borne noise and vibration criteria and also special considerations at ventilation shafts.

Operational impact

- 9.3 The working assumption is that the construction of the interfaces between the new tunnels and the Kennington Loop will be done during limited closures. However, if opportunities for synergy between the NLE programme and those

of other projects can be identified which will reduce the impact on customers these will be explored.

- 9.4 An operational concept for means of evacuating passengers in the event of a train fire has been developed for the extension with Operational Upgrades that allows the removal of the intermediate shaft.

10 Views of the Project and Planning Panel

- 10.1 At its meeting on 3 October 2013, the Projects and Planning Panel noted the proposals in this paper and supported the recommendations to the Committee. Members were informed that all issues raised by the Programme Management Office and Independent Investment Programme Advisory Group on the programme had been or were being addressed.

List of appendices to this report:

Appendix 1: Plan of Proposed Route and Key Sites

A paper on Part 2 of the agenda contains exempt supplemental information.

List of Background Papers:

Mayor's Transport Strategy

Vauxhall Nine Elms Battersea Opportunity Area Planning Framework

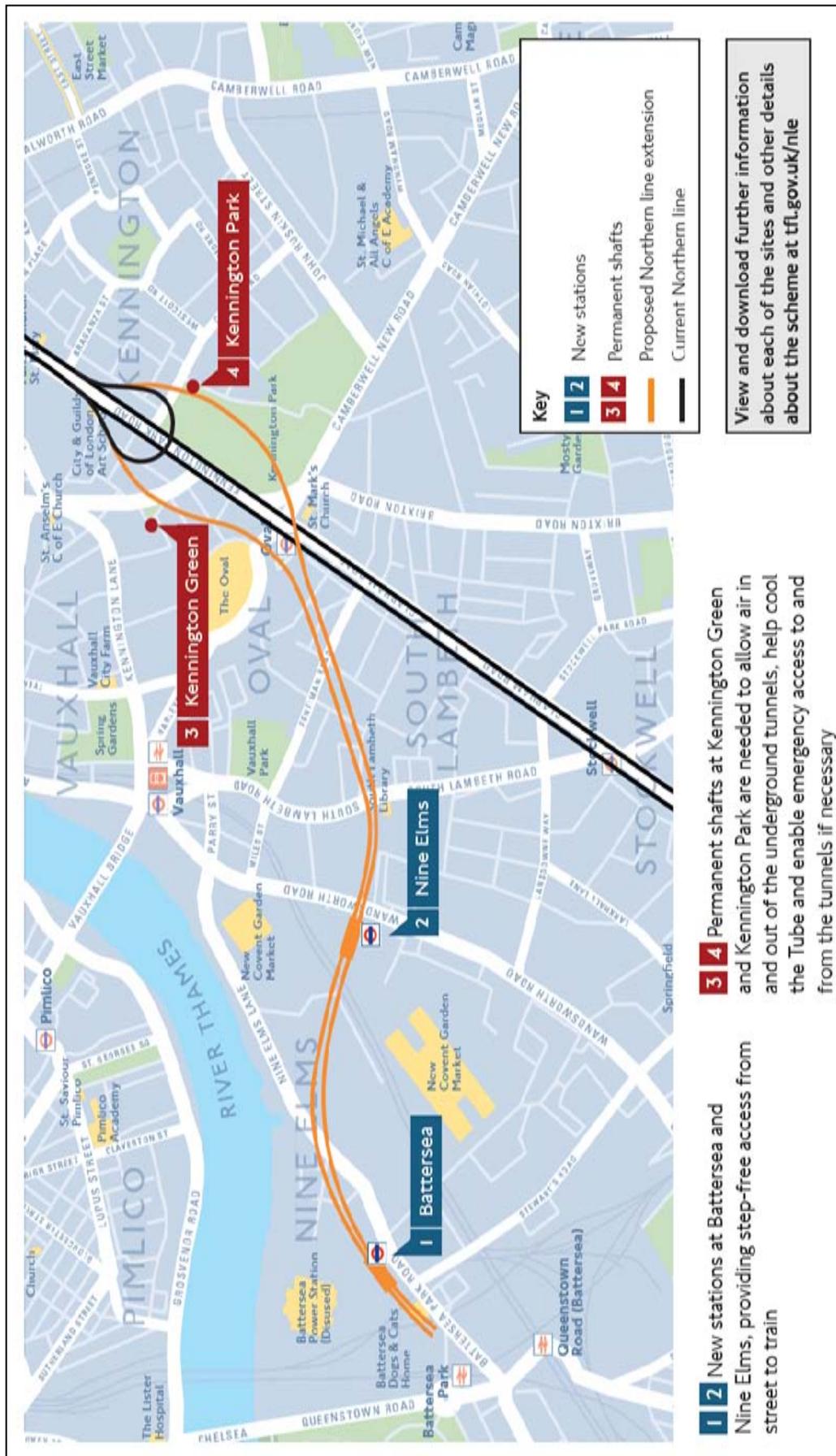
London Plan

Chancellor's Autumn Statement 2012

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Plan of Proposed Route and Key Sites



1 2 New stations at Battersea and Nine Elms, providing step-free access from street to train

3 4 Permanent shafts at Kennington Green and Kennington Park are needed to allow air in and out of the underground tunnels, help cool the Tube and enable emergency access to and from the tunnels if necessary

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View and download further information about each of the sites and other details about the scheme at tfl.gov.uk/nle