



Plans to extend the Northern line to Nine Elms and Battersea (NLE)

Autumn 2012 consultation on the NLE. Our response to key issues raised.

Our response to the key issues raised during the autumn 2012 NLE consultation is set out in the following pages. The consultation provided the public with the opportunity to view and comment on the NLE proposals as a whole, in particular the key sites required to build the scheme, before finalising them ready for an application in spring 2013 for a Transport and Works Act Order (TWAO) to build and operate the extension.

We received over 1800 responses to this consultation and full details are available in 'A report on the 2012 consultation to extend the Northern line'. Previous consultations in 2010 and 2011 sought feedback on route options for the extension and the preferred route as well as locations for the temporary and permanent shafts required to build and operate the scheme. Full details and copies of the consultation reports are available at www.tfl.gov.uk/nle.

We have carefully considered all feedback and conducted further feasibility and design work to explore some of the key issues raised. Whilst the following responses include some additional new information about the impacts of the NLE where it is available, work is still underway to evaluate its full impact as part of the Environmental Statement (ES) and this will be submitted as part of our TWAO application.



The key issues raised in the consultation focused around the following themes:

1. Capacity of the Northern line and especially Kennington station and future service levels on the Northern line
2. Noise and vibration levels once the NLE is operational and requests for compliance with more stringent guidelines
3. The location and design of the permanent shaft and head house at Kennington Park
4. The potential effects of settlement to buildings situated above the new tunnels
5. Noise and traffic during construction
6. Requests for further investigation and consideration of the wider transport needs and alternative transport solutions to the NLE and alternative route suggestions
7. Concerns about the consultation process
8. Concerns about the funding of the scheme and the potential use of public money

1. Impact of the NLE on the capacity of the Northern line and especially Kennington station, and future service levels on the Northern line

1.1 Concerns about capacity of the Northern line and especially Kennington station

We have looked carefully at the capacity of Kennington station in the light of the NLE and the planned upgrade programme which will increase the capacity of the entire Northern line.

Full details will be included in the ES and accompanying transport assessment that will be submitted as part of our TWAO application.

For the London Underground network, the assessment will set out the impact of the NLE on passenger demand and crowding levels and present mitigation for managing this impact if required, for example at Kennington station.

All work to date indicates that although the NLE will increase the number of passengers travelling on the Northern line, this will be predominantly on the Charing Cross branch and will not significantly impact upon crowding levels on either the Charing Cross or the Bank branch of the line. With the exception of Kennington, passenger numbers through other Northern line stations do not increase significantly.



Detailed analysis is still underway to establish the full impact on Kennington station. Indications are that any impact would be related to the flow of passengers between platforms, rather than an increase in passenger numbers entering or leaving the station.

If this analysis indicates that there could be capacity issues new cross passages between the platforms would form part of our TWAO application.

Separate to the NLE, TfL is also reviewing the longer term capacity needs at Kennington (and other stations) as a result of general growth across the network and other improvements taking place on the Northern line. This will focus on upgrading to the ticket hall and will build on any improvements carried out for the NLE.

1.2 Zoning of Kennington station

TfL regularly conducts reviews of its zoning policy for stations across its Tube network. A recent review of Kennington station considered a range of issues including the proximity of Nine Elms (proposed zone 2) and Vauxhall stations (zone 1&2). It also considered the impact of zoning on perceptions of the Vauxhall, Nine Elms and Battersea area as being a part of central London and the potential impact of re-zoning Kennington on other stations on the Tube and rail network.

After consideration the review concluded that Kennington station should remain in its current zone 2 designation.

It should be noted that at the time development was first encouraged at Canary Wharf, and later, when the Jubilee line was extended through the area, arguments were put forward for a zone 1 status based upon the area's profile as London's second financial centre. Canary Wharf's zone 2 status has had no discernable effect on the area's growth or economic vitality and it is still regarded as a major part of London's economy.

1.3 Impact of the NLE on the Kennington loop

All services on the Northern line extension will be a continuation of the Charing Cross branch replacing most, if not all, of the services which currently terminate at Kennington. This means that the number of trains using the loop line to turn trains around (the Kennington loop) will be significantly reduced once the NLE is built.

The new tracks for the NLE will be built to modern standards and comply with TfL's noise and vibration guidance for new railways (see 2.1 below). For existing tracks TfL has a robust monitoring regime in place to maintain the safe operation of the Tube network and to keep noise levels from the operation of trains as low as practicable. A number of measures are carried out including such things as twice-weekly physical track walks and six-monthly asset inspection train checks. When our monitoring identifies noise and vibration issues, investigations are carried out to identify their cause. Investigations are also instigated by reports TfL receive of an increase in noise and vibration.

Depending on the outcome of these investigations, various mitigation measures may be carried out such as rail grinding or renewal, work to improve joints or adjustment to the track lubrication.



There is no major tunnelling or engineering works planned for the Kennington loop itself, except where the new tunnels for the NLE will be attached to the existing ones at the step plate junctions. However, in order to connect the tunnels, it is likely that enabling work, such as upgrading electrics or signalling on the loop may be required.

1.4 Future service levels on the NLE

All services on the NLE will be a continuation of the Charing Cross branch replacing most, if not all, of the services that currently terminate at Kennington. The NLE in itself will not determine future timetables or the number of direct trains from Charing Cross to Morden or Battersea.

However, separate to the NLE, the Northern line is currently being upgraded as part of TfL's comprehensive Tube upgrade plan to add around 20% additional capacity to both branches of the Northern line. This will be completed in 2014. Looking further ahead, eventually the plan is to partially separate the Charing Cross and Bank branches so that all trains from Morden run via Bank, and all trains from Battersea run via Charing Cross. This would add further extra capacity and could allow us to run around 28 trains an hour on all branches, compared with 20 an hour today, and 24 after the 2014 upgrade.

2 Concerns about noise and vibration levels once the NLE is operational and a request for compliance with more stringent noise guidelines

We understand the concerns of some residents about the potential impact noise and vibration could have once the extension is operational. We take these concerns seriously and we are committed to ensuring that the proposed extension will meet levels defined in TfL's London Underground Noise and Vibration Asset Design Guidance (G1323). This guidance outlines a noise and vibration criteria for new track of a maximum of $40\text{dB}_{\text{L}_{\text{Amax, Fast}}}$ and commits to use reasonable endeavours to meet a more stringent measure of $35\text{dB}_{\text{L}_{\text{Amax, Fast}}}$. The NLE is being designed to meet noise levels of $35\text{dB}_{\text{L}_{\text{Amax, Fast}}}$.

Rupert Taylor, a world leader in the field of vibro-acoustics of railway structures and tunnels, with extensive experience in the measurement of railway vibration and noise, including on the London Underground, has recently concluded a benchmarking survey of underground railways across the world. His conclusion is that TfL's London Underground commitment sits within the range of limits and guidance values found worldwide. He also concludes that London Underground's standard is better than that of Crossrail's and the Dublin Metro for residential areas.

The World Health Organisation night noise guidelines for Europe (NNG) noise criteria are not directly applicable to underground rail noise – their primary purpose was to measure noise levels for night time air traffic. As trains do not run through the night on the Tube network, they are not a useful or relevant benchmark to compare against.



The Environmental Impact Assessment currently underway (which will result in the ES) will assess the future operational noise and vibration impacts of the extension. However, prediction modelling already undertaken gives us a high level of confidence that, with the use of mitigation such as resilient base pads, the operational noise levels on the NLE will fall well within our maximum 35dB_{L_{Amax,Fast}} design criteria.

Further validation work to assess the noise reduction achievable through the use of mitigation such as resilient base pads is underway and the ES will include noise predictions for the NLE and identify where mitigation is required.

3. The location and design of the permanent shaft and head house at Kennington Park

3.1 Suggestions for an alternative shaft location in Kennington Park

Feedback from the summer 2011 consultation told us that local people would prefer the proposed head house building for the shaft at Kennington Park to be located within a very small section of the park at the old lodge. This will not entail the permanent loss of any park space, as the head house will replace an existing old lodge building located on land separated from the park. The location of the proposed head house is determined by its distance from Kennington station and the new tunnels and the ability to meet operational safety requirements.

However, during the autumn 2012 consultation we received a number of requests from residents and other groups asking us to look at alternatives for the site, including an alternative service 'yard' site in the park.

3.2 The service yard site in Kennington Park

This location had been considered previously and initial assessments indicated that for safety and operational reasons it would not be a suitable alternative due to its distance from Kennington station and the point at which the old tunnels meet the new ones (at the step plate junctions). Also we understand that the site is unavailable as it is in active use and no alternative site for this use has been identified.

In response to feedback, further assessment on the site's viability has been undertaken. This has confirmed that it would not be a suitable alternative location in Kennington Park for the following reasons:

- The track would need to be realigned so as to be close to the proposed alternative location for the head house. This would increase the curvature of the line to an unacceptable level leading to a 'bumpy' journey experience for passengers, a potential increase in noise levels, and significantly increased line maintenance requirements.



- The increased distance between Kennington station and the proposed alternative site would reduce the control of smoke extraction in the case of a fire. This would compromise the overall safety of this section of the tunnel.
- The proposed alternative location has the potential to negatively impact more residents than the existing proposals at the old lodge. Already there are a number of residential properties that back onto the site and planning permission for a new development of 50 new homes has been granted to the south of the site.
- Overall access to the site is more limited due to its location on a narrower residential road.
- The distance of the proposed alternative head house site from the substation would require the substation to also be relocated to the north of the yard site taking up another section of the park.

Having completed this further assessment work we have concluded that the old lodge remains the most suitable location for the proposed shaft at Kennington Park. This conclusion is supported by the London Borough of Lambeth and the Friends of Kennington Park and the site will be included in our TWAO application.

3.3 Engaging the community in the design of the proposed head house at Kennington Park

We have engaged with local resident groups, Kennington Park Neighbourhood Action Group (KPNAG) and Friends of Kennington Park, as well as heritage and conservation experts to understand issues that are important to them when considering the design of the proposed shaft building (head house) at Kennington Park.

Feedback from the autumn 2012 consultation indicated that residents supported the inclusion of natural materials in the design, a building wrapped around the proposed head house and a community space for activities relating to the park. There was a mixed response to the proposal for the head house to be screened from the park.

In response to feedback from the consultation we have engaged further with local resident and community groups and Lambeth Council to inform the development of more detailed designs and drawings. These will be submitted as part of an application for detailed planning consent as part of our TWAO application.

3.4 The future of the existing community facilities at the old lodge

We have met with Bee Urban and other users of the old lodge to discuss the relocation of the existing community facilities to another area of the park whilst construction of the NLE is underway. As part of our TWAO submission, we will be making a provision for temporary facilities next to the proposed construction site on the corner of Kennington Park Road and Kennington Road. We are in discussions with Bee Urban about the possible relocation of some trees, shrubs and equipment to the new alternative site as well as the bee hives.



3.5 The provision of alternative dog walking facilities in Kennington Park

Whilst construction works are undertaken Lambeth Council has agreed to work with TfL to provide replacement dog walking facilities, subject to these costs being covered by TfL. Lambeth and the Friends of Kennington Park already have some ideas for the potential location and once plans for the NLE are confirmed they will work closely with us to plan out the temporary relocation of the area.

4 The potential effects of settlement to buildings situated above the new tunnels

We understand that some owners and occupiers of properties along the route have concerns about the potential impact of tunnelling works on the structure of their properties.

Initial studies of the route suggest that the predicted settlement caused by the tunnelling will at most only cause slight damage or less to properties along the route. This means that if this predicted damage does occur it will be limited to damage that can be easily repaired such as cracks that could be easily filled or doors and windows that may stick slightly.

Powers will be applied for as part of our TWAO application to carry out a defects survey on any property predicted to experience 10mm or more of settlement before tunnelling works are started. In addition, a system to monitor ground movements will be put in place before tunnelling starts to establish seasonal variations. This monitoring will continue for a period after construction has been completed until potential settlement has ceased.

The defects survey will:

- Record the condition of the properties immediately prior to tunnel construction starting in the area. They are a written and photographic record of existing cracking and the general structural condition of the building.
- The surveys will be carried out by a chartered building surveyor, or other qualified engineer commissioned by TfL at TfL's cost but in joint names with the owner and any other persons as TfL may determine.
- Property owners may commission their own independent survey at their own expense.
- An electronic or hard copy of the report will be available to the owner on request.
- Owners will be contacted shortly before construction is due to start in the area so that a defects survey can be conducted.



TfL's London Underground Guidelines on Ground Movements and Deep Tunnelling Excavations sets out more details of the process for predicting ground movements, mitigations and how property surveys are undertaken.

5 Noise and traffic disruption during construction

We understand residents' concerns about potential disruption during construction of the NLE and we will seek to keep this to a minimum. TfL adopts a best practice approach to managing its construction impacts based on our significant experience of delivering major transport projects across London. A code of construction practice has been drawn up and is currently being reviewed by the local authorities of Wandsworth, Lambeth and Southwark. This includes provisions on construction, noise and vibration, dust, dirt on highways and working hours and noise limits. Once agreed, the code will be published at www.tfl.gov.uk/nle and submitted as part of our TWAO application, probably as an annex to the ES.

It will be necessary for the tunnelling work to be a continuous process and 24 – hour working will be required. However, noise from underground working on the new tunnels is unlikely to be audible at surface level and TfL will endeavour to ensure that work at surface level outside normal working hours is kept to a minimum. Any lorry movements outside of normal working hours will be kept to a minimum and they would be subject to approval by the local authority under section 61 of the Control of Pollution Act. This application would be submitted by the contractor appointed to undertake the works.

There may be circumstances where noise impacts arise during construction that need to be alleviated further. For those who may be affected by this, TfL will work with local authorities to agree suitable mitigation measures.

TfL's London Underground Noise and Vibration policy includes potential mitigation measures (such as secondary glazing) or in certain circumstances an offer of re-housing on a temporary basis where noise thresholds are likely to be reached for extended periods. The policy can be downloaded from www.tfl.gov.uk/nle.

TfL has also developed a Hardship Policy where owners of eligible properties who have a compelling reason to sell their property and are unable to do so due to the NLE, could have their property purchased by TfL. This policy is available at www.tfl.gov.uk/nle.

Routes for construction traffic and the effects of the works on local traffic conditions are being assessed and the need for temporary traffic regulation orders is being considered with the aim of minimising the disruption caused to local communities.

Full details of the likely impacts of traffic, noise and dirt and proposed mitigation will be set out in the ES which will be submitted as part of our TWAO application.



6 Requests for further investigation and consideration of the wider transport needs and alternative transport solutions to the NLE and alternative NLE route suggestions

A range of transport options to support the preferred development scenario in the Vauxhall, Nine Elms and Battersea (VNEB) Opportunity Area (OA) were considered as part of the [VNEB OA Transport Study](#). We are satisfied that the proposed extension is the only solution that can realistically provide the required transport capacity and connectivity to achieve the Mayor's vision for development of the area of around 16,000 new homes and 20,000 – 25,000 jobs.

This vision is detailed in the [VNEB Opportunity Area Planning Framework](#), the Mayor's planning policy for the area. Although the proposed NLE is the principal new mode of transport for the area, it is accompanied by many other transport and urban realm improvements that together form a comprehensive transport strategy for the area. These include enhanced bus services, improvement to National Rail stations, a pedestrian and cycle bridge across the river, passenger piers at Vauxhall and Battersea Power Station, pedestrian and cycle walkways, and new Barclays Cycle hire docking stations.

Our TWAO application will be supported by a transport assessment which will consider both the construction and the long term effects of the proposed extension on the local highway network and existing public transport facilities. However, we have no plans to conduct a further transport needs analysis for the area in advance of our TWAO application.

6.1 Alternative route suggestions

Feedback to the consultation included a range of other suggested potential options for the route. The proposed route was consulted upon as part of the summer 2010 and 2011 consultations, where it emerged as the most popular option. More about the development of transport proposals and NLE route options can be found in the 2009 VNEB OA Transport Study. Our responses to some of the suggested routes are set out below:

6.2 An interchange at Vauxhall

This route option was consulted on in 2010 and 2011 and was the second-most popular choice. However, there would not be a new station at Nine Elms (as in the current proposal) and this would therefore reduce the benefits of providing better transport access to new areas in the centre of the Opportunity Area. In addition, Vauxhall station is already operating close to capacity. An interchange with the Northern line at Vauxhall would exacerbate this issue, especially as the Victoria line is also already very heavily used through Vauxhall. Conversely a new station at Nine Elms would provide relief. In addition to this, engineering work at Vauxhall to construct the new line would be technically complex and very disruptive given its location close to the rail network and other constraints.



6.3 Extend the NLE to Battersea Park and Queenstown Road stations

Battersea Park and Queenstown Road are too small to accommodate significant increases in passenger numbers, the trains serving them are already crowded and there is no capacity on the existing railway lines to accommodate more trains. The NLE is being built primarily to meet the increased demand created by the development planned for the wider Opportunity Area including the power station site. The new tube station at Battersea is proposed on Battersea Park Road, for easy access to the new developments as well as a convenient interchange with existing and new bus routes and within easy walking access of Battersea Park and Queenstown Road stations.

6.4 Extend the Waterloo & City line to Battersea

This was considered at a high level as part of the VNEB Opportunity Area Transport Study. However it was ruled out on both capacity and engineering grounds. The line is already at capacity at peak times meaning there would be no spare capacity for new users. In addition, the current alignment points east from Waterloo and would therefore require a significant detour to reach the VNEB area after leaving Waterloo.

6.5 Use National Rail infrastructure into either Waterloo (the old Eurostar tracks) or Victoria

National Rail proposals were discussed with Network Rail as part of the VNEB OA Transport Study. However there is no capacity either on the routes through the area or at Waterloo or Victoria. It is also clear that no national rail based option could provide the connectivity or accessibility benefits of the NLE which will provide a direct service into central London and the rest of the Tube network through two new stations in the Opportunity Area.

6.6 Extend the Victoria line from Vauxhall

Extending the Victoria line from Vauxhall would result in a significantly reduced service on the existing Victoria line south of Vauxhall as it would split the line and reduce the number of trains serving the existing branch. This is a heavily used section of the Underground and fewer trains would add significantly to crowding levels. As such, this is not a recommended solution for the needs of the area.

6.7 Extend the Northern line beyond Battersea to Clapham Junction

The current proposal is to extend the Northern line to Battersea but designed in a way that would allow a possible future extension. There is currently no proposal to extend beyond Battersea and any proposal to do so would be subject to a separate assessment.

6.8 Extend the Northern line to Streatham/Crystal Palace

An extension to Streatham or Crystal Palace would best be achieved through an extension of the Charing Cross branch of the Northern line. However, both these destinations would need to be in place of an extension to Battersea. Streatham or Crystal Palace are not Opportunity Areas and the extension would therefore not facilitate the same level of growth in jobs and homes as the proposal to extend to



Battersea and there would be significantly less scope for third party funding contributions. The extension build costs to Streatham would increase significantly as it would be over twice the length of the proposed extension to Battersea and Crystal Palace already benefits from good transport connections following the extension of the London Overground network in 2010.

6.9 A tram

A tram was considered as part of the VNEB Opportunity Area Transport Study and was discounted as an option for several reasons. As a tram would not link into an existing transport network, it would provide fewer connectivity benefits to passengers. In addition, a tram would provide far less capacity than the NLE and the new infrastructure required to run the trams would take space from the road network causing significant congestion and inconvenience to road users.

7 Concerns about the NLE consultation process

Some concerns were raised about the first phase of public consultation conducted in the summer of 2010 by Treasury Holdings, who were working for the former owners of Battersea Power Station on the initial development of the NLE scheme. Some people in the area said they had not been made aware of the first stage of consultation on the proposed route options owing to problems with the distribution of the leaflets. Following feedback received in the initial responses to the 2011 consultation, TfL and Treasury Holdings repeated the 2010 route options consultation and distributed leaflets to 40,000 homes and businesses along the proposed route of the extension.

Consultation is not designed to be a referendum or a decision-making tool in its own right – rather it is one of many tools used to inform decisions on large – scale infrastructure projects. Consultations are used to help make better and more informed decisions and focus on issues as much as on numbers; they are designed to help understand people’s views, provide the opportunity for people to ask questions, and to raise matters that might not have already been thought of so that proposals might be improved.

For example, the 2011 route options consultation told us that 61 per cent of respondents’ preferred route was from Kennington to Battersea, with new stations at Nine Elms and Battersea. However, it also gave us a raft of other information. It elicited a number of suggestions for alternative routes that have since been explored by the design team. It also told us that people have concerns about noise.

We have since conducted a benchmarking survey to understand how our guidelines compare with those of other railways and, as part of our Environmental Impact Assessment, have undertaken predictive noise measurements and identified potential mitigation to ensure we meet the commitments set out in our guidelines. We also focused on work to explore alternative options for the proposed shaft in the Claylands Road area, which has since been removed from the proposals for the scheme.



Feedback from the 2012 consultation has led us to conduct further feasibility work into an alternative site proposed at Kennington Park and options to manage potential crowding and mitigation at Kennington station. We have also engaged further with local community groups to influence the designs of the permanent shaft and community building at Kennington Park and proposals for the reinstatement of Kennington Green following the conclusion of works to build the NLE.

To date, all consultation to develop and shape the proposals for the NLE has been voluntary or non-statutory. We are confident these have provided the opportunity for those who may be impacted by the proposals to comment. Our TWAO submission will be available to view online, at public inspection points along the proposed route which may include libraries and the council offices of Southwark, Wandsworth and Lambeth. This will mark the beginning of the statutory process for applying for authorisation to construct the NLE and there will be a period of 42 days from the date of our submission for objections or other representations to be made to the Secretary of State for Transport.

8 Funding

The Government confirmed in the Chancellor's 2012 Autumn Statement that up to £1bn of borrowing from the Public Works Loan Board would be available to the Greater London Authority (GLA) to finance the construction of the NLE. Whilst the borrowing will be done by the public sector, the funding to repay this borrowing will come from the private sector in the form of:

- Incremental business rates, retained by the Greater London Authority for a period of 25 years in a new Enterprise Zone (EZ) in the London Boroughs of Wandsworth and Lambeth; and
- Contributions received by the boroughs from local developers under the Section 106 and Community Infrastructure Levy regimes.

The GLA and TfL are finalising arrangements for the financing of the extension with the developer of the Battersea Power Station site, central Government and the local authorities and the details of this will be included in a funding statement as part of the TWAO application.



9. Next steps

Details of the proposals to extend the Northern line to Nine Elms and Battersea are being finalised ready for submission of a TWAO application to the Secretary of State for Transport in April.

This will mark the beginning of the statutory process for applying for authorisation to construct the scheme.

Full details of the application, together with all the supporting documents will be available to view online at www.tfl.gov.uk/nle, at public inspection points along the proposed route which may include libraries and the council offices for Southwark, Wandsworth and Lambeth.

To receive an update when these documents are available to view, sign up now to the NLE update list at www.tfl.gov.uk/nle.

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