



Our response to issues raised

Autumn 2015 Crossrail 2 Consultation

7 July 2016

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Foreword

This report sets out Crossrail 2's interim response to issues raised in the public consultation held 27 October 2015 - 8 January 2016. It gave people the opportunity to comment on our proposals for the railway, including locations of stations, entrances and exits, depots and shafts, construction worksites and proposed service patterns once complete. The consultation attracted nearly 21,000 responses. Over the last few months we have been exploring the ideas proposed in the responses and doing further design and development work to improve our plans.

We have already (March 2016) published a detailed analysis of those responses, summarising the key issues raised. The present report sets out our response to those questions and concerns in detail, as far as it is possible to offer responses at this still-early stage of design.

This report is an interim response: it does not present definitive or final plans on a number of the options we consulted on. A project of the sheer scale of Crossrail 2 inevitably presents enormous and complex engineering challenges in a densely built-up environment. We are still working on dozens of those challenges, including some that involve stations and sections of the route of critical importance to the overall project, and which have attracted intense public scrutiny.

At several of these locations - notably the New Southgate branch, Wimbledon, Tooting, Balham and King's Road Chelsea - our work continues to understand the issues associated with different options. In doing this work, we also need to respond to requests from the National Infrastructure Commission and Government to consider potential options for improving the affordability of Crossrail 2. These issues will be considered over the summer, and further design work is being carried out so that the proposals can be shared during the next public consultation.

What this report does do, as well as provide responses on many of the issues the public raised, is show the considerable extent to which we have already listened to the concerns of local communities. Every station and many ventilation shafts have had changes made to the designs we presented last autumn, in many cases as a direct result of the consultation process.

For example:

Alexandra Palace: cutting our impact on green space

People were worried about the loss of green space and impact on Avenue Gardens from our proposed worksite. So Crossrail 2 engineers have worked out a way to make worksite B (Station Road) smaller.

Dalston: saving Bradbury St

Residents, the Hackney council and community representatives raised concerns about the impact of works on Bradbury Street and Ridley Road Market. So we are assessing the feasibility of an option which could integrate the Crossrail 2 entrance into the Kingsland Shopping Centre. While a design is still at an early stage, this proposal would reduce the impact upon Bradbury Street, Ridley Road Market and Colvestone Primary School.

Dalston: listed building saved

In response to concerns raised about a listed building in worksite E (east of Kingsland Rd) we have refined our plans so that the building will not now be directly affected by our proposals.

Shoreditch Park: saving community facilities

Residents and Hackney council raised concerns about the impact the vent shaft planned here on the Britannia Leisure Centre. So we looked at it again and we are no longer actively considering sites D or E (Britannia Leisure Centre) as potential worksites.

Angel: better access

People said they wanted better pedestrian access at Angel - so we are looking at providing an entrance on Torrens Street as well as a route through to Angel High Street. This would provide an alternative route to those heading towards City Road and Old Street.

Angel: saving buildings in a conservation area

In response to issues raised about the loss of important buildings within the conservation area, we have updated our design to make worksite B (on White Lion St) smaller. This will reduce the number of buildings directly impacted by this worksite and minimise our impact upon Chapel Street Market.

Euston St. Pancras: integrating with HS2

We are working with the DfT, HS2, the London Borough of Camden and Network Rail to ensure an integrated approach and coordinate the various transport related projects to ensure we deliver the right outcome for Euston. We are currently assessing options which use existing Network Rail land within Euston station to improve interchange with National Rail services and HS2 as well as reducing the impact on residential properties and businesses in the area.

Tottenham Court Road: a southern entrance

We have already looked into the option of using the Trocadero site instead of the 'Curzon site' and found it would not lessen the overall impact of construction.

King's Road Chelsea: worksites

In response to issues raised and following further technical analysis, we believe we will be able to remove the site C worksite from our proposals. This would preserve shops and residential properties located within 140-142 King's Road, reduce the disruption on the neighbouring residential properties and reduce construction traffic on the King's Road.

King's Road Chelsea: impact on hospitals

During consultation, concerns were raised that the construction of Crossrail 2 on the proposed worksite owned by the Royal Brompton & Harefield NHS Foundation Trust could disrupt their plans to re-develop some patient facilities. We are keen to ensure that the proposals do not impact negatively on the hospital and its patients. We are working with the Brompton Hospital NHS Trust to discuss a way in which both schemes can be progressed with minimal disruption and are confident a solution will be found.

Imperial Wharf: assessing its feasibility

A Crossrail 2 station at Imperial Wharf has been considered but our analysis found that the case for serving the King's Road is stronger

Clapham Junction: additional entrance

We are currently evaluating whether an additional station entrance on St John's Hill (near the junction with Plough Road/ Strath Terrace) could be included as part of the scheme. This additional entrance could improve access to those arriving at Clapham Junction from a south westerly direction and reducing crowding within the existing station

Wandsworth Common: relocate the shaft

We have considered a ventilation shaft on Clapham Common in response to the consultation feedback. To achieve this, the alignment of the station at Clapham Junction would need to change and this is not something we support because it would require us to change the worksites to less suitable locations. An alignment via Tooting instead of Balham would negate the need for a shaft on Wandsworth Common.

Wimbledon: disruption

A number of alternative suggestions were put forward in the consultation, including tunnelling the South West Main Line non-stopping services, reconfiguring the existing station layout and considering the use of fewer and narrower platforms. We are carefully considering each of these and while they may solve some of the issues, they may also create other problems, including increasing overall land size impacted, extending construction times by several years and slowing down journey times and/or reducing train frequencies. However, in response to consultation feedback, we are working hard to fully understand potential alternative solutions, and weigh the pros and cons of these against the existing proposals.

Wimbledon: tunnelling

In response to feedback from consultation, we are doing further work to fully understand all of the impacts and worksites required for providing a deep tunnelled Crossrail 2 station at Wimbledon

Listening to local communities in this way is an integral part of our design process, and has already helped shape our plans. For example, after the 2014 safeguarding consultation, we changed the proposed design at Angel to save the Grade II-listed Co-op building, instead proposing to use the site of the Royal Bank of Scotland building. And in 2015, we changed plans at King's Road Chelsea to avoid Crossrail 2 impacting Dovehouse Green.

As this report shows, that process of listening and engagement continues. Local people's feedback has often been enormously helpful: by listening to them and taking their concerns on board where possible, we will eventually end up with a better design that better meets local needs. We look forward to working with communities across London in the months and years ahead.

Full details about previous Crossrail 2 consultations are available at www.crossrail2.co.uk.

Introduction

This report sets out our response to the key issues raised in the Crossrail 2 consultation held between 27 October 2015 and 8 January 2016.

The Autumn 2015 consultation gave people the opportunity to comment on the developing proposals, including proposed service patterns, locations of stations, entrances and exits, depots and shafts and the construction worksites that would be required to build and operate the scheme.

We received more than 20,000 responses to the consultation and in spring 2016, we published a report providing a detailed analysis of the responses summarising the key issues raised. This has helped us to better understand local ideas and concerns.

Over the last few months we have been exploring the ideas proposed in the responses and doing further design and development work to improve our plans in response to feedback.

While this report responds to many of the issues raised, decisions on some aspects of the scheme need further analysis. In a number of areas we are continuing to analyse people's ideas and carrying out more work to test the feasibility, benefits and disadvantages. These issues will be considered over the summer, and further design work is being carried out so that proposals can be shared during the next public consultation.

Full details about previous Crossrail 2 consultations are available at www.crossrail2.co.uk.

The structure of this report is as follows:

Generic issues

1. Construction impacts
2. Capacity and crowding
3. Social and environmental
4. Cost and financing
5. Alternative Crossrail 2 route suggestions
6. Economic regeneration and development

Location-specific issues

7. Broxbourne branch
8. New Southgate branch
9. Dalston, Tottenham Hale and Seven Sisters
10. Angel, Euston St. Pancras and Tottenham Court Road
11. Victoria, King's Road and Clapham Junction
12. Wimbledon and Balham

13. South West branches

Other

14. Comments on the consultation

This report responds to the key issues raised in response to the questions asked in the Autumn 2015 consultation and highlighted in the consultation report issued in spring 2016. It does not seek to respond to every issue raised. Should you feel a response to an important issue is not addressed in this report, please contact crossrail2@tfl.gov.uk.

Next steps

The Crossrail 2 team is now undertaking further design and engineering work to further develop the scheme, taking account of the responses received to the Autumn 2015 consultation.

We will undertake further engagement this summer with stakeholders, local community and business groups along the route to provide an initial update on the developing design proposals. The updated proposals will be set out in the next period of public consultation.

For further information about Crossrail 2, or to sign up to receive updates on the proposals as the scheme progresses, visit www.crossrail2.co.uk. You can also keep up to date on Twitter @Crossrail2 or Facebook via www.facebook.com/crossrail2.

1. Construction impacts

1.1. Concern about disruption to local residents and businesses

Crossrail 2 would be held to a Code of Construction Practice (CoCP), which would set out working practices for managing the construction impacts of Crossrail 2. The CoCP would focus on the environmental, public health and safety aspects of the scheme that may affect the surroundings in the vicinity of the proposed construction sites.

As far as possible, construction activity would be planned to minimise disruption to residents and businesses in the local area. Our engineers are currently examining the potential impacts and developing measures to minimise disruption as much as practicable. We would seek to apply best practice as developed on Crossrail 1 and other comparable schemes, which has been very successful in minimising noise and disturbance at work sites. Construction work would be contained within securely fenced and hoarded worksites, contractors would have to adhere to considerate construction practices and use best available techniques to reduce noise and disruption.

Working practices for contractors would be agreed with the local authority to ensure disruption to local residents is minimised. Appropriate local forums would be established in due course for sharing information and collecting feedback.

1.2. Concern about disruption to road traffic and congestion

Experience and knowledge from Crossrail 1 and other major projects about how best to manage the traffic impacts associated with building major new infrastructure projects in busy urban areas will be implemented. We will work with Transport for London (TfL) Surface Transport and the relevant local highway authorities to plan and manage construction sites and construction traffic to ensure safety remains a priority and to minimise the impact on pedestrians, cyclists and motorised traffic. Bus network operations will be maintained as far as possible during the period of construction for Crossrail 2.

1.3. Concern about demolition and damage to residential buildings

Our work is still in the early stages of development and therefore no final decisions about impacts on particular buildings have been taken. Our proposals would seek to minimise both direct and indirect impacts on residential buildings as far as possible. In looking at options to arrive at our proposal, we have been working with an experienced team of environmental specialists and engineers to identify ways to avoid demolition and damage to residential buildings as far as possible.

1.4. Concern about how excavated waste will be disposed of

Crossrail 2 would be designed to minimise lorry movements where possible. By building the tunnels first, we would provide an underground route to remove excavated material from station and vent shaft sites. Where possible, we would remove excavated material along the tunnels, rather than taking material out on the surface through station worksites and using vehicles to remove it. As a result of this proposed approach, the number of waste movements from a typical Crossrail 2 station could be half of those similar projects in the past. This approach would also minimise the risks to public safety, as well as congestion and pollution impacts.

We will be considering options for productive reuse of the excavated material in our next phase of design work. Crossrail 1 has used almost all of its excavated material in land reclamation projects across London and the South East, including creation of the bird reserve at Wallasea Island.

1.5. Concerns about construction impacts on nearby schools

We recognise that many of the schools along the proposed scheme have raised specific concerns about construction impacts on their day-to-day operations. In addition to the aforementioned ways in which we can manage our construction impacts for properties and businesses alike, we would seek to develop schools engagement programmes. We would draw upon the experience of Crossrail 1, who have created successful partnerships with schools along their route.

2. Capacity and crowding

2.1. Concern that Crossrail 2 is not beneficial or necessary

London is growing rapidly. There are now a record 8.6 million people living here and there are forecast to be 10 million by 2030. This will put even greater pressure on an already congested transport network. A number of transport improvements are already underway but they will not be enough to keep pace with population growth. We need Crossrail 2 to provide support for the capital's growing population and to keep London and the wider South East moving.

Crossrail 2 would grow the UK economy, supporting 60,000 full-time jobs across the UK during construction through its supply chain and, when operational it could support 200,000 new jobs. Crossrail 2 will also support regeneration and enable the development of around 200,000 new homes across the region. The proposed scheme would provide additional capacity for up to 270,000 more journeys into London in peak periods, helping relieve over-crowding and congestion on the transport network. Crossrail 2 would also provide step-free access at all stations on the route, providing a significant boost to London and the South East's accessible transport network.

2.2. Concern about loss of fast and direct services to Waterloo from southwest London and Surrey

The South West Main Line is one of the busiest and most congested routes in the country. It already faces capacity constraints and demand for National Rail services into Waterloo is forecast to increase by at least 40% by 2043. This means the existing crowding on the network is set to nearly double, and would likely lead to passengers being unable to board trains at some stations at key times of the day.

Crossrail 2 would free up space on the National Rail network, helping to reduce congestion, and would enable more local services to be run to central London that bypass the most congested parts of the rail network. Transport improvements already underway will help offset the pressure in the short term, however we need Crossrail 2 to cope with longer-term growth.

Many Crossrail 2 stations in southwest London will see more frequent train services into London than they do today, and no station will have a less frequent service. As such, we expect that a large proportion of current suburban rail passengers would choose to travel to their destinations using Crossrail 2 instead of using the existing rail routes to Clapham Junction, Vauxhall or Waterloo.

Many stations in southwest London and Surrey will retain direct Waterloo services as part of the proposed services frequency. For stations where this is not the case, convenient interchange opportunities for passengers will be available between frequent Waterloo and Crossrail 2 services at locations such as New Malden, Raynes Park and Wimbledon. No final decision on the timetable has yet been made.

2.3. Concerns that planned frequency/capacity of trains on regional branches of the National Rail network served by Crossrail 2 will not be sufficient

In most cases, Crossrail 2 would provide a more frequent train service on the branches of the National Rail network it would serve, representing up to a doubling of the current train service frequency in some cases. The Crossrail 2 branches would also benefit from increased connectivity, with direct services into central London, including trains directly serving key destinations in the West End, Euston and Victoria, as well as existing services to Waterloo.

In addition, the proposed Crossrail 2 rolling stock will increase capacity, so the number of passengers carried by each train will be higher than today.

2.4. Concerns that Crossrail 2 would increase, rather than reduce, the burden on the Tube network

Crossrail 2 would provide new services through the tunnelled core of the route to connect with existing Tube and rail services and make it easier to move around London and the South East. By building a new line with capacity for up to 270,000 more journeys in the morning peak period when the Tube is most congested, passengers will have more travel options – this will help more people move around the city and reduce the crowding currently experienced today on the Tube.

2.5. Concerns about crowding and congestion at Crossrail 2 stations

We are designing Crossrail 2 so that each station can be comfortably used by the number of people who will want to use the station, taking account of future demand plus growth. Station designs are continuing to progress as we seek to balance the needs of our future customers, the engineering challenges of construction and the concerns of people in the area around the station during construction.

2.6. Suggestion that existing stations would require improvements to car parking

An aim of Crossrail 2 is to encourage sustainable travel to and from our proposed stations. We will consider how best to support passengers' onwards journeys at each Crossrail 2 station, before the scheme is designed in detail. We will work in partnership with local authorities to address any potential station related parking issues, should they arise.

2.7. Suggestions to enhance the current station buildings as part Crossrail 2 works on the existing Network Rail sections

Where existing stations on the national rail networks are already able to accommodate new Crossrail 2 services, major improvement work to station buildings will not be required or within the scope of this scheme. However, all stations will benefit from an updated and refreshed Crossrail 2 'look and feel', which will be developed as the scheme design work progresses. All stations on the route will also benefit from the provision of step-free access between platforms and the street.

3. Social and environmental

3.1. Overarching concerns about the environmental impacts of Crossrail 2

We are seeking to design, build and operate a railway that is both responsive to the environment through which it passes and sensitive to the people who live and work near the route and its stations. Environmental design considerations will be fully taken into account as part of the selection and the refinement of designs.

We will be carrying out an Environmental Impact Assessment (EIA) to identify likely significant environmental effects that need to be taken into account and to identify the means of reducing these environmental effects. These proposals would then form commitments as part of the application for powers to construct the railway and would be reported in the Environmental Statement (ES), together with any predicted post-mitigation effects, so that Parliament can take full account of them when deciding whether to grant us powers.

3.2. Concern about the loss of green space during construction

In some cases, we may require the use of green spaces where there are no feasible alternatives apart from taking buildings. Where we are proposing to use green space on a temporary basis we would restore the sites as much as we can once the construction works are complete. Where sites are needed permanently, we are committed to finding suitable nearby replacements in discussion with local authorities.

For example, in response to issues raised, Crossrail 2 engineers have considered the arrangement of worksite B (Avenue Gardens) for a Crossrail 2 station at Alexandra Palace so that it can be reduced; lessening the impact on Avenue Gardens and local properties.

3.3. Concern about noise and vibration from the running of trains causing disruption to residential housing and businesses along the route

Requirements in the UK for controlling noise impacts from new projects are becoming ever stricter. To make sure we comply with these, we have published a *noise policy* which clearly sets out how noise impacts are defined and how we plan to control them. This policy builds upon the standards adopted for previous projects such as Crossrail 1 and the Northern line extension (NLE). In addition to this and as part of the EIA, a full assessment of the potential noise impacts of construction and operation of the scheme will help to develop the mitigation proposals.

Operational noise impacts within the tunnelled section would be largely avoided by the fact that the trains would be running through deep underground tunnels. The tunnels would typically be 20 – 30 metres below ground level and would be constructed such that disturbance from ground-borne noise (noise carried from trains through the ground to the surface) and vibration can be avoided. Where the tunnels pass underneath sensitive buildings, we will consider the appropriate measures to minimise the risk of disruption.

For modern underground rail lines such as the recent DLR extensions, the Jubilee line extension and High Speed 1 tunnels, the sound levels are negligible above ground, despite, in several cases, passing under sensitive buildings such as theatres, hospitals and libraries. We are unaware of any complaints relating to ground-borne noise or vibration has been recorded since HS1 entered service in 2007, and we would expect the same performance from Crossrail 2.

An assessment of noise impacts along the surface sections of railway will also be undertaken. This will rely on a programme of baseline noise surveys that will help us determine how any changes in train service frequency may alter overall noise levels. Where significant effects are predicted the potential for providing mitigation, such as noise barriers, will be determined.

3.4. Concern about loss of character due to ongoing construction projects in London

We understand that communities are concerned about potential changes to their local environment and landscape. In all circumstances, we would continue to engage with residents and community groups to work through those concerns. We are committed to giving full consideration to any feasible suggestions, improvements or amendments and will seek to minimise the impact that Crossrail 2 has on local areas as far as we practically can.

3.5. Concern about damage or demolition of historic, cultural and architecturally important buildings (including Conservation Areas)

Where possible, we would avoid selecting worksites that contain buildings of architectural, cultural or historic significance e.g. Listed Buildings. While some of these types of buildings, such as Victorian buildings, are shown to be within the proposed worksite boundaries, they might not necessarily need to be demolished. There are, for example, circumstances where such buildings could be used during construction without needing to be demolished. There are also a number of locations where the feasibility of retaining the building facades to maintain the character of the local area will be assessed.

3.6. Concern for wildlife

If any potential threats to the environment and wildlife are identified, we will propose mitigation measures to address them where this is possible. This may involve, for example, moving or otherwise protecting key species of plants and animals. Our approach to managing threats to wildlife is to avoid any negative impacts, or reduce them to as low as reasonably practicable.

3.7. Station design must be sympathetic to the local area

Crossrail 2 stations would be designed both to optimise connectivity and to be sympathetic to the local area. As the scheme is further developed, we will be working closely with local planning authorities and our design and heritage teams to ensure that the design of new stations maintains and where possible enhances the character of the local area. In all cases, our plans will take into account relevant local planning policies and proposals.

3.8. Shaft design must be sympathetic to local area

At stations, the above-ground element of a shaft, known as a head-house, would typically be integrated with the overall station structure. At proposed shaft locations between stations the head-house would be separate and, at this early stage of design, we would typically expect the head-house to be at least two storeys high and to occupy an area of around 25 metres by 25 metres. The size of each head-house would be influenced by local factors including the depth of the tunnel and the height of the surrounding buildings at each site. Further design work is being carried out to determine the requirements at each proposed shaft location and we will draw on knowledge gained from other schemes for how they can be designed sympathetically to the local area. As the Crossrail 2 proposals develop further, we will engage with the relevant local authority, interested stakeholders and local communities to inform the designs for each head-house.

Please refer to factsheet [G2: Shafts](#) for case studies of how shafts have been integrated into their surroundings on other projects.

3.9. Environmental impacts of a shaft

The air vented from the shafts would likely be similar to the general quality of air at modern Tube stations and would quickly become indistinguishable from that of the wider area. Therefore it would likely have a negligible impact on air quality for those living close by. Crossrail 2 shafts would be designed to avoid any noticeable impact on background noise levels. A full assessment of the potential air quality and noise impacts from the operation of the scheme will be undertaken as part of the EIA.

3.10. Stations must be fully accessible

Step-free access will be provided at all Crossrail 2 stations. All stations within the tunnelled core of Crossrail 2 will be designed to provide level access from street to train. All stations on the existing rail network will become step free from street to platform. Trains will also be designed to fully accommodate passengers with mobility needs.

4. Cost and financing

4.1. Money could be better spent elsewhere

Crossrail 2 has been assessed by the National Infrastructure Commission who recommended it is taken forward as an investment of national significance. Crossrail 2 will benefit the UK as a whole, not just London. It will help free up space on the National Rail network (e.g. at Waterloo) which could benefit towns and cities across the wider south east and eastern regions, including Portsmouth, Southampton, Cambridge, Basingstoke, Winchester and Woking. It will also complement other national infrastructure investments such as HS2 at Euston – by providing the onward capacity for passengers arriving into London.

Crossrail 2 will also support and advance the UK's engineering, construction and manufacturing sectors, many of which are based outside of London. It is expected to support around 60,000 full-time jobs across the UK through the supply chain, providing a boost to local economies around the country.

4.2. Concerns over how the scheme will be funded

In March 2016, the Chancellor provided £80m in his March Budget to support the development of Crossrail 2. TfL will match the Chancellor's funding, which will enable the necessary work to be completed in order to deposit the Crossrail 2 hybrid bill in Parliament in 2019. Before the deposit, we will be doing more work to develop a funding package for Crossrail 2, reflecting the principle that those who benefit from the new rail line should contribute to the cost. This work is continuing but has already identified local funding sources that can meet over half the costs of the project, increasing value for money for the national taxpayer.

5. Alternative Crossrail 2 route suggestions

5.1. Introduction

During the Autumn 2015 consultation a number of suggestions were put forward for alternative/additional station locations. These included:

5.1.1. **Stoke Newington**

The option of a station at Stoke Newington has been considered both in earlier optioneering analysis and more recently. Our analysis found that a station at Stoke Newington would not generate sufficient benefits nor support enough growth to justify inclusion in the current preferred scheme option. An additional station between Seven Sisters / Tottenham Hale and Dalston would also increase journey times, making passengers less likely to use Crossrail 2 and meaning that it would not provide such effective crowding relief to existing Tube lines.

5.1.2. **Shoreditch Park**

A station at Shoreditch Park would offer no interchange with other transport modes and therefore would not help alleviate crowding on other lines. An additional station between Angel and Dalston would also increase journey times, making people less likely to use Crossrail 2 and reducing crowding relief on the Piccadilly, Victoria and Northern lines. A station at Shoreditch Park would also require a larger worksite than that of the proposed shaft.

5.1.3. **Stamford Hill**

The option of a station at Stamford Hill was previously considered. Our analysis found that a station at Stamford Hill would not generate sufficient benefits nor support enough growth to justify inclusion in the scheme.

An additional station between Seven Sisters / Tottenham Hale and Dalston would also increase journey times, making passengers less likely to use Crossrail 2 and meaning that it would not provide such effective crowding relief to existing Tube lines.

In addition, passengers in Stamford Hill can use nearby Stoke Newington or Stamford Hill London Overground stations to travel to Seven Sisters where, under the current preferred route, they will be able to change onto a Crossrail 2 service.

5.1.4. **Route the line via Seven Sisters and Edmonton Green instead of using the West Anglia Main Line via Tottenham Hale**

Routing Crossrail 2 via Seven Sisters instead of Tottenham Hale was considered at an earlier stage. However, this would require a significant detour from the proposed alignment that serves Tottenham Hale and the West Anglia Main Line through the Upper Lea Valley, and would not provide as many benefits.

5.1.5. **There should be an Eastern branch**

We have safeguarded a route from Angel to Hackney Central so that an eastern branch of Crossrail 2 could be added at a later stage should there be a good business case for it. We will continue to examine the case for an eastern branch, although it would not form part of a first phase under the current preferred route.

There are a number of major infrastructure improvements planned for east London (Elizabeth line, Tube line upgrades, National Rail line improvements) that will support future growth, but we recognise that future improvements such as an eastern branch of Crossrail 2 may be needed in the 2040s.

5.1.6. **Essex Road**

A station at Essex Road was previously considered but would offer fewer benefits for customers than a station at Angel. Dense housing development in the area would make it particularly difficult and disruptive to build a station at Essex Road. The station's 250-metre long platforms would mean the station would be very close to Angel station and having two stations so close together would add to journey times, inconvenience passengers and discourage people to switch on to Crossrail 2 services, so limiting the reduction on existing Tube services. A station at Essex Road would have fewer benefits than a station at Angel. We have developed our current proposals based on Angel.

5.1.7. **Old Street**

We have previously considered a Crossrail 2 station at Old Street but this would mean a significant detour from the proposed route and would make it harder to serve Euston and St Pancras. A proposed Crossrail 2 station at Angel, under our current proposals, would include an entrance on Torrens Street to make for easier access to City Road (and the Old Street area).

5.1.8. **World's End (Chelsea)**

We have previously considered a route that would serve Chelsea West, supporting development and better connections for those areas. However, when we consulted on this option in 2014, it was not as strongly supported as the King's Road option. Furthermore, it would be further away from the retail and commercial activity along King's Road and could only proceed in parallel with plans for wider regeneration and redevelopment of the area. The current proposed route strikes a balance between relieving congestion on existing Tube and National Rail services and serving those areas that will require additional transport capacity in the 2030s.

5.1.9. **Imperial Wharf**

A Crossrail 2 station at Imperial Wharf has been considered but our analysis found that the case for serving the King's Road is stronger. Our assessment found that serving Imperial Wharf would require tighter curves, thus slowing trains down and increasing journey times. The extra distance to go via Imperial Wharf, rather than King's Road, is around 1km. This adds not only to tunnelling costs but also means an extra ventilation shaft would be needed within the area of Chelsea, likely in the vicinity of King's Road. Underground sewer infrastructure currently under construction in the Imperial Wharf area would also make tunnelling in that area more difficult.

A station at Imperial Wharf would provide an interchange with the London Overground Line, but there will be an interchange with that line one stop south of the Crossrail 2 route at Clapham Junction. By contrast, a Crossrail 2 station at King's Road is better positioned for interchanges with local bus services, and would also lead to a greater reduction in crowding at nearby Sloane Square and South Kensington stations.

5.1.10. **Streatham**

We have considered Crossrail 2 serving Streatham and Croydon but found that this was not the best option for London and the South East as a whole. Crossrail 2 is being designed to focus on serving the Northern line, Wimbledon and the South West Main Line corridor, where the greatest future demand and capacity requirement exists. Our test results indicate an increase in both London-wide journey times and crowded hours, suggesting that going via Streatham would put pressure back on to crowded lines, and that relief, where it offered some, would be on lines that are generally less congested.

Crowding on the Northern line northbound between Clapham Common and Clapham North would increase significantly. Other routes penalised by serving Streatham include the Waterloo & City line (eastbound), the Jubilee line (eastbound from Waterloo) and the Northern line via Bank – all among the most overcrowded sections of the Underground – as well as the South West Main Line towards Waterloo from Wimbledon, which is the most overcrowded National Rail corridor into Central London.

A Streatham option would also massively increase existing costs due to: the additional tunnel length (an extra 6.4km at £40m/km = £250m); the cost of an additional station (up to £1 billion); up to five new shafts required between Wimbledon and Clapham Junction; and likely higher operating costs. Our current route allows us to provide the greatest benefits to the greatest number of people. Streatham still stands to benefit from Crossrail 2, being just a short distance from either Balham or Tooting Broadway. Streatham will also benefit from planned improvements to National Rail services, and from planned rail devolution and ‘metroisation’ in South London.

5.1.11. **Earlsfield (including the suggestion of tunnelling under the South West Main Line and serving Earlsfield instead of Balham or Tooting – also known as the SWIRL proposal)**

Consultation responses put forward two alternative ideas for serving Earlsfield: one in which Earlsfield station replaced Balham and a second where Crossrail 2 also connected to the Northern line via a loop service. Our analysis shows that a station at Earlsfield instead of Balham would not alleviate congestion on the South West Main Line as effectively as our proposed route, and would also not reduce crowding on the Northern line.

The second option would cost more, require significantly more infrastructure and would not provide the same level of crowding relief benefits as services would be less frequent.

5.1.12. **Stansted Airport**

The proposed Crossrail 2 route would not directly connect to Stansted Airport, but would provide opportunities to interchange onto fast services to Stansted at Tottenham Hale and potentially Broxbourne.

A Crossrail 2 extension to Stansted would make for a very slow journey as it would be a stopping service. Crossrail 2 with four tracking along the Upper Lea Valley would, however, free up space on the National Rail network into London, meaning that there could be additional faster services to destinations along the West Anglia Main Line, including to/from Stansted and Cambridge.

5.1.13. **Twickenham**

During the previous phases of consultation the proposed route map had indicated a potential option to serve Twickenham. Following the 2014 consultation, we carried out further work to evaluate our preferred regional route and the studies showed that routing Crossrail 2 to Twickenham would not offer any frequency or journey time benefits. Furthermore, it would have potentially required the existing direct service between Twickenham, Richmond and Kingston to have been permanently withdrawn. Therefore Crossrail 2 no longer proposed to serve Twickenham.

Existing, fast and frequent journey opportunities will remain available from Twickenham to Clapham Junction and Waterloo on the existing direct route via Richmond, with interchange to Crossrail 2 services to central London and beyond available at Clapham Junction.

5.1.14. **A branch to Sutton**

A Crossrail 2 extension to Sutton was considered as part of the optioneering process for Crossrail 2 but not selected for further development. A key objective of Crossrail 2 is to relieve capacity constraints on South West trains to and from Waterloo, where demand is forecast to grow by up to 40% between now and 2043. This is not achieved by serving Sutton.

In addition, if Crossrail 2 services were to serve Sutton, due to network capacity constraints, Crossrail 2 services would need to replace the existing Thameslink 'Sutton Loop' service between Wimbledon (where Crossrail 2 trains would emerge from the central tunnelled section) and Sutton (where Crossrail 2 services would terminate). This would mean a loss of direct services from stations between Wimbledon Chase and West Sutton (inclusive) and Thameslink destinations (e.g. City Thameslink and Farringdon).

5.1.15. **Extension to Leatherhead or Dorking**

Leatherhead and Dorking already receive direct services to Waterloo. Given that Crossrail 2 would be a stopping service, extending it to Dorking would mean longer journey times for people travelling into London. Crossrail 2, through providing additional trains as far as Epsom, will consequently assist in reducing current crowding on remaining services between Dorking, Leatherhead and Waterloo into central London.

6. Economic regeneration and development

6.1. Concerns Crossrail 2 would encourage London's growing population

London's population is forecast to reach 10 million by around 2030 and over 11 million by 2050 as people are living longer and having more children, as well as a result of attracting people to jobs in London and the surrounding region. The East and South East are also forecast to experience rapid growth – growing by around a fifth by 2037. This will not be at the expense of other cities – right across the country, urban areas are also experiencing population growth.

Crossrail 2 will provide vital new transport capacity to allow our growing population to continue accessing jobs and services, and supporting the economy.

6.2. Concerns about pressures on the greenbelt if new housing is built in this area as a result of the improved transport links

The link between Crossrail 2 as a transport scheme and as an enabler for more houses and jobs in the South East is a fundamental to the project's identity, supported by the recommendations and findings of the NIC. TfL's assessment of the development potential associated with the project involves working closely with the GLA and local authorities across London and the South East to test the appropriateness of different policy interventions. We are of course acutely aware of the planning and environmental constraints and implications of development in the vicinity of the Crossrail 2 corridor, and the way that this will be factored into decision making is fundamental to the success of the project in its widest sense. Options for planning frameworks that could be used to deliver successful outcomes are being explored, and local authorities will of course need to be engaged in this work in due course.

7. Issues specific to the Broxbourne branch

7.1. Broxbourne, Cheshunt and Waltham Cross

7.1.1. Suggestion that branch should extend farther north towards Hertford East or Harlow Town

The current Crossrail 2 proposals would provide the capacity for 12 trains per hour, in each direction, north of Tottenham Hale station to Broxbourne. We have explored an additional option that would enable four trains per hour in each direction to continue as far as Hertford East station. While this would result in an increase in capacity on the Hertford East line, it would mean the loss of direct services to Liverpool Street and Stratford stations. It would also increase journey times, as all trains would call at all stations en route to London; trains today omit some intermediate stations.

In the case of an extension to Harlow Town, we would also have to do some significant work at Harlow Town station and/or Harlow Mill, in order to provide the platform capacity to allow trains to terminate there, as well as affecting the operation of the current level crossings in the Roydon area. In addition, the Crossrail 2 trains to Harlow would be overtaken by faster services between Harlow and Tottenham Hale, given Crossrail 2 trains are planned to stop at all intermediate stations.

Even if Crossrail 2 trains are not extended to Harlow, Crossrail 2 would enable the existing Harlow and Hertford East trains to run more quickly to London and because they won't need to stop at some of the smaller stations, there will be more seats too. Finally Crossrail 2 does enable some extra trains to operate in the peak, which could potentially serve Harlow, though the final plan for these extra services has not yet been agreed.

7.1.2. Suggestions to provide cross-platform interchanges with other rail services at these stations

Minimising interchange times for passengers is important to Crossrail 2, and the provision of cross platform interchanges at stations along this section of the route will be considered as we progress the designs. Further information on interchanges between Crossrail 2 platforms and existing National Rail lines will be available in future rounds of consultation.

7.1.3. Concerns about impact on local nature including the Lea Valley Park

We are seeking to design, build and operate a railway that is both responsive to the environment through which it passes and sensitive to the people who live and work near the route and its stations. National policy establishes environmental design and mitigation as a key part of good design for major transport schemes. Environmental design considerations have been embedded from the earliest stages of the project; a fundamental part of the environmental design process is the use of emerging assessment findings in supporting option selection and the refinement of designs.

We will be carrying out an Environmental Impact Assessment (EIA) to identify likely significant environmental effects that need to be taken into account. As well as identifying the means of reducing these environmental effects, the EIA would outline the residual effects after mitigation. These proposals would then form commitments as part of the application for planning consent and would be reported in the Environmental Statement (ES).

7.2. Between Enfield Lock and Tottenham Hale

7.2.1. Suggestion for an additional station between Ponders End and Angel Road (Pickett's Lock)

A new station at Pickets Lock is not currently included in the proposals for Crossrail 2. The population of the catchment area (within 1km) is relatively low, and is largely served by existing nearby stations.

As such the benefit for the few people who would gain from the station would be more than outweighed by the disbenefit of extended journey times for those on the trains making the additional stop.

7.3. Removal of Level Crossings on the Broxbourne Branch

7.3.1. Suggestion that replacement should be a bridge or underpass, not a diversion around the railway

The proposed increased frequency of train services means that we are unable to retain the existing level crossings on the Broxbourne branch. We will need to remove these crossings to improve safety, reduce risk to cyclists, drivers and pedestrians, and to help improve local road connectivity. The level crossings that will be affected are Wharf Road, Cheshunt (Windmill Lane), Enfield Lock (Ordnance Road) and Brimsdown (Green Street).

We will work closely with local communities and the local authority to find an appropriate resolution for each crossing. Bridges, underpasses and diversions are all being considered at this stage in the development of proposals in order to identify the optimal solutions for the area as a whole.

The access requirements of all users of the local level crossings will inform what we next consult on.

Our assessment of the work we need to do at level crossings is only just starting. Once our plans are further developed, we will carry out further consultation on the potential options for each level crossing.

7.3.2. Concerns that there is not enough room for alternative methods of crossing in these locations

Due to the essential need to remove the level crossings along this section of railway, we must find alternative solutions. We are working hard to develop the best solutions for the closure of these level crossings that will minimise the impacts to surrounding areas as far as possible.

As with all Crossrail 2 proposals, we will seek to look at ways to minimise impacts of any closures as much as possible

More detail will be available in the next phase of consultation, and we will be engaging with stakeholders and the community to gather feedback on the emerging proposals for each crossing.

7.3.3. Access to parks, fisheries and other local facilities should not be removed

Existing access requirements are recognised and being carefully considered as we work to develop the optimal solutions for each location. We understand the importance of the current crossings for east-west connectivity in the local area, and access requirements to parks, fisheries and other local facilities.

While our proposals were at a very early stage in the previous round of consultation, we welcomed early input from the communities who use the crossings and have received some very useful feedback which is being taken into consideration as our work progresses.

7.3.4. Emergency services should not be disrupted by the removal of any level crossings

Retaining access for emergency vehicles is a key priority. We will be consulting with the emergency services throughout the development of our proposals for the alternatives to level crossings on the Broxbourne branch.

8. Issues specific to the New Southgate branch

8.1. New Southgate

8.1.1. Concerns that a station at New Southgate is unnecessary and/or would generate insufficient demand

The proposal to extend Crossrail 2 to New Southgate was consulted on in 2014, with 88% of respondents favouring the extension.

As well as serving future demand at New Southgate, an extension to New Southgate would mean increase train frequency and capacity into central London and that land at Oakleigh Road South would be used for stabling (ie, parking) and maintaining Crossrail 2 trains – a key requirement for operating the new railway.

8.1.2. Concerns about the loss of Bounds Green industrial estate

Under the current proposals land is required to the south east of the station to construct a tunnel portal, new tracks and the new station. We recognise that, under current proposals, the works would directly impact some local businesses located close to the existing railway (e.g. Bounds Green Industrial Estate) and we will continue to look for ways to reduce this impact.

For further information about land and property acquisition, please consult [Factsheet G9: Land acquisition, blight and compensation](#)

8.1.3. Suggestions that an extension should be made farther north beyond New Southgate

The line from Moorgate to Welwyn Garden City will see improvements as a result of the Thameslink upgrade programme, increasing capacity over the next three years and providing passengers with better journeys into central London. These passengers would be able to connect with Crossrail 2 services at New Southgate or have the option to stay on existing National Rail services into central London. While in theory, Crossrail 2 services could run north of New Southgate it would be essential that the cost of this was justified and that it aligned with the project's strategic objectives, particularly around unlocking growth. Additional work would be required to understand the benefits of extending Crossrail 2 north, along with any changes that may be required to the existing National Rail services into London. This is not proposed as part of the current Crossrail 2 proposals.

8.1.4. **Suggestion that stabling should be on both sides of the line**

There are a number of difficulties with providing stabling (i.e. parking) for trains on both sides of the East Coast Main Line corridor. Under current proposals the Crossrail 2 tracks and sidings would be constructed to the east of the East Coast Main Line. In order to access sidings on the west, the Crossrail 2 tracks would need to cross the East Coast Main Line. This would create significant issues and disruption, both during construction and operation of the new railway.

8.2. **Turnpike Lane /Alexandra Palace/Wood Green**

8.2.1. **Wood Green options**

During the 2015 consultation, we presented two options for the Crossrail 2 route between Seven Sisters and New Southgate. One proposed option would route the railway via Turnpike Lane and Alexandra Palace while the other option would call at Wood Green only.

The majority of respondents generally favoured a Crossrail 2 route with stations at both Alexandra Place and Turnpike Lane. Conversely, the London Borough of Haringey favours a station at Wood Green only, as they feel a station here has greater potential to regenerate the town centre and the economic benefits would be greater.

We are carefully assessing both options in light of feedback from the consultation and further design work is being carried out so that a preferred option can be agreed, which will inform a further period of public consultation.

8.2.2. **Concerns that a station at Alexandra Palace could result in potential long-term damage to the park and surrounding residential areas, as well as the loss of Avenue Gardens**

The proposed Alexandra Palace Crossrail 2 station would be constructed on the east side of the East Coast Main Line and not in Alexandra Park. Under current proposals a worksite would be required at Station Road and Avenue Gardens.

In response to issues raised regarding the loss of green space and the impact on Avenue Gardens, Crossrail 2 engineers have been working on how changes and different arrangement of worksite B (Avenue Gardens) reduce and lessen the impact on Avenue Gardens and local properties.

Under current proposals, no residential properties would be acquired or demolished for the construction of the Crossrail 2 station.

8.2.3. Concerns that access to the proposed construction worksite for a station at Alexandra Palace would not be easily accessible

We would ensure that construction activities are planned in a way that facilitates the scale of the works while minimising impacts on local communities.

8.2.4. Concern that a shaft at Downhills Recreation Ground would result in loss of green space, including sport facilities

In some cases, we may require the use of some green space where there are no feasible alternatives apart from taking buildings. Most of the land within our proposed worksite at Downhills Recreation Ground would only be required temporarily during the construction phase; we would seek to restore the sites as much as we can once the construction works are complete. The head-house (the above-ground element of the shaft), however, would be a permanent feature once the scheme is fully operational.

8.2.5. Concern that the head-house of a shaft at Downhills Recreation Ground would be unsightly; suggestions that it should incorporate community facilities

At stations, the above-ground element of a shaft, known as a head-house, would typically be integrated with the overall station structure. The exact size of the Downhills Recreation ground head-house would be influenced by local factors including the depth of the tunnel and the height of the surrounding buildings at each site. We will draw on knowledge gained from other schemes for how they can be designed sympathetically to the local area. As the Crossrail 2 proposals develop further, we will engage with the relevant local authority, interested stakeholders and local communities to inform the designs for each head-house, including the potential to incorporate community facilities.

Please refer to factsheet [G2: Shafts](#) for case studies of how shafts have been integrated into their surroundings on other projects.

9. Issues specific Tottenham Hale, Seven Sisters and Dalston

9.1. Tottenham Hale

9.1.1. **Suggestion that there must be a simple interchange between Crossrail 2 and existing services**

We are committed to providing stations that integrate well with existing services and the areas they serve. As such, we will design stations with the needs of all users in mind. This design work will include streetscapes – the way the stations fit into the surrounding urban environment - access to other transport modes (Tube, National Rail, buses, pedestrians and cyclists), and connectivity with onward routes. As Tottenham Hale is a busy interchange the Crossrail 2 design team will need to consider existing infrastructure and constraints in the design.

9.1.2. **Suggestion that station must be upgraded as part of the plans to cope with higher passenger levels**

We are working closely with our colleagues across TfL to minimise disruption at Tottenham Hale. TfL station upgrade works at Tottenham Hale are due to be completed by 2017 and we are working to ensure that plans for Crossrail 2 relatively complement this. Proposals for Crossrail 2 are still at an early stage and we will continue to work with interested parties to design the best possible scheme.

9.1.3. **Concern that Tottenham Hale is already well connected**

Tottenham Hale is an important station providing a vital interchange with National Rail services and the Victoria line, as well as space where we could turn back some trains. Our modelling of passenger demand makes a clear business case for including a station at Tottenham Hale, and for the crowding relief it would bring to the Victoria line and onward connections to other services.

9.1.4. **Concern about the impact of the proposed scheme on Markfield Park**

The current alignment assumes a bored tunnel underneath Markfield Park and so we do not anticipate any surface effects at this location.

9.2. Seven Sisters

9.2.1. **Concern that the existing station is already well served by Tube and Overground services, and that increased pressure would be placed on the Victoria line**

Seven Sisters station currently experiences high levels of crowding and as London continues to grow, our analysis shows that pressure is set to increase. A Crossrail 2 station would provide customers with more travel options and would offer an alternative to the Victoria line and London Overground services at Seven Sisters, as well as London Overground services at South Tottenham. Crossrail 2 would provide more capacity into and across London, making it easier for people to get to and from Seven Sisters. In particular it would help to reduce pressure on the existing services, most notably the Victoria line.

9.2.2. **Suggestion that more capacity and frequency is needed on London Overground Gospel Oak – Barking**

Network Rail has already started work to improve capacity and frequency on the Gospel Oak to Barking line. This work is being done ahead of introducing new four-car London Overground trains to replace the existing two-car trains from January 2018. This upgrade to London Overground Gospel Oak – Barking will help to meet growing passenger demand in advance of a Crossrail 2 station at Seven Sisters (linking to South Tottenham).

9.3. Dalston

9.3.1. **Concern about the impact on Ridley Road market**

We are working closely with the London Borough of Hackney to consider how best to reduce the impact upon the market. Under our current proposals, only the existing storage facilities on Birbeck Mews are likely to be required by Crossrail 2, but we will seek to provide appropriate alternatives. This worksite would be used for construction of the northern station shaft.

9.3.2. **Opposed to demolition of buildings south of Bradbury Street, with suggestion that the worksite should demolish and replace Kingsland shopping centre**

We are currently evaluating options at Dalston to reduce Crossrail 2's impact locally, specifically attempting to reduce the number of residential and listed buildings that would need to be affected.

In response to issues raised during the consultation from residents, the local authority and community representatives about the impact of works on Bradbury Street (Site B), Ridley Road Market (Site C) and nearby Colvestone Primary School, we are assessing the feasibility of an option which could integrate the Crossrail 2 entrance into the Kingsland Shopping Centre.

While a design is at a preliminary stage and feasibility of such an option is being investigated, this proposal could reduce the impact upon Bradbury Street, Colvestone Primary School and Ridley Road Market, but would directly impact upon the businesses and those employed within the shopping centre

9.3.3. Concern over impact on listed building 590 and 592 Kingsland Road

We have been able to refine worksite E (Dalston Junction) in Dalston, this means that we have been able to remove a listed building from being directly impacted by the Crossrail 2 proposals.

9.3.4. Shoreditch Park options

To enable Crossrail 2 to operate safely, we would need a shaft midway between Angel and Dalston stations. The shaft would provide tunnel ventilation, access for the fire and rescue services and a safe evacuation route for passengers in the event of an emergency. It would also be where we build a junction for an eastern branch of Crossrail 2, if there was a strong case for doing so in the future.

Five options for locating a ventilation shaft in the Shoreditch Park area were proposed during the 2015 consultation, including industrial / commercial buildings on Eagle Wharf Road, an option within Shoreditch Park itself and two options using the site of the current Britannia Leisure Centre. These sites were all selected as they avoided the need to acquire residential properties.

During the consultation, respondents were most concerned about a loss of green space if the shaft was located in Shoreditch Park and about the use of the Britannia Leisure Centre. The London Borough of Hackney also revealed that it plans to build a new school on the site of the Britannia Leisure Centre.

In response to issues raised and following further technical analysis we believe we will be able to remove the Britannia Leisure Centre as a possible ventilation shaft site (sites D and E). We are also considering how best to minimise any potential loss of green space in response to concerns raised about site C (Shoreditch Park). We will now further assess sites A (48 and 48a Eagle Wharf Road), B (46 and 47 Eagle Wharf Road) and C (Shoreditch Park) in response to the feedback received to ensure we consider the issues raised e.g. possible disruption to local businesses. These worksites are displayed in *Factsheet G2: Shafts*. Updated plans will be shared in a future consultation.

9.3.5. Opposition to the impact on the day-to-day running of Britannia Leisure Centre (Shoreditch Park)

Following the response to issues raised about the impact upon the Britannia Leisure Centre and its facilities raised by both residents and the London Borough of Hackney, we believe we will be able to remove the Britannia Leisure Centre as a possible ventilation shaft site (sites D and E). Further design development work has also been a deciding factor in discounting sites D and E.

9.3.6. Concern about level of disruption during construction with limited benefits for local residents once construction is complete (Stamford Hill)

The construction of a shaft at Stamford Hill would follow the same approach to managing our construction impact as other areas of surface interest. Please refer to section 1.1 of this report for further information.

While Crossrail 2 is not providing a station at Stamford Hill for the reasons outlined in section 5.1.3 of this report, nearby residents will still benefit from a Crossrail 2 connection at Seven Sisters or Dalston, providing quicker journey times into central London. Residents may also benefit from reduced levels of crowding on the Victoria line.

9.3.7. Opposition to the demolition of Morrisons supermarket

Our current preferred location for a ventilation shaft and junction, just northwest of Stoke Newington station, has been selected to minimise the amount of residential land we would need to acquire. The area proposed as the construction site includes Morrisons supermarket; while design development is ongoing and would seek to rationalise the worksite, it remains likely that Morrisons would need to be acquired.

10. Issues specific to Angel, Euston St. Pancras and Tottenham Court Road

10.1. Angel

10.1.1. Opposition to the demolition of Electrowerkz music venue in Torrens Street

Proposals presented during the consultation do not involve demolition of the Electrowerkz venue or any other building in Torrens Street.

10.1.2. Suggestion that more entrances/exits are required

In response to issues raised about improving pedestrian access at Angel, we are pursuing an option which would provide an entrance on Torrens Street as well as providing a route through onto Angel High Street. This proposal would better serve the local area and would provide an alternative route to those heading towards City Road and Old Street.

10.1.3. Concern about a worksite on White Lion Street

In response to issues raised about the loss of important buildings within the conservation area, our design has been updated to reduce the size of worksite B (White Lion Street). This will reduce the number of buildings directly impacted by this worksite and minimise our impact upon Chapel Street Market.

10.2. Euston St. Pancras

10.2.1. Concern over interchange walking distances

At Euston St. Pancras, we are looking to refine the current design to improve the interchange and reduce the walking distances between Crossrail 2 and future HS2, Thameslink and other National Rail services. The design will consider streetscapes and the way the stations fit into the surrounding urban environment - access to other transport modes (Tube, trains, buses, pedestrians and cyclists), and connectivity with onward routes.

Crossrail 2 will not, however, be providing a public (unpaid) connection between Euston and St. Pancras stations as the space below ground is constrained and such a link would actually be longer than a connection at street level. HS2 are currently working to enhance street-level options to improve the quality of the walking connections between Euston and St Pancras. Further work will look to improve access for passengers interchanging between Thameslink and Crossrail 2 services. This will reduce congestion in the mainline station concourses and reduce platform crowding and wait times on the Victoria and Northern line platforms.

10.2.2. Concern that combination of construction works for both HS2 and Crossrail 2 would prolong disruption to travel and the local community

We are working with the Department for Transport (DfT), HS2, Network Rail, and the London Borough of Camden to develop an integrated approach to the redevelopment and coordinate the various transport related projects to ensure we deliver the right outcome for Euston.

10.2.3. Concern over loss of social housing

We are working to minimise the need for residential properties and commercial land as much as possible and are continuing to review our proposals at Euston.

We are currently assessing options which use existing Network Rail land within Euston station to improve interchange with National Rail services and HS2 as well as reducing the impact on residential properties and businesses in the area. We will continue to work with Network Rail to look at feasible options which minimise disruption to passenger services and the local community.

10.3. Tottenham Court Road

10.3.1. Concerns about prolonged disruption, following Crossrail 1

We have learnt a lot from the construction of Crossrail 1, and are working with colleagues from Crossrail to ensure we can improve on their approach and minimise impacts on the local community during construction.

The Crossrail station at Tottenham Court Road was built with provision for Crossrail 2, meaning that work can take place on new Crossrail 2 infrastructure without causing significant disturbance to the rest of the existing station.

10.3.2. Suggestion that the Trocadero site should be used as an alternative to Site B on Shaftsbury Avenue

We have previously looked into the option of using the Trocadero site instead of the 'Curzon site' and found it would not lessen the overall impact of construction. To have a Crossrail 2 entrance in the Trocadero would still require a station shaft near the tunnels between Soho Square and the Trocadero. This shaft would be located in the same area as the site proposed on Shaftsbury Avenue, therefore still having a construction impact in Soho. It would also require additional construction to further extend the underground entrance passageway 150 metres, increasing journey times and as a result being less attractive to passengers

10.3.3. Concerns about capacity and congestion with the station

The design of the Crossrail 2 station at Tottenham Court Road seeks to accommodate the forecasts of passengers using the station in future. The proposed new Crossrail 2 station entrances have been designed to meet demand for the areas to which they provide access.

We are also working to further increase station capacity and separate interchanging and exiting passengers to reduce congestion in the station.

10.3.4. Suggestion to pedestrianise Tottenham Court Road and Oxford Street as wider improvements of the scheme

As Crossrail 2 is still in the early stages of design, we cannot yet develop specific plans for public realm improvements. However, TfL is already working with Westminster City Council to develop options for Oxford Street to maximise the quantity and quality of space for pedestrians and support the West End Partnership's vision for Oxford Street to be "the world's best outdoor street shopping experience." We will continue to work closely with Westminster City Council, as well as the London Borough of Camden, key stakeholders in the West End Partnership and colleagues in TfL to better understand how Crossrail 2 could be integrated into their plans for the Oxford Street area.

11. Issues specific to Victoria, King's Road and Clapham Junction

11.1. Victoria

11.1.1. Concerns regarding the proposed Crossrail 2 station entry on Ebury Street (Site A)

Passenger surveys and future demand forecasts indicate that approximately 15-20% of passengers would access or exit the station from Ebury Street/Lower Belgrave Street area, so our design seeks to accommodate this demand.

TfL uses Rail Plan, a strategic planning tool to estimate demand. The passenger forecast is based on the current proposed station designs and will be subject to revision as the station design and any of the planning assumptions used for our estimates develop over time and should not be treated as a final value.

A majority of people walking to the station will do so from areas within 20 minutes of the station. An entrance in the vicinity of Ebury Street would cater for demands ranging from Hyde Park Corner to Knightsbridge and across Belgravia.

Providing an entrance on the western side of Buckingham Palace Road also removes the need for people to cross this busy road to access the Crossrail 2 station, improving pedestrian safety and reducing footfall on an already crowded area.

11.1.2. Concerns regarding the demolition of Belgrave House

The location of the Crossrail 2 station at Victoria has been selected to provide good interchange with other services, minimise disruption on the local area, avoid the conservation area, listed buildings and green space.

Belgrave House and Ebury Gate are proposed to be used for the construction of the station box, a station entrance and station shafts.

Moving the platforms north to avoid Belgrave House will affect the tunnel horizontal alignment, meaning the platforms could not be straight at the north end of the station. This would therefore compromise a project requirement for step-free access to all the Crossrail 2 platforms.

A number of sites were considered for the new Crossrail 2 station at Victoria. The location is constrained by a large number of sensitive buildings in the area (including listed buildings and conservation areas), as well as a number of modern high-rise buildings that have deep piled foundations that could obstruct the Crossrail 2 tunnel alignment. Further constraints include buried structures (such as major sewers and existing Tube lines) and the tunnel alignment from King's Road to Tottenham Court Road.

A station box at Belgrave House/Ebury Gate provides the optimum solution to minimise the land take and impact on the historic area while providing the transport solution and interchanges required with the Network Rail and London Underground stations.

11.1.3. Concern about the proximity of the new construction site causing various safety risks to pupils attending St. Peter's Eaton Square Primary School

The footpath leading to St. Peter's Eaton Square C of E Primary School is not within the proposed worksite A (on Ebury Street) – so parents' and pupils' access to the school would not be affected by the use of the worksite. Proposals for the scheme are still at a relatively early stage of design; and the next stages will further consider how we can minimise the impact of construction locally. Section 1 of this report sets out our responses with regards to minimising construction impacts generally.

11.1.4. Concern that Crossrail 2 would bring further long-term disruption to the area so soon after the Victoria Station Upgrade works.

We are working closely with our colleagues at Network Rail and across TfL to ensure plans for Crossrail 2 at Victoria Station are integrated and phased into improvements planned for the wider local area.

11.1.5. Concern over the disruption to the displacement and/or operations of the coach station

A ventilation shaft is required between King's Road Chelsea and Victoria stations. Our preferred site is the yard of the Victoria Coach Station and some of its buildings. This site has been selected because TfL owns a large part of Victoria Coach Station.

We are working closely with colleagues across TfL to ensure plans for Victoria Coach Station are developed alongside plans for Crossrail 2. Proposals for the future of the Victoria Coach Station are being considered separately by TfL. These proposals will be subject to further engagement and consultation by TfL and therefore did not form part of the Crossrail 2 consultation.

11.1.6. Suggestion of an underground passage to link Victoria station with the coach station

The proposed location for the Crossrail 2 station at Victoria has been chosen for its close proximity to the National Rail platforms and Tube lines. While our plans for Crossrail 2 also involve using part of the current Victoria Coach Station for an intermediate shaft, proposals about the future of the Victoria Coach Station as a whole are being considered by the wider TfL. Therefore at this stage we are not looking to provide a link to the coach station.

11.2. King's Road Chelsea

11.2.1. Concern about locating a station at King's Road Chelsea

Proposals for a Crossrail 2 station at King's Road were presented during the 2015 consultation following extensive option analysis and the consultation exercises undertaken in 2013 and 2014. We investigated multiple route options, which were shared in a public consultation in 2014, including the option of running services non-stop between Clapham Junction and Victoria station.

The currently proposed alignment strikes a balance between relieving existing London Underground and National Rail services and serving those areas that will require additional transport capacity in the 2030s. A Crossrail 2 station in Chelsea would improve community access to rail-based public transport in an area where current service levels are low in comparison to similar inner London locations. It would also improve connectivity to the Royal Brompton and Royal Marsden hospitals and provide access to the existing retail and commercial developments along King's Road.

In 2014, we consulted on station options in Chelsea, including the options of not building a station there at all. In that consultation, a King's Road station was the most popular option, which we developed. Nevertheless, the 2015 consultation generated significant levels of opposition. The majority of those who objected to the principle of a station being built in Chelsea at all did not offer additional comments, just that there should not be a King's Road station at all.

Of the respondents that did raise additional concerns, a number were around how a station could potentially damage the character of Chelsea, how construction could negatively impact the area and uncertainty that a station in Chelsea will deliver best value for money compared to elsewhere along the route. We are looking at these issues in more detail so that an agreed position can be reached, which will inform a further period of public consultation.

Meanwhile, some people also raised specific concerns or made suggestions that we are able to address at this stage. For example, some were concerned about the possibility of a long closure of the King's Road during construction of the station.

As a key arterial route through the area, including for several bus routes, it is clearly in the best interest of TfL, Royal Borough of Kensington and Chelsea and the local community that King's Road remains open throughout construction. Although construction access routes have not yet been developed and a full traffic assessment completed we will not be closing the King's Road during construction of Crossrail 2.

People also raised concerns about the potential for a large development to take place over the station ('oversite development'). Our proposals have been designed to integrate with the existing area and the vast majority of Crossrail 2 infrastructure would be underground. Once the construction of the Crossrail 2 station is completed, if any oversite development were to be proposed it would still require planning approval in accordance with existing local and London wide planning policies.

Alternative station suggestions

A number of alternatives to a Crossrail 2 station King's Road were put forward in the consultation, including a Crossrail 2 station at Imperial Wharf or tunnelling directly from Victoria station to Clapham Junction without a station in the Chelsea area. Our analysis shows that while serving Imperial Wharf might provide additional transport accessibility to the area, the transport case is not as strong as it is for a station at King's Road. In particular, our analysis of public transport accessibility levels demonstrates that a station at King's Road would provide a greater boost to local accessibility than an Imperial Wharf station. The benefits of a King's Road station would be felt across a wider area and would increase public transport accessibility levels in an area where connectivity is very poor given its proximity to central London. An Imperial Wharf station would lengthen the journey time between Clapham Junction and Victoria station by 2 minutes more than the King's Road station option, making Crossrail 2 less attractive to passengers. Recent work has also confirmed that an alignment via Imperial Wharf would also require a ventilation shaft in the King's Road area. This would mean an Imperial Wharf alignment would be unlikely to address many of the concerns about the impact of the scheme in the Chelsea area.

Tunnelling directly from Victoria station to Clapham Junction station would save costs for the scheme and improve the journey times for passengers travelling directly between Victoria and Clapham Junction. However, it would not deliver a new transport connection in an area that will require additional transport capacity by the 2030s.

We are carefully assessing all options in light of feedback received during this consultation. Proposals will be agreed ahead of the next period of public consultation.

11.2.2. Concern that a station at King's Road would lead to commercialisation and spoil the character and heritage of the area

We are working closely with the Royal Borough of Kensington and Chelsea to integrate the proposed new station into the local area. Under our current proposals, the station entrance would be located between two existing buildings on Sydney Street. Our plans are being developed in accordance with relevant local planning policies and proposals, such as those contained in Local Development Frameworks. As part of the development of our plans, our team are identifying local issues at an early stage, as well as understanding the possible impacts on the community. An environmental statement will detail likely impacts and benefits to the natural, built and social environment and will be published when the application for powers is made. This is currently expected in 2019.

11.2.3. Concern that the area is already well served by public transport

London's population is set to reach 10 million people by 2030, up from 8.6 million people today. Unmitigated, such population growth will add pressure to the already overcrowded District line services and stations. A Crossrail 2 station in Chelsea would reduce crowding at Sloane Square and South Kensington, as well as improve access to rail services in an area where it is currently poor compared to similar inner London locations. It would also improve connections to the Royal Brompton and Royal Marsden hospitals and provide access to shops and businesses on the King's Road. King's Road itself is already congested, slowing down buses; with growth it will get worse. A Crossrail 2 station here will help relieve this pressure.

11.2.4. Concern about disruption to local hospitals

A Crossrail 2 station on the King's Road would make it significantly easier for patients, visitors and staff to access the Royal Brompton hospital. The proposed Crossrail 2 station would be very close to the hospital and would provide new step-free transport connections to destinations across the region, making it easier for people to get to and from the hospital.

Land covered by the Chelsea Farmers' Market and the Chelsea Garden Centre is owned by the Royal Brompton & Harefield NHS Foundation Trust and is included in our current worksite proposals. During consultation, concerns were raised that the construction of Crossrail 2 on that worksite could disrupt the Trust's plans to re-develop the site in order to fund further patient facilities.

We are keen to ensure that our proposals do not impact negatively on the hospital and its patients, nor their future development plans. We are working with the Royal Brompton Hospital NHS Trust to agree a way in which both schemes can be progressed with minimal.

During construction we would work closely with all stakeholders, including the Royal Brompton, to minimise the impact of construction. All contractors would need to follow a strict code of construction practice.

11.2.5. Concern about the additional impact of the remote worksite on the north side of the King's Road

During the consultation, respondents expressed concern about the additional worksite located on the north side of King's Road, identified as site C on Factsheet S10: King's Road Chelsea station. Specifically, they were concerned about the additional impact of construction vehicles travelling across the King's Road and the impact on residential properties within that worksite.

In response to issues raised and following further technical analysis, we believe we will be able to remove this worksite from our proposals. This would preserve shops and residential properties located within 140-142 King's Road, reduce the disruption on the neighbouring residential properties and reduce construction traffic on the King's Road.

11.3. Clapham Junction

11.3.1. Suggestion that the current station building should be enhanced to support increased passenger numbers

The Crossrail 2 proposals at Clapham Junction would add station capacity, allowing significantly more passengers to use the station at peak hours. The proposals include a new station entrance and ticket hall on to Grant Road and an enhanced station entrance on to St John's Hill. These improvements would be coordinated with Network Rail's own improvement works, together with LB Wandsworth proposals to develop the Winstanley Estate, which are due to be delivered in advance of Crossrail 2.

In response to issues raised during the consultation we are currently evaluating whether an additional station entrance on St John's Hill (near the junction with Plough Road/ Strath Terrace) could be included as part of the scheme. This additional entrance could improve access to those arriving at Clapham Junction from a south westerly direction and reducing crowding within the existing station

11.3.2. Suggestion that the Northern line should be extended to Clapham Junction at the same time as Crossrail 2 to reduce costs and disruption

There are currently no proposals to extend the Northern line from Battersea Power Station to Clapham Junction. Previous work by TfL suggests that if the Northern line were extended to Clapham Junction alone, overcrowding would increase significantly on Northern line trains heading into the West End and the City from Kennington.

11.3.3. Concern about disruption to the day-to-day running of Clapham Junction station

Proposals are still at an early stage but they are being developed in partnership with Network Rail. While the Crossrail 2 station at Clapham Junction is constructed we would not anticipate a significant impact on the operations of existing London Overground and National Rail services.

11.3.4. Concern that the proposed location for a shaft at Westbridge Road is unsuitable

To enable Crossrail 2 to operate safely, we would need a shaft midway between Clapham Junction and King's Road Chelsea stations. This shaft would provide tunnel ventilation, access for the fire and rescue services and a safe evacuation route for passengers in the event of an emergency.

Our current preferred site is within the Surrey Lane Estate at Westbridge Road. This has been selected following an assessment of the options, many of which include residential properties – our desire is to avoid acquiring residential properties where possible.

12. Issues specific to Wimbledon and Balham

12.1. Balham

12.1.1. A Crossrail 2 station at Balham vs. Tooting Broadway

The Northern line between Balham and Stockwell is one of the most crowded parts of the Tube Network and as London continues to grow, congestion is set to get worse. New transport capacity in South London is needed to avoid regular station closures in future, particular in the morning rush hour. A Crossrail 2 station in this area would help relieve this acute congestion.

Before the 2015 consultation, we were working up proposals for this Crossrail 2 station to be located at Tooting Broadway, because of the benefits it would bring in terms of relieving the Northern line and bringing about regeneration opportunities. However in summer 2015 last year, our engineers discovered that ground conditions around Tooting would make it difficult to build a station there. As a result, we consulted on an alternative station location at Balham.

During the consultation, many respondents suggested we should look again at Tooting Broadway because they felt it was more in need of transport improvements and that the area would benefit more if Crossrail 2 served that Tooting. A number of people also supported the proposal for a station at Tooting Broadway because it would not require a ventilation shaft on Wandsworth Common.

In response to the consultation feedback, we are carefully considering the likely benefits and disadvantages of stations at Tooting Broadway or Balham. Earlier this year, our engineers carried out further ground investigations in both locations to get a better idea of how we might be able to build a station in either location.

We are also carefully considering the longer-term economic benefits of serving either Tooting Broadway or Balham and are carrying out a socio-economic impact assessment to inform our thinking. This, along with further engineering work, will enable us to compare both the costs and benefits of each option so that we can decide which is our preferred option. Changes to the design and reasoning will be shared in the next public consultation.

The results of these investigations and other studies will inform a decision on a preferred station location, which would be subject to further consultation.

A number of issues about the proposals for a Balham station were raised during the 2015 consultation and our responses to these are below.

12.1.2. **Concern that Balham already has sufficient transport links**

A Crossrail 2 station at Balham would provide interchange and congestion relief to one of the busiest sections of the Northern line. Interchange would also be possible with National Rail services. Importantly, a connection with National Rail services at Balham would reduce pressure at Clapham Junction and Victoria station, by allowing London-bound passengers onto Crossrail 2 before reaching these crowded stations.

12.1.3. **Concern that Balham would add to the capacity bottleneck already seen at the existing station**

Balham London Underground station is currently constrained during peak hours. Crossrail 2 would offer relief to the station by providing a new, high capacity, step free entrance, reducing pressure on the original 1920's Northern line entrances

Crossrail 2 at Balham would offer an additional 30 trains per hour in each direction, in addition to the high frequency service offered by the Northern line. The number of trains calling at Balham means the vast majority of passengers will spend little time waiting on the platforms, helping to reduce overall station congestion.

In addition we are looking at providing a dedicated pedestrian link for passengers interchanging to/ from National Rail services, reducing the number of passengers using the existing station entrance.

12.1.4. **Against the loss of a Waitrose supermarket**

We considered various options for worksites and ventilations shafts at Balham, all seeking to avoid acquiring residential properties. The alignment of the tunnel between Balham and Clapham Junction is the major constraining factor constraining us from finding potential worksites that are non-residential. The Waitrose site at Balham High Road is the most suitable site in the immediate area for a worksite that meets these criteria and would give us a location to construct a northern ventilation shaft.

12.1.5. Concern that a Crossrail 2 station at Tooting would provide better transport links to St. George's Hospital than at Balham

Inevitably, a Crossrail 2 station at Tooting Broadway would provide better access to St George's Hospital. While a station at Tooting Broadway would benefit the local community facilities, this needs to be carefully considered alongside the impacts of construction. A station at Balham would also have the potential to improve access to Tooting – many people would use Crossrail 2 and interchange at Balham for a short journey on the Northern line.

12.1.6. Concern that a station would lead to significant disruption to Balham town centre and its community

The worksites that would be required in Balham are substantially smaller than those that would be required at Tooting Broadway, and work is expected to take less time and cause less disruption. Overall disruption to the Balham area would be reduced when compared to a station at Tooting Broadway.

Please refer to section 1.1 of this report for further information about minimising our construction impact.

12.1.7. Concern that a shaft on the edge of Wandsworth Common would negatively impact on schools that use the Common regularly

Previous community engagement around Wandsworth Common led to the relocation of the two shafts originally proposed for Wandsworth Common (this was at a time when proposals for Crossrail 2 were going via Tooting Broadway). However, an alignment via Balham would require a ventilation shaft at the eastern edge of Wandsworth Common (near Honeywell Road). We sought the community's views during the 2015 consultation and we will consider the feedback when developing our design.

Please refer to section 2 of this report for further information concerning construction.

12.1.8. Suggestion that the area of Wandsworth Common being used for construction is landscaped after completion

Please refer to section 3.7

12.1.9. Suggestion that the ventilation shaft is moved closer to the National Rail lines

We are considering this proposal; although this would remove the ventilation shaft from the eastern edge of Wandsworth Common, it is expected to trigger the need for an additional shaft which would need to be located in the densely residential area known as 'between the Commons' .

12.1.10. Suggestion that the ventilation shaft should be moved to Clapham Common

We have considered a ventilation shaft on Clapham Common in response to the consultation feedback. To achieve this, the alignment of the station at Clapham Junction would need to be changed and this is not something we support because it would require us to change the worksites to less suitable locations. An alignment via Tooting instead of Balham would negate the need for a shaft on Wandsworth Common.

12.1.11. Suggestion that construction works associated with the Springfield ventilation shaft should be linked to the current site developments to minimise disruption

We are working closely with the Springfield Hospital Development Project to coordinate work so both projects can reduce the impact on the community.

12.2. Wimbledon

12.2.1. Concern over disruption to Wimbledon town centre during construction

During the consultation, respondents raised concerns about the impact of the current proposals on Wimbledon town centre. In particular, respondents were concerned about the potential number of buildings that we may need to acquire in order to build the railway, the ability to access and enjoy the town centre, including Centre Court shopping centre, during construction and the number of business and jobs that would be temporarily or permanently relocated.

A station at Wimbledon is important to transform travel in the region. However like all big infrastructure projects it will be a challenge to plan and build.

To deliver a working Crossrail 2 railway and station at Wimbledon there are a number of requirements. These include the need for four dedicated Crossrail 2 platforms to support a high frequency service; an easy passenger interchange with the existing railway, particularly with South West Trains stopping services; space for trains to turn around to allow up to 10 Crossrail 2 trains per hour to begin at Wimbledon and another 20 to continue on to the existing South West Main Line; a depot that can be easily accessed by trains ready to begin or terminate services at Wimbledon and construction plans that would minimise disruption for passengers using existing rail and Tube services.

The proposal presented in the 2015 consultation met these operational requirements. While we were at the early stages of design and detailed planning is still to be undertaken, we believe that the construction work required for this proposal could be phased to help minimise disruption to the town centre.

However, a number of alternative suggestions were put forward in the consultation, including tunnelling the South West Main Line non-stopping services, reconfiguring the existing station layout and considering the use of fewer and narrower platforms. We are carefully considering each of these and while they may solve some of the issues, they may also create other problems, including increasing overall land size impacted, extending construction times by several years and slowing down journey times and/or reducing train frequencies. However, in response to consultation feedback, we are working hard to fully understand potential alternative solutions, and weigh the pros and cons of these against the existing proposals.

We are continuing to analyse a number of ideas, including those put forward in the consultation, to develop a design that minimises disruption for people that live, work, visit and travel through Wimbledon town centre, while allowing us to build and operate Crossrail 2. The results of these investigations will inform a decision on a preferred station location, which would be subject to further consultation.

12.2.2. **Specific suggestions – tunnel South West Mail Line**

While tunnelling the South West Main Line non-stopping services could free up platform space for Crossrail 2 at Wimbledon station, our analysis to date shows it would create several other significant issues, including increasing cost considerably and increasing the time taken to build Crossrail 2 by two to three years. Building another tunnel would also require the acquisition of land in other parts of London in order to build additional tunnel portals and ventilation shafts. Depending on the construction method used, this land take could be greater than the current proposals.

12.2.3. **Specific suggestions – reconfigure station**

Several responses referred to options involving reconfiguring the existing station, including consideration of a multi-level station. Our analysis to date shows that reconfiguring the existing station to make space for Crossrail 2 would still require significant land take to the North or South of the station. It may also increase the time taken to build Crossrail by approximately two years, and create considerable operational concerns. The use of fewer and/or narrower Crossrail 2 platforms may reduce the land take requirements in the town centre but could impact on our ability to deliver a reliable and high-capacity train service, compromising the benefits of the whole scheme and meaning slower, less frequent journeys for everyone.

No decision on station options has been made at this stage. We are working with the London Borough of Merton to consider the short, medium and long-term economic impacts of constructing a station at Wimbledon, and identifying how our proposals could integrate with local aspirations in line with their 'Future Wimbledon' master planning work. This, along with further engineering work, will enable us to compare the likely impacts and benefits of each station option, which will inform a decision before the next period of public consultation.

12.2.4. **Concern over demolition to Centre Court shopping centre**

Centre Court shopping centre is currently identified as one of the worksites we need to construct Crossrail 2. Our initial assessments suggest that we may be able to retain around half of Centre Court and options are being considered to reinstate the rest of the site before the station opens in 2030. As part of our design process we are exploring options to minimise the impact of construction as much as possible. Construction at Wimbledon would also be phased over a number of years for this reason. Opportunities for over-station development following the completion of the new station would need to be approved in line with local and London-wide planning policies.

12.2.5. **Concern that only one option has been proposed within Wimbledon plans**

Prior to the 2015 consultation, we considered a range of alternative proposals, but these did not meet our engineering and operational requirements. All options we have explored have varying levels of overall impacts, and we have a duty as a transport authority to develop proposals that best meet the requirements of the railway, respond to the future transport needs of London and can be built without unacceptable impacts. Where an option does not meet these criteria, it is not helpful to put it before the public as if it did.

All of our proposals are at a formative stage; no decisions have been made or outcomes pre-determined. Feedback through consultation helps us understand where improvements need to be made. We want people to raise their concerns with it and tell us their priorities so that we can incorporate them into our designs as the scheme progresses.

In response to this feedback in the consultation, we have developed a supplementary information sheet [Options for a Crossrail 2 station at Wimbledon](#).

12.2.6. **Suggestion for additional entrances/exits**

Crossrail 2 would lead to a large increase in the number of passengers using Wimbledon station. As part of the current proposals, the existing station concourse would be re-built to make it substantially bigger. We also proposed an additional entrance on Queen's Road. In response to this suggestion, as we investigate options for constructing Crossrail 2 at Wimbledon, we will look at the opportunity to provide alternative and additional entrances/exits to improve the permeability and flow throughout the station and Wimbledon town centre.

12.2.7. **Suggestion that the station should be below ground, with an extended tunnel constructed between Wimbledon and Raynes Park**

We had considered this option prior to consultation. Our initial assessment suggested that it would still require large surface worksites in Wimbledon town centre in order to construct the deep station and ventilation shafts. Based on our initial assessment, sites B, C, E and part of site F identified in [Factsheet S13: Wimbledon](#) (containing Wimbledon Bridge House, commercial properties around Broadway Place, the station entrance and ticket hall, Everyday Church, Queens Court Care Home and Quadrangle Lodge) would still be required. In addition to these, a tunnel portal farther south of Wimbledon station would require substantial residential land take. For these reasons, we did not progress this option in the last consultation.

However, in response to feedback from consultation, we are undertaking further work to fully understand all of the impacts and worksites required for providing a deep tunnelled Crossrail 2 station at Wimbledon.

12.2.8. Providing two branches between Wimbledon and Clapham Junction; one branch serving Earlsfield and a second serving Balham, Tooting, St Georges and Haydons Road (also known as the SWIRL – MAX proposal)

This suggestion is not being investigated further because it would compromise our objective to provide relief to the Northern line. Providing two branches in the central operating section of the route would result in Crossrail 2 serving the vital interchange at either Balham or Tooting Broadway much less frequently than the Northern line would. This would make interchange less attractive: for example, if the Northern line is departing a station every 2 or 3 minutes but Crossrail 2 is only departing every 6 minutes, travellers are far less likely to transfer from the Northern line onto Crossrail 2, or begin their journey at this station on Crossrail 2.

Also the addition of two junctions and four stations to the scheme would increase the cost of the scheme significantly and would limit our ability to offer a robust 30 trains per hour service between Wimbledon and Dalston in peak periods. This could mean we would need to operate fewer trains, reducing the benefits to people across the tunnelled section of the route.

12.2.9. Concern that serving a station that interchanges with the Northern line will not reduce congestion on the Northern line

Our transport modelling shows that Northern line passengers at either Balham or Tooting Broadway would travel to the West End using Crossrail 2 because it would have capacity and quicker journey times. Also many Northern line (City branch) passengers could find using a combination of the Elizabeth line and Crossrail 2 (interchanging at Tottenham Court Road) provides quicker and more convenient journeys to Farringdon, Moorgate, Liverpool Street and Canary Wharf.

To predict how people would move through the network with the introduction of Crossrail 2, we use an extensive range of data held within TfL and the GLA, built from surveys of millions of individual trips over several years. Our analysis also takes into account journey times, crowding, difficulty of interchange, and forecasts for housing development and economic/employment growth areas to fully understand passenger flows throughout the network with the introduction of Crossrail 2.

12.2.10. Suggestion that a tunnel portal at Gap road should be discrete and unobtrusive

We have tried to locate the tunnel portal away from residential properties, in order to minimise disruption during construction. The site at Gap Road would allow Crossrail 2 to serve stations on the various National Rail branches, while avoiding direct impact on residential properties.

Further design work is being carried out to determine the requirements at the proposed portal location and we will draw on knowledge gained from other schemes for how they can be designed sympathetically to the local area. As the Crossrail 2 proposals develop further, we will engage with the relevant local authority, interested stakeholders and local community to inform the designs for portal.

12.2.11. Concern about the availability of space in locating a depot at Weir Road

We believe the Weir Road site would have sufficient space to provide “stabling” (i.e. parking) for trains, with facilities for train washing and cleaning), as well as a depot for maintaining these trains and a shaft providing ventilation and emergency access to the tunnels. The site would also support Crossrail 2 tunnelling works. Further work is under way to work out the best layout for the Weir Road site. In addition, we are still also considering various alternative sites.

12.2.12. Concern that a depot at Weir Road would negatively impact local businesses

From an operational point of view, our preferred site would be located on the Weir Road industrial estate. This site would be close to the Crossrail 2 southern hub at Wimbledon, allowing trains to enter and leave service promptly. It would also provide access to the South West Main Line, to assist with construction logistics. Further work is under way to consider various alternative sites. We are engaging with local businesses and will continue to do so should we require this site.

12.2.13. Concern about the chosen location for the turn-back and dive-under facilities at Dundonald Road

We have tried to locate this worksite away from residential properties, in order to minimise disruption during construction. The proposed site would allow Crossrail 2 to serve stations on the various South West Main Line branches, while avoiding direct impact on residential properties.

13. Issues specific to the South West branches

13.1. Raynes Park, New Malden and Motspur Park

13.1.1. **Suggestion that existing stations, particularly Raynes Park, should be upgraded**

Raynes Park and New Malden stations will require work to accommodate the new infrastructure, improve passenger circulation and help improve interchange between services. This could include installing additional platforms and lengthening or straightening existing ones, as well as changes to signalling and other station improvements. More detail on proposals for these stations will be available at the next phase of consultation.

13.1.2. **Concerns that not enough information about the location of new track was provided to be properly consulted about proposals in this area.**

During the last phase of consultation our proposals for the regional branches of Crossrail 2 were at a very early stage of development. We know that in order to create the extra capacity needed to run new Crossrail 2 services on the existing railway network southwest of Wimbledon, we will need to install some new track between Wimbledon and New Malden stations, but at the last phase of consultation the work to develop detailed plans for the new tracks had not yet been started.

During the next phase of consultation our plans will be further developed and we will be able to share more detailed proposals with stakeholders and the community in this area.

13.1.3. **Concerns about the impact increased train frequencies will have on houses facing the railway in this area.**

Requirements in the UK for controlling noise impacts from new projects are becoming ever stricter. To make sure we comply with these, we have published a *noise policy* which clearly sets out how noise impacts are defined and how we plan to control them. This policy builds upon the standards adopted for previous projects such as Crossrail 1 and the Northern line extension (NLE). In addition to this and as part of the EIA, a full assessment of the potential noise impacts of construction and operation of the scheme will help to develop the mitigation proposals.

An assessment of noise impacts along the surface sections of railway will also undertaken. This will rely on a programme of baseline noise surveys that will help us determine how any changes in train service frequency may alter overall noise levels. Where significant effects are predicted the potential for providing mitigation, such as noise barriers, will be determined.

13.1.4. Concerns that construction of the new railway will have a negative impact on local people

Crossrail 2 would be held to a Code of Construction Practice (CoCP), which would set out working practices for managing the construction impacts of Crossrail 2. The CoCP would focus on the environmental, public health and safety aspects of the scheme that may affect the surroundings in the vicinity of the proposed construction sites.

As far as possible, construction activity would be planned to minimise disruption to residents and businesses in the local area. Our engineers are currently examining the potential impacts and developing measures to minimise disruption as much as practicable. We would seek to apply best practice as developed on Crossrail 1 and other comparable schemes, which has been very successful in minimising noise and disturbance at work sites. Construction work would be contained within securely fenced and hoarded worksites, contractors would have to adhere to considerate construction practices and use best available techniques to reduce noise and disruption.

Working practices for contractors would be agreed with the local authority to ensure disruption to local residents is minimised. Appropriate local forums would be established in due course for sharing information and collecting feedback.

13.2. Removal of Level Crossings on West Barnes Lane and Elm Road

13.2.1. Suggestion that replacement should be a bridge or underpass, not a diversion around the railway

The proposed increase to the frequency of train services with Crossrail 2 will make it impractical to retain a small number of level crossings in the local area. The level crossings that will be affected are at Elm Road, West Barnes Lane and Motspur Park. We will need to remove these crossings to improve safety and reliability, and to reduce risk to users and rail passengers. The removal of crossings would also help to improve local road connectivity and reduce delays to road users.

We will work closely with local communities and the local authority to find an appropriate resolution for each crossing. Access across the railway may be provided by a new bridge or an underpass, or via a diversion to another crossing point.

The access requirements of all users of the local level crossings will inform what we next consult on.

We are still at an early stage in the development of our proposals for Crossrail 2. Our assessment of the work we need to do at level crossings will inform what we next consult on.

13.2.2. Concern about the increase in traffic congestion if the level crossings are closed

Traffic modelling is helping to inform the option development process, and we are working closely with local councils, highway authorities and TfL to develop optimised solutions for each level crossing.

More detail on the emerging proposals for each level crossing will be available during the next phase of consultation, and members of the community and stakeholders will be able to provide feedback and let us know any concerns that they may have about potential impacts to local roads.

The EIA will include a Transport Assessment that will assess any potential impacts on local road networks as a result of any level crossing closures. The results of this assessment will be reported on in the environmental statement, along with any appropriate recommended mitigation measures, which will form part of the hybrid bill application.

13.2.3. Concerns about disruption to local residents and businesses caused by alternatives to the level crossings

We are working closely with local councils, highways authorities and TfL to develop the most suitable options for each level crossing.

The EIA will assess any potential impacts on the local areas, both during the construction and operation of the new railway, as a result of any level crossing closures. The results of this assessment will be reported on in the environmental statement, along with any appropriate recommended mitigation measures, which will form part of the hybrid bill application.

Careful construction planning will also consider disruption to the local areas during construction, and identify any mitigation measures where possible.

More detail on the emerging proposals for each level crossing will be available during the next phase of consultation, and members of the community and stakeholders will be able to provide feedback and let us know any concerns that they may have about potential impacts on the local areas

13.2.4. Emergency services should not be disrupted by the removal of any level crossings

Retaining access for emergency vehicles is a key priority. We will be consulting with the emergency services throughout the development of our proposals for the alternatives to level crossings in this area.

13.3. Between Epsom and Worcester Park

13.3.1. Suggestion that Oyster should be extended to all stations on the branch line

It is anticipated that whatever TfL fares and ticketing structure is in place when Crossrail 2 opens, these will apply across the proposed scheme.

13.3.2. Concern about the proposed capacity and frequency of services not being sufficient

In most cases, Crossrail 2 will provide a more frequent train service on the branches of the national rail network than the current train service, representing up to a doubling of the current train service frequency in some cases. In addition, the proposed Crossrail 2 rolling stock will be configured internally to carry a very high volume of passengers; the number of passengers carried by each train will be nearly twice that carried by existing underground trains.

The combination of increased frequency and capacity of trains is sufficient to meet the level of demand forecast.

On the Epsom branch some Waterloo services would be retained, but at a reduced frequency compared to today. There would be capacity for total of 8 trains per hour, in each direction into central London, representing an increase of two trains per hour in peak hours compared to today. This would be a combination of Waterloo and new Crossrail 2 services, with a minimum of four Crossrail 2 trains per hour calling at all stations.

Direct services to Waterloo from Ashted, Leatherhead and beyond would be retained. In addition, existing services from Epsom (and beyond) via Sutton to Victoria and London Bridge would also be retained.

13.4. **Between Chessington South and Malden Manor**

13.4.1. **Comment that the branch line is less of a priority, unnecessary or less cost effective than other areas as there are no issues with capacity or overcrowding at present**

London is growing rapidly. There are now a record 8.6 million people living here and this is forecast to be 10 million by 2030. This will put even greater pressure on an already congested transport network. A number of transport improvements are already underway but they will not be enough to keep pace with growth. We need Crossrail 2 to provide for our growing population and keep London and the wider South East moving.

The South West Main Line is one of the busiest and most congested routes in the country. It already faces capacity constraints and demand for National Rail services into Waterloo is forecast to increase by at least 40% by 2043. This means the existing crowding on the network is set to nearly double, and would likely lead to passengers being unable to board trains at some stations at key times of the day.

Crossrail 2 would free up space on the railway, helping to reduce congestion, and would enable us to run more local services to central London that bypass the most congested parts of the railway. Transport improvements already underway will help offset the pressure in the short term. But we need Crossrail 2 to cope with longer term growth.

Branch lines will generally be quieter and less crowded at the start of the route. However, the new Crossrail 2 services on all of the branch lines, including the Chessington South branch, will be key to contributing to the provision of capacity inwards from Raynes Park, and would form part of the Core tunnel service.

13.4.2. **Suggestion that Crossrail 2 services should be in addition to existing train services on this line, not a replacement**

The new Crossrail 2 services are proposed to replace some existing suburban trains from National Rail stations on the Crossrail 2 route that currently travel directly into Waterloo station. This will help to address the significant capacity constraints currently affecting the South West Main Line, by taking passengers into central London via the railway line through the new tunnel.

This reduces the number of trains that need to be operated from these suburban routes into Waterloo to adequately satisfy demand. This then enables the track and platform capacity at Waterloo currently used for these services to be used instead for additional services into Waterloo from Surrey, Hampshire, Dorset and Wiltshire, resolving the longer-distance capacity shortfall.

A large proportion of current suburban passengers would choose to travel to their destinations more quickly, or more frequently, using Crossrail 2 instead of using the existing routes to Clapham Junction, Vauxhall or Waterloo.

All stations on the Crossrail 2 network in southwest London will at least retain, or see an increase in, their existing frequency of train services into central London with the provision of Crossrail 2.

It is proposed that the existing two trains per hour into Waterloo station, serving Malden Manor, Tolworth, Chessington North and Chessington South, will be entirely replaced by four Crossrail 2 services per hour. This equates to double the number of services to and from London each hour compared to today, directly to central London.

It will be possible to interchange with services to Waterloo at Motspur Park, Raynes Park, Wimbledon or Clapham Junction. In addition, Crossrail 2 will connect directly with a number of London Underground lines, the Elizabeth line, HS1 and HS2 within central London, for passengers whose ultimate destination is beyond Waterloo.

13.4.3. Suggestion of extension to Chessington World of Adventures

While an extension to Chessington World of adventures is not currently within the scope of the scheme, it is not precluded for future consideration. As the scheme progresses Crossrail 2 will discuss any additional opportunities, subject to separate funding sources, with relevant local authorities and interested parties.

13.5. Between Hampton Court and Berrylands

13.5.1. Suggestion that the branch should not be at the expense of the frequency and speed of the existing services from Surbiton

Surbiton would receive a slight increase in train service frequency to Central London in conjunction with Crossrail 2, with Crossrail 2 services complementing retention of faster, outer suburban services into Waterloo.

Under Crossrail 2, it is proposed that outer suburban trains that provide fast peak links to Waterloo from Surbiton would in future operate into Waterloo on the lines currently used by suburban stopping trains (some of which are replaced by Crossrail 2 services). This is instead of sharing the lines used by longer-distance fast services from Woking, Guildford, Portsmouth, Southampton and beyond, enabling additional peak services to be operated from these locations to meet future forecast growth in demand.

Outer suburban services that serve stations between West Byfleet and Surbiton today typically have no scheduled station calls between Surbiton and Waterloo in the busiest peak hours. However, in practice a number of these trains are artificially slowed down by up to 3-4 minutes between Surbiton and Waterloo in order to fit onto the congested line for faster services into Waterloo, and to account for congestion at Waterloo station itself as trains wait for platforms to become available. This is necessary in order to maximise the number of trains that can be accommodated into Waterloo today.

Our proposal is that these trains would instead operate on the lines currently used by suburban stopping services, but would retain journey times comparable with today. Although faster trains from Surbiton and beyond would need to fit on the same lines as slower stopping trains between Wimbledon and Waterloo, with careful timetabling consideration we believe this will broadly be possible without materially affecting the overall journey time between Surbiton and Waterloo, as existing trains are artificially slowed down in peak hours due to existing congestion that Crossrail 2 is proposed to alleviate.

In addition, by segregating these services from longer-distance service, there is an opportunity to space outer suburban trains in the timetable much more evenly than the current service pattern, offering a more regular 'turn-up-and-go' service. At Surbiton, outer suburban services would sit alongside a further four trains per hour linking directly to Crossrail 2 stations in Central London (including Victoria, Tottenham Court Road and Euston St Pancras). Segregation from longer-distance services would also assist in reducing the extent to which service disruption further out on the Wessex network (such as at Basingstoke) created knock-on delay to outer suburban services, improving service reliability.

It is not proposed that outer suburban services would be significantly slowed down or have the same stopping pattern as existing stopping suburban trains. However, Crossrail 2 creates the potential opportunity to include some additional stops above today at key strategic interchanges (such as Wimbledon, Clapham Junction or Vauxhall) to give passengers on outer suburban services significantly improved onward connectional opportunities (such as via other National Rail services, London Underground, or Crossrail 2) or access to employment areas compared to today. Outer suburban services cannot call at these stations at present due to existing network capacity constraints alongside longer-distance services.

In off-peak hours only, we believe that it is feasible for Surbiton to retain non-stop trains to and from Waterloo via the “Fast” Lines, as is the case today. The diversion of services onto the lines currently used by stopping services is only necessary to maximise the number of trains that can run in the busiest peak hours.

13.6. Between Shepperton and Norbiton

13.6.1. Suggestion to include a link to Twickenham

During the previous phases of consultation the proposed route map had indicated a potential option to serve Twickenham. Following the 2014 consultation, we carried out further work to evaluate our preferred regional route and the studies showed that routing Crossrail 2 to Twickenham would not offer any frequency or journey time benefits. Furthermore, it would have potentially required the existing direct service between Twickenham, Richmond and Kingston to have been permanently withdrawn. Therefore Crossrail 2 is no longer proposed to serve Twickenham.

Existing, fast and frequent journey opportunities will remain available from Twickenham to Clapham Junction and Waterloo on the existing direct route via Richmond, with interchange to Crossrail 2 services to central London and beyond available at Clapham Junction.

13.6.2. Suggestion that *all* Crossrail 2 services should continue on past Hampton Wick as far as Teddington

On the Shepperton branch, we do not envisage running eight trains per hour as far as Shepperton, as there is not the forecasted demand that would require it. Kingston is the station on the branch with the highest footfall, and so we would need to provide a higher frequency of trains at least that far, with only some of those trains continuing through to Shepperton. Up to eight Crossrail 2 trains per hour, in each direction, could serve Norbiton, Kingston and Hampton Wick stations, with four trains per hour continuing to Shepperton, stopping at all stations.

Under our current proposals, space for reversing trains has been identified between Hampton Wick and Teddington. At this location, there is space within the railway boundary to build two reversing sidings. The sidings would be between the existing track, which themselves would be moved apart by around 3 meters to provide the necessary space. We are also investigating other locations for the turn-back sidings, including Strawberry Hill depot and near Kempton Park. We will assess all options for feasibility, how well each works from a timetable point of view, and what each would cost. The costs will include the number of trains required to operate the service; in simple terms the further from London the siding is, the more trains we will need to buy.

Our plans will continue to develop as we continue our design work. We will carry out further consultation on proposals, including more detail on the work on stations, tracks and level crossings on the regional branches.

13.6.3. Concern that Crossrail 2 services should not stop at all stations on this branch line

There is insufficient capacity on the Shepperton – Norbiton branch line to have fast and stopping services beyond Kingston. Even if sufficient capacity were to exist, the ‘skipped’ stations would consequently see a reduced frequency.

14. Comments on consultation

14.1. Concern over level of detail (not enough information)

The Crossrail 2 scheme is still at the early stages of design and therefore detailed proposals have not yet been developed. The scope of the 2015 consultation was to consult broadly on service patterns and, for the tunnelled section of the route, the location of proposed stations, depots, shafts and the work sites required to build and operate the scheme. More detailed information will be provided in further rounds of consultation as the scheme design is developed ahead of the hybrid bill (planned for 2019). Concern over lack of information as to why previous proposals had been dropped from the proposed scheme

During recent years, a detailed optioneering process has been completed to determine the best route to address transport and growth challenges. The focus has been on assessing how different route options could reduce crowding on the Underground and National Rail lines. We assessed over 100 possible route options, which were sifted down to two options consulted on in the summer of 2013: a self-contained Metro scheme and a regional option.

Since then, and following further consultation in 2014, planning of the scheme has continued. It has informed the revised Safeguarding Directions which were approved by the Government in March 2015, as well as the regional railway proposal that we consulted on last autumn.

Further information about the development of the Crossrail 2 route to date is available in factsheet *G1: Background to preferred route and option appraisal process.*

14.2. Concern that the public consultation had been badly publicised

The Crossrail 2 consultation was promoted through a range of communications channels to raise awareness about the scheme and encourage a response.

This included direct mail to over 220,000 addresses along the proposed route, targeted letter drops to potentially affected properties, press releases, councillor briefings, community panels and meetings with representatives from local resident groups, social media (Twitter), newspaper advertisements, posters (at stations and on board trains) as well as face-to-face leafleting at locations close to potential worksites. Emails were also sent to over 1 million registered Oyster card holders and those on the Crossrail 2 mailing list. Through our programme of 72 drop in events at key sites along the proposed route, we had face to face contact with over 12,000 people. We received nearly 21,000 consultation responses.

Through our ongoing engagement with the local community, we will identify further local communication channels to promote future consultations to ensure that those potentially impacted by the scheme are aware of the proposals and have the opportunity to provide feedback. We also encourage those interested in the scheme to follow @Crossrail2 on Twitter, [Facebook](#) and to sign up to receive updates at crossrail2@tfl.gov.uk

In response to this issue raised, we are proposing to hold informal events in the area to interact with a wider range of people and build up a contact list of interested stakeholders who would like to be kept up to date with Crossrail 2 news and consultation.

14.3. Concern that the questionnaire was too complex

In response to feedback we are looking to see how future questionnaires can be made easier to navigate, while still offering respondents the chance to submit their views in detail.

14.4. Concern that the questionnaire was biased/misleading

The consultation questionnaire comprised a series of unbiased open-ended questions seeking all views.

14.5. Concern that there was little opportunity to question the proposals

During the consultation, those who had questions about the proposals could contact the Crossrail 2 team via our telephone helpline that was open from 8am to 11pm daily, email us at crossrail2@tfl.gov.uk or come along to any one of the 72 events we held at 40 locations along the proposed route. During the consultation we received over 200 calls to the helpline, 5000 emails and 12,000 visitors to the drop in events. We will continue to make sure contact details are easily available for anyone with queries.

14.6. Concern that the maps were unclear in relation to station plans, shaft locations etc.

The maps presented a basic outline of the proposed land required to build and operate the scheme using a map based on ordnance survey information. In response to feedback, we will seek to improve our base map for use in future consultations. We will ensure a consistent look and feel across both printed and online interactive maps is provided.