



FREEPOST HS2 AP3 CONSULTATION

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TfL HS2 Interface Lead Sponsor

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Dear Sir / Madam,

**High Speed Rail (London - West Midlands) Bill (the Hybrid Bill)
Response to the Supplementary Environmental Statement 2 deposited
with Additional Provision 3**

This letter sets out the response of Transport for London (TfL) and the Greater London Authority (GLA) to HS2 Ltd.'s Supplementary Environmental Statement 2 (SES2) and Additional Provision 3 Environmental Statement (AP3 ES) which updates the earlier Environmental Statement to the Hybrid Bill and also relates to the third Additional Provision to the Hybrid Bill (AP3) deposited on 16 September 2015.

TfL and the GLA have been working closely with HS2 Ltd. to develop some aspects of the designs for the HS2 scheme within London, however there are still a number of areas requiring further consideration and development, including those contained within AP3 and the SES2. On a number of these issues, TfL and the GLA have made formal representations via the petitioning process for amendments to the proposals and this response provides additional commentary on a number of matters within the SES2 that we request are amended or clarified by HS2 Ltd.

While TfL and the GLA are supportive of the merits of HS2, it is disappointing that HS2 Ltd. has not responded proactively nor incorporated many of the numerous and detailed comments and concerns received from TfL, the GLA, local authorities and others in response to the December 2013 Hybrid Bill. Given that the AP3 proposals contain considerable changes to those in the Hybrid Bill, there was sufficient opportunity to incorporate the design changes proposed or seek agreement with TfL and the GLA. We, therefore urge HS2 Ltd to redouble its efforts in engaging collaboratively with TfL and the GLA to

ensure that the project is a good neighbour and is seen as applying best practice. This should as a minimum, meet or even exceed the standards set by TfL and other infrastructure organisations on projects in London such as Crossrail, the Northern Line Extension and Thames Tideway Tunnel.

This response is structured into three main sections:

1.0 Concerns remaining unanswered from TfL and the GLA's responses to previous deposits of Transport Assessments (TAs) and Environmental Statements (ESs) with the Hybrid Bill and Additional Provisions 1 and 2 (AP1 & AP2).

2.0 Additional issues identified within SES2 documents deposited on 16 September 2015 (CFA1, CFA2, and CFA3). These can be summarised by the following list:

- *Construction impacts on Surface Network:*
 - *Volume of Heavy Goods Vehicle (HGV) traffic*
 - *Operational impacts on Buses, Cyclists and Taxis*
 - *Construction routes*
 - *Impacts on other major surface projects*
- *Construction impacts on London Underground*
- *Construction impacts on Network Rail Station*
- *Design and Operational issues at Euston:*
 - *Lack of east-west permeability*
 - *Improve provision for Buses, Cyclists and Taxis*
 - *Design for growth*
 - *Improve provision of open and green spaces*
- *Interaction with Crossrail 2*
- *Code of Construction Practice*
- *Amenity: Noise, Vibration and Air Quality*

3.0 List of alternatives that have not been included in the SES2 to mitigate the effects:

- *Need for a comprehensive rebuild of Euston station site*
- *Use of railhead for construction*
- *Use of prop-less methodology for the LU infrastructure*
- *Replacement of Hampstead Road Bridge*

1.0 TfL and GLA concerns remaining from previous responses

In TfL and the GLA's joint response to the previous ES & TA deposit, dated 27 February 2014, it was mentioned that no prior opportunity was provided to comment on the TA.

A number of concerns remain following our responses to previous deposits of TAs, ESs as part of the Hybrid Bill and AP1 deposits. These do not appear to have been taken account of in the content of this submission and, thus, using the structure of previous submissions, TfL's key concerns are re-iterated below.

1.1 General

It should also be noted that our previous request that "*HS2 Ltd. take the opportunity to digest important stakeholder feedback and refine any future documentation so that is as comprehensive and robust as is practicably possible*" appears to have been unanswered. A number of concerns remain in the general approach of the SES2, including;

- i) **Impacts and methodology** – there remains no consistent application of a methodology to determine and define the impacts and their ratings used within the SES2. This makes it very difficult to identify and compare individual impacts and understand their ratings. The approach retained from existing ESs seems highly subjective in nature and should be modified (or at the very least explained) to allow impacts and the need for any mitigation to be fully understood and assessed. There also appear to be shortcomings with specific elements of the methodology in assessing the impacts of the scheme. For example, in CFA 01 the impacts associated to the widening of the existing railway retained cutting to accommodate the high speed platforms would affect noise, dust and traffic levels for the wider area and not be limited to the Park Village East.
- ii) **Cumulative impacts** – the combined impacts of works undertaken at various sites in London have the potential to cause significant cumulative impacts on both focussed locations (e.g. construction traffic from Euston and other worksites combining on the A40/A41) and wider areas of London in general. This applies to issues including air quality, highway network performance and socio-economic impacts from possible disruption to Crossrail services. HS2 Ltd. should consider and analyse these cumulative impacts and identify any mitigations as appropriate.
- iii) **Wider and combined impacts** – the SES2 still does not recognise the wider positive and negative impacts of HS2's proposals, background growth and other committed schemes. The documentation should take a more pro-active role in identifying the future issues that are likely to arise separately from the scheme even though HS2 is not the sole contributor. This will allow

relevant stakeholders including TfL, the GLA and HS2 Ltd. to develop and prepare appropriate mitigations.

- iv) **Mitigations/interventions** – as per our previous response to the Hybrid Bill, ES & TA, little mitigation is proposed for the impacts identified by HS2 Ltd. Specific examples include the additional visual and noise impact on properties on Roberts Street as a result of the increase use of the Lorry Holding Area by the London Zoo car park and the additional construction traffic on the A40, which have been introduced by AP3. The documentation has not considered or proposed any additional or alternative mitigation to these, to minimise the impact of the scheme.
- v) **Performance** – no mitigations are proposed for any impacted junctions and triggered links as a result of either the AP3 proposals. TfL and the GLA would expect this to be addressed and TfL to be engaged in the development of any mitigations. At junctions that perform badly in the reference case without HS2, TfL and the GLA expect HS2 Ltd. to identify these locations to help TfL, the GLA and London boroughs to develop solutions to these challenges.
- vi) **Construction** – as per our previous response, TfL and the GLA expect HS2 Ltd. to clearly state construction impacts and propose worksites and methodologies that minimise impacts on the surrounding communities. Unfortunately, limited detail has been provided in the SES2 of the additional proposed works – in particular regarding the amount of spoil generated in each of the two delivery stages and significant increase in volume of inert and demolition waste to be transported by road. Further detail including mitigation proposals by stage and potential alternative solutions to the transportation of material is required.
- vii) **Modelling**– while the assessment of the environmental impacts (e.g. air quality, noise, land use or emissions) requires a robust set of demand outputs and construction plans, it is disappointing that HS2 Ltd have not outlined the likely conclusions, nor shared the modelling that has been undertaken with TfL or GLA officials. The GLA and TfL would expect HS2 Ltd to provide a clear set of assumptions (agreed with TfL) in establishing the ‘with’ and ‘without’ HS2 baseline demand scenarios, along with a discrete number of sensitivities to test a range of reasonable future outcomes. Furthermore, the methodology for determining the impacts is not clear and the assertions made in the documentation will need to be clearly demonstrated that HS2 Ltd can effectively mitigate the impacts with clear evidence.

1.2 Traffic & Transport

1.2.1 General :

- i) The AP3 and SES2 documents still provide no clear, co-ordinated strategy to mitigate the impacts of HS2 on London's transport network and in particular lack an adequate assessment of the impact on rail services (for instance disruption to London Overground services operating into Euston as a result of the reduction in the number of available platforms during construction). No evidence has been presented regarding the number of operable platforms required in the classic station to guarantee a reliable and safe service, with different indicative figures presented in different parts of the SES2 documentation.
- ii) There is still insufficient detail provided regarding local road junction impacts. HS2 Ltd. must work closely with TfL to understand these impacts comprehensively and provide greater micro-simulation including VISSIM modelling of key junctions and roads impacted by the scheme.

1.2.2 Construction assessment:

- i) The construction proposals contained in the SES2 continue to assume that some LU services will not stop at Euston LU station for extended period of times. This assumption will put excessive pressure on the remaining lines serving the station preventing its safe operation and it is not acceptable to TfL. New construction phasing plans are required.
- ii) Similarly, the proposal to reduce Euston Road (the Inner Ring Road) to two lanes each way during the construction period are unacceptable to TfL without a comprehensive study of construction and traffic management options to determine the smallest impact. The ability to maintain journey time reliability during this period is a paramount.
- iii) Despite previous requests, no further assessment has been undertaken of the viability of increased use of rail as a mean of reducing the volume of construction traffic on the road network. TfL and the GLA consider there to be potential for substantial use of these means to reduce the volume of construction traffic on London's highway network and expect opportunities to be analysed and identified to use these alternative means of transport within the scheme. TfL commissioned, in September 2015, an independent study on the feasibility of using rail for construction and this has been shared with HS2 Ltd. This report concludes that HS2 Ltd need to work very quickly in order to ensure that the opportunities for using rail for construction transportation are not lost to the project.

1.3 Environmental

1.3.1 General:

- i) As per previous comments, TfL and the GLA consider there to be insufficient consideration of mitigation to negate environmental impacts of the scheme and in particular the SES2 should include evidence that mitigations proposed are shown to be better than alternative measures considered.
- ii) This refers in particular to the handling of hazardous substances such as oils and asbestos, during demolition, storage and transportation.

1.3.2 Air Quality:

- i) There remains no consideration in the SES2 of Air Quality Neutral (as required by Policy 7 of the Mayor's Air Quality Strategy 2010 and in the London Plan) and no statement as to whether HS2 Ltd. is of the view that the scheme is Air Quality Neutral;
- ii) For Euston Road, additional consideration must be given to how air pollution impacts will be mitigated, as this is a high risk site. Any air quality assessment should be aligned with emerging Mayoral policies in particular the Ultra Low Emission Zone (ULEZ) to be implemented in 2020. HS2 should develop and agree with TfL, GLA and local authorities the emission requirements for the contractor vehicles.
- iii) A single Code of Construction Practice (CoCP) for all of the Phase 1 Route is not considered appropriate and a 'London Addendum' is required to address the unique challenges faced in London, where 70% of people living within 1 km of the HS2 route are located.
- iv) TfL and the GLA welcome the reference to The Control of Dust and Emissions during Demolition and Construction: GLA Supplementary Planning Guidance Document, July 2014 and expects HS2 Ltd.'s work programme to comply with this.
- v) For example, from September 2015, all Non-Road Mobile Machinery (NRMM, estimated to be responsible for 12% of Nitrogen Oxide and 15% of total particulate emissions in London) operated in London will need to meet emission standards as part of the GLA NRMM Low Emission Zone. The requirements for this zone will be strengthened from September 2020.
- vi) Taking this into account and the scale of the impact of the project, TfL would expect HS2 Ltd. to meet the strengthened requirements from the start of construction (i.e. in advance of them coming into effect from September 2020). These requirements are as follows:
 - Stage IIIB of the Directive as a minimum for NRMM used on any site within Greater London from 2015.

- Stage IV of the Directive as a minimum for NRMM used on any site within Greater London from 2020.
- vii) Bespoke measures associated to the control risks associated with asbestos dust should be included in the signed CoCP.

1.3.3 Community:

- i) TfL and the GLA continue to expect a comprehensive plan of mitigation to be included for affected residents and businesses in all the London Community Forum Areas. Of particular relevance to the SES2 and AP3, detail is required of the analysis of the impact of the works impacting Euston Road and Hampstead Road Bridge.
- ii) This should also consider the disruption to bus services and vehicular access as well as the impacts of diverted traffic in the area and the additional impacts at the northern end of Park Village East, including residential properties and Park Village Studio, due to the additional need for construction vehicle access from the north and for construction plant to be placed on Park Village East for the reinstatement of Line X. This should also consider the impacts of the relocated taxi facilities during the different construction phases.

1.3.4 Socio-economic:

- i) TfL and the GLA's concerns regarding the limited details about the socio-economic impacts of the project and its impact on the existing and emerging policies/strategies such as the London Plan (Euston Area Plan).
- ii) As per the previous response of TfL and the GLA to the TA & ES, all socio-economic impacts (including those on local businesses including shops and hotels) should be included in the quantified socio-economic assessment of the scheme. We feel that various socio-economic impacts have been omitted from the economic case, particularly construction impacts.

1.3.5 Noise & visual:

- i) Repeating two previous requests, TfL and the GLA expect the ES (and SES2) to aim for the highest practicable noise standards to minimise adverse impacts and ensure an acceptable living and working environment, by identifying a comprehensive programme of mitigation measures fully funded by HS2 Ltd. It is still unclear what standards HS2 Ltd is using to define the Environmental Minimum Requirements (EMR) to be applicable to the scheme.

- ii) Despite all the efforts, over 1,000 residential properties in the area (including Amptill Estate, Regent's Park Estate, Park Village East and in dwellings in the Cobourg Street area) are forecast to experience noise levels higher than the noise insulation trigger level (as defined in the current draft CoCP). TfL expect these properties to be compensated accordingly.

1.3.6 Habitat & Ecology:

- i) It is concerning that the SES2 states that there will be a loss of trees within Euston Square Gardens and St. James's Gardens. HS2 Ltd must demonstrate that the loss of trees is absolutely necessary, particularly if it is to make way for construction sites. Mitigation through replanting and urban greening must also be set out clearly.
- ii) As previously raised, TfL and the GLA are concerned about the assessment applied to potential habitats in area CFA 03 (hedgehog) and require HS2 Ltd to work with Natural England to ensure that a robust assessment (including the methodology of ecology surveys being to Natural England's satisfaction) of the potential impact of the scheme on protected species is undertaken and that, where necessary, appropriate mitigation is provided.

1.3.7 Carbon Emissions:

- i) TfL and the GLA expect HS2 Ltd. to demonstrate clearly the scheme's contribution to the Mayor's objective of a 60% reduction in carbon emissions in London. For example, will HS2 result in reduced numbers of private car trips to/from London?

1.3.8 Cultural Heritage:

- i) Further details are required to understand the likely significant impacts on all heritage assets (around Euston station area) during construction in terms of noise, subsidence, visual intrusion and reduction in property value.
- ii) HS2 Ltd should identify locations which would allow for the re-instatement of the Euston Arch in the station design that would satisfy stakeholders such as the Mayor, the Euston Arch Trust, and heritage and amenity groups.
- iii) It is expected that the relocation of the listed structures in Euston Square Gardens, comprising the LNWR memorial and the railings will be discussed with TfL and LB Camden.
- iv) The demolition of the National Temperance Hospital (founded in 19th century) is regrettable. Therefore every effort should be made to preserve and find new uses for the most significant parts of these historical buildings.

Options whereby their part reuse would be much more sustainable than their destruction and should be explored.

- v) The former Euston London Underground (LU) station building on the corner of Melton Street and Drummond Street is an important heritage asset – having been designed by a well-known architect, Leslie Green, most of whose underground stations are listed and it has recently been included on the LB Camden’s Local list of Historic Buildings. The rating applied to the heritage assets in this area should be reviewed and greater significance placed on those associated to the former LU building. Furthermore the options of disassembly of relevant parts and/or relocating it should be explored.
- vi) During construction, appropriate and sensitive hoardings should be used in historic environments, amongst other areas.

2.0 New issues within the AP3 and SES2 documents

- i) It should be noted that again TfL has had limited opportunity to comment upon drafts of the SES2 documentation prior to their formal deposit in September 2015 and that most of our comments on AP3 Draft Preliminary Designs and related documentation shared in June 2015 were not incorporated with little, if any, justification.
- ii) Additional issues identified within SES2 documents deposited on 16 September 2015 (CFA1, CFA2, and CFA3). These can be summarised by the following list:
 - *Construction impacts on Surface Network:*
 - *Volume of Heavy Goods Vehicle (HGV) traffic*
 - *Operational impacts on Buses, Cyclists and Taxis*
 - *Construction routes*
 - *Impacts on other major surface projects*
 - *Construction impacts on London Underground*
 - *Construction impacts on Network Rail Station*
 - *Design and Operational issues at Euston:*
 - *Lack of east-west permeability*
 - *Improve provision for Buses, Cyclists and Taxis*
 - *Design for growth*
 - *Improve provision of open and green spaces*

- *Interaction with Crossrail 2*
- *Code of Construction Practice*
- *Amenity: Noise, Vibration and Air Quality*

2.1 Longer period of construction and associated impacts

- iii) The revised AP3 scheme includes a subsurface high speed station, with a ground-level concourse. The high speed station is constructed in two stages (as opposed to the single construction stage proposed as part of the original Hybrid Bill scheme). Construction Stage A will allow HS2 Phase One to become operational in 2026. Construction Stage B1 will provide for long-term capacity and HS2 Phase Two services by 2033. Therefore the AP3 indicative construction programme assumes a longer construction period (7 years longer).
- iv) The SES2 reported approximately 3.5m tonnes of overall waste/material will be generated with an over 20% increase in the total volume of excavation and construction material required by the scheme, for which no direct explanation is reported. Furthermore, no detailed information is reported about the proportion of waste/material generated by each of the two delivery stages, and the cumulative impact with the construction of the other London HS2 station in the Old Oak Common Area by 2026.
- v) Providing that the current construction proposals envisage that all the demolition and excavation spoil removed from the Euston site, together with all the material imported to the site will be removed by road, TfL and the GLA are greatly concerned that the AP3 proposals will result in even higher number of HGVs to be used for a longer period of time. As set out the TfL/GLA AP3 petition, the quantity of HGV movements stated within SES2 is unacceptable to TfL and the GLA and must be reduced substantially.
- vi) Rail movements have been largely discounted in the SES2 without a robust justification, despite the transport of excavated material now accounts for 11% of the HS2 scheme's Greenhouse Gas emissions – as reported in the AP2 non-technical summary.

2.2 Construction by road: HGVs movements

- i) According to the AP3's estimate the proposed construction methodology is expected to generate over 400,000 total lorry movements, which equates to an average of nearly 370 additional HGV movements for each working day. The AP3 Transport Assessment (TA) reports the impact as being 800 two-way daily HGV movements per day during busy months (compared to the Hybrid Bill construction proposal, which was seven years shorter and required 740 daily HGV movements during busy months).

- ii) Furthermore, this high number of movements will be concentrated during the 10 operating hours each day, thus implying that there will be considerable peaking and queuing at these peak times, aggravating even further the safety and sustainability of the proposed construction approach
- iii) TfL and the GLA are also concerned that the required number of tipper trucks and drivers to support this plan is far too ambitious considering HS2 Ltd's works in other parts of Greater London and on the route to Birmingham. This poses considerable risk to the delivery of the HS2 project.

2.3 Modelling of highway impacts of construction traffic and assessment of cumulative impacts

- i) TfL and the GLA are concerned about the lack of a comprehensive analysis of the impacts of the different interventions planned on the highway network. Traffic and transport impacts will arise from a wide range of construction activities (removal of excavated material, delivery of construction materials, utility works, working activity, disruption to rail services; diversions and road closures (both temporary and permanent); and construction activities and diversions from adjacent CFAs.
- ii) The AP3 TA relies primarily on SCOOT (an adaptive system that responds automatically to fluctuations in traffic flow through the use of on-street detectors embedded in the road) to resolve problematic junctions, with no mention of mitigation measures for critical junctions that are impacted. This approach is not sufficient given the key role of Euston Road as east-west highway corridor for London.
- iii) Furthermore, with a range of worksites across London, TfL and the GLA are concerned that HS2 Ltd. has not identified the cumulative impacts of the construction traffic servicing these on London's road network. Additional strategic modelling is required to understand these impacts and develop the necessary mitigations to ensure London's highway network continues to function during the scheme's construction.
- iv) This will be of particular relevance for the A40 including junctions and adjoining roads. No assessment has been included in either AP2 or AP3 documentation.

2.4 Minimisation of construction impacts for other road users

- i) Overall, TfL would seek to have discussions to ensure that the existing Highways & Streetworks legislation and in particular the Traffic Management Act 2004 to be followed thus reassuring that all the activities on the road network, and in particular in the Inner Ring Road, can be managed to minimise disruption to all road users.

2.4.1 Minimise impacts on Buses – TfL and the GLA are concerned that

- i) The current construction programme assumes that bus services will continue to operate adjacent to Euston Gardens (with large parts of the Gardens being used as a construction compound for 16 years and with demolition works nearby). HS2 Ltd must assess how bus passengers will access bus services during construction and determine the necessary mitigation measures for how this will happen safely
- ii) HGVs will have a shared access to the operating bus station, with safety issues and high risks of delays to passengers' journeys;
- iii) No adequate assessment on pedestrian journey times and safety has been carried out to provide assurance of the feasibility of such plans.

2.4.2 Minimise impacts on Cyclists – TfL and the GLA are first and foremost concerned about the additional risks put on vulnerable road users due to the high number of HGVs expected for the construction of the scheme. Only in 2014, HGVs accounted for four per cent of all traffic but 55 per cent of cyclist deaths and 12 per cent of pedestrian deaths. Furthermore, it is a concern that:

- i) the strategic traffic modelling carried out does not take account of the Cycle Superhighway (CS) 11¹ proposals to restrict access to the Outer Circle or motor vehicles during peak hours. HS2 Limited's modelling shows traffic reassigning onto the Outer Circle as an alternative route, which will not be possible if CS11 goes ahead as peak hour access restrictions are planned for North Gate, Park Square West, Park Square East and York Gate;
- ii) the location of the proposed HGV holding area on Park Crescent East is an inappropriate and potentially highly dangerous proposal as this road forms part of CS11 and high volumes of cyclists are expected to use this road once CS11 has been built in 2016;
- iii) the location of the proposed HGV holding area in the Gloucester Gate/London Zoo car park would only be acceptable in safety terms if HGV access to this car park were limited to access from Prince Albert Road, with access from the Outer Circle being prohibited. The Outer Circle will become part of CS11 and the large volume of cyclists

¹ The Cycle Superhighways (CS) programme is a key element within the £0.9bn cycling portfolio to deliver the 'Mayor's Vision for Cycling in London', which seeks to double cycling over the next 10 years and transform London's streets and spaces to places where cyclists feel they belong and are safe. CS11 will cover the Brent Cross to the West End route via Regents Park's outer circle, Finchley Road and the Swiss Cottage gyratory.

already using this route is expected to increase when CS11 is complete.

2.4.3 Minimise impacts on Taxis – TfL and the GLA are concerned that provision for taxi pick-up and drop-off during the 2023-2026 construction phase is inadequate, being limited to a facility on Eversholt Street and it is too far from the locations where passengers will require the service, have insufficient capacity and will require passengers to traverse numerous construction sites.

2.4.4 Minimise impacts on local residential routes

- i) The use of a larger number of local roads by construction traffic reported in the SES2 is of particular concern to TfL and the GLA since those roads are not designed to accommodate the proposed volume and frequency of HGV traffic (e.g. Robert Street, Arlington Road and Harrington Road);
- ii) The increased traffic flow will result in increased pedestrian severance at Albany Street, Park Road and Parkway, which will make it more difficult for pedestrians to cross the road, including the pupils of nearby Primary Schools, which exacerbate concerns about pedestrian safety and parental concerns about children crossing trafficked roads.
- iii) Furthermore, pupils living near to construction routes would be more adversely impacted by the construction noises and have their concentration and ability to learn reduced.
- iv) Finally, there are concerns about the isolation effects for residents of Park Village East, as the construction plans will require the temporary phased closure of vehicular access to properties between numbers 16 and 36 Park Village East, during which residents will only be able to access the affected properties on foot. The restrictions are planned for a period of up to 12 months. This will impact heavily on older residents and people with disabilities who may be more likely to rely on private cars for transport and are less able to access local services and amenities on foot.

2.5 Mitigations for amenity, noise and air quality impacts

2.5.1 Habitat:

- i) Further surveys of potential habitats for species including bats hedgehog have to be undertaken in a number of areas including CFA 1-3.
- ii) To cater for an increasing HGV fleet, AP3 has had to increase the size of the Lorry Holding Area at the London Zoo car park to 0.8 hectares.

The Zoological Society of London (ZSL), which runs London Zoo, has issued concerns over HS2 plans for their car park. The area is understood to be home to a 'hot spot' of hedgehogs, which has become a protected species as numbers decline across the UK. No assessment on the impact on the hedgehog colony has been reported.

2.5.2 Air Quality:

- i) The GLA is concerned about the impacts on local and London-wide air quality as a result of the increased HGV activity and TfL has also concerns about the more localised impact of this in the Camden area. HS2 Ltd. should implement an air quality management plan throughout the construction of the scheme, including undertaking ongoing monitoring in badly affected areas. This plan should be in conformity with the requirements in the Mayor's Control of Dust and Emissions from Construction and Demolition Supplementary Planning Guidance, which sets out best practice that all construction sites in London should follow.
- ii) Furthermore, no information is provided in the Environmental Statements as to how the impact of the construction phase will be mitigated aside from reducing dust emissions and that no air quality management plan is proposed.
- iii) Finally, it is recommended that a DfT WebTAG assessment or similar modelling exercise is undertaken to identify the number of sensitive receptors that experience either an improvement or a worsening in Air Quality. This would help develop additional countermeasures to mitigate both the impact of road traffic as well as the effect of pollutant concentration during construction on residents.
- iv) TfL and the GLA expect that the scheme will adhere to the best practice standards implemented in other major infrastructure projects in London. This will include a commitment to:
 - a. reduce vehicle emissions through the use of zero / ultra-low emission (ULEZ) vehicles;
 - b. monitor air quality emissions before and during the construction period;
 - c. sign up to industry wide HGV safety standards and to update these throughout the life of the project;
 - d. provide a dedicated 'schools liaison officer' to liaise with London schools affected by HS2 construction traffic;
 - e. all HS2 sites within Greater London will comply with the stricter requirements of Non-Road Mobile Machinery Low Emission Zone

applied to the Central Active Zone which came into force in September 2015;

- f. comply to the CLOCS standard and to achieve the FORS Silver Standard, as a minimum; and
- g. comply to the enhanced Safer Lorry Scheme, which came into force in September and a commitment to require the highest HGV Vision Standards in the HS2 construction contracts.

2.6 Mitigation of construction impacts on London Underground

- i) The construction proposals contained in the SES2 provide no information about the measures identified to guarantee a safe and reliability operation of the Euston London Underground (LU) station during construction.
- ii) AP3 construction plans provided no detailed information identifying which areas of the LU station would be available for passengers during the different construction stages (e.g. the existing spiral staircase is to be demolished in order to introduce step-free access to the Victoria and Northern Bank branch line, but it is not clear exactly when). TfL requires this information to ensure the operable infrastructure is compliant with fire regulations.
- iii) Additionally, the proposed construction plans should take into account other planned interventions and operational changes already planned by TfL (e.g. operation of Night tube services, Bank blockade impact on the Northern Line).
- iv) Finally, for LU services to function, the new LU substation (containing tunnel vent, draught relief and cooling systems) will need to be operational before the existing substation is decommissioned and the site demolished. In the proposed construction plans this is not listed as in the critical path.

2.7 Mitigation of construction impacts on Rail&Underground

- i) TfL and the GLA are concerned that the AP3 documentation makes no statement on the impact of the construction works the operational capacity of London Overground, notwithstanding the fact that the number of platforms at Euston will be reduced during the construction phase.
- ii) Furthermore, it fails to assess the impact of the extended proposed closures of Euston Station at weekends and bank holidays on TfL services. To guarantee National Rail (NR) services into London, some LU stations (Queen's Park, Wembley Central and Harrow & Wealdstone) are intended to serve as temporary termini for the existing Virgin Train and London Midland services. TfL and the GLA are concerned that the impacts at each

station and on the local TfL services have not been adequately assessed and require further evidence of such assessment.

2.8 Necessity to consider alternative means of construction

- i) Given all the considerations described above, there appears to be a general lack of consideration of alternative options or mitigations to address the significant increase in HGV movements and associated impacts. Besides, it appears contradictory that a railway project shows no commitment to transport materials or spoil by rail.
- ii) Based on TfL's experience of delivering the Crossrail project at a number of worksites across London (with the benefit of moving materials and spoil by rail, water and haul road), there are concerns about the deliverability of HS2's traffic proposals and the impact of the proposed volume of HGV movements on the resilience of both London's highway network and HS2 Ltd.'s construction programme.
- iii) To alleviate this, TfL and the GLA consider that HS2 Ltd. should commit to transfer a proportion of materials and waste off public roads and onto rail (avoiding heavily utilised routes that are likely to have an adverse impact on other services, including but not limited to Crossrail and London Overground). Similar commitments have been provided by other recent, large infrastructure projects in London, including the Northern Line Extension and the Thames Tideway Tunnel. Crossrail has transported 80% of its excavated material (on a tonne per kilometre basis) by more sustainable rail and water modes.
- iv) HS2 should produce a *Sustainable Construction Transportation Plan* and commit to maximising use of sustainable means for the conveyance of all materials/waste. Details on the TfL proposed use of railhead for construction reported in section 3.1.

2.9 Required design improvements to the proposed scheme

- i) AP3 proposed interventions provides a once in a lifetime opportunity to revolutionise not just the existing NR station but the whole area. However the proposed design fails to support the EAP's vision to unlock the full regeneration and cross-site permeability of the area.
- ii) The EAP was adopted in January 2015 and takes forward the Mayor's objectives and aspirations for delivering a comprehensive transport and development framework for the Euston area, building on the London Plan 2011 and other strategic policy documents which identify Euston as an Opportunity Area with the potential for 14,000 jobs and 3,000 homes. The Mayor's 2020 Vision also flags up the potential of Euston-King's Cross-St. Pancras as the UK's largest mega rail hub, creating an area with the potential to contribute significantly to London's growth.
- iii) Among the detailed AP3 design aspects to improve there are:

2.9.1 Improvement to Pedestrian and Cyclist East-West Permeability

- i) TfL and the GLA are concerned about the lack of infrastructure solutions to improve the east-west permeability of the Euston Station complex (both HS2 and classic stations).
- ii) The EAP envisages the creation of new east-west and north-south pedestrian streets routes across the station and its approach. The current station and approach does not allow this movement through the Euston site, requiring pedestrians and cyclists to travel north or south to Euston Road and Mornington Crescent in order to make this movement. An east-west link overbridge connection at the northern end of the station was included in the original Hybrid Bill scheme but it has been removed in AP3 without any alternative infrastructure. This will leave Euston Road and busy streets further north in Camden Town as the only east-west routes for cyclists and pedestrians in this area;
- iii) AP3 designs will exacerbate these problems further, with the narrow spine building proposed to join the Euston HS2 Terminus with the NR Station providing insufficient open space and walking routes for local residents, visitors and passengers using Euston station easily to connect to areas east and west of Euston station.
- iv) Additionally, the removal of the proposed HS2-HS1 link in the AP3 proposal will determine that HS2 passengers to transfer onto HS1 services at Kings Cross St Pancras station on foot, along a route which has not been provided for;
- v) Finally, the new hub of activity on the western side of Euston Station will remain poorly connected to the major new developments of the Francis Crick Institute and Kings Cross on the east side which will house major multi-national companies such as Google. These hi-tech, science and research organisations are likely to generate considerable demand for the high-speed services in terms of both staff and visitors
- vi) Therefore, TfL and the GLA consider that HS2 Ltd should commit to deliver an east-west pedestrian and cycling bridge along the northern end of the NR station and across the existing tracks as part of the stage A works. This could be undertaken by rebuilding the existing emergency access bridge at the northern end of the existing NR station;
- vii) The proposed bridge would also considerably reduce the distance between the NR platforms and the consolidated taxi facilities proposed by the Hampstead Road entrance of the new HS2 station, thus increasing the accessibility of the classic station for passengers with reduced mobility or large amount of luggage.

2.9.2 Improvement to cycle parking and routeing provision

- i) The AP3's proposed north-south 'primary cycle route' represents poorer cycle provision than what was in the original Hybrid Bill design, which had provided for improved north-south and east-west cycle connectivity from 2026, removing the need for cyclists to use busier roads in the area., Proposals in AP3 make the north-south cycle route (via Melton Street) available to cyclists from 2033, seven years later than in the Hybrid Bill. HS2 Ltd must ensure that safe north-south cycle routes are available in the Euston area to cyclists between 2026 and 2033 as well during the earlier construction periods
- ii) TfL and the GLA seek a commitment to improve parking and routeing provision for cyclists in line with the Mayor's commitment to increasing cycle numbers and improving cycle safety. To deliver this commitment HS2 must be committed to
 - a) improving the east-west pedestrian and cycle links between Kings Cross and Euston, by delivering the above bridge;
 - b) providing a minimum of 2,000 cycle parking spaces in Phase 1 of the scheme and a minimum of 5,000 cycle parking spaces in phase 2 of the scheme focused at a small number of hubs across the station;
 - c) Ensuring that all cycle routes delivered as part of AP3 attain a minimum score of 70% on the London Cycling Design Standards Cycling Level of Service (LCDS CLoS) framework.

2.9.3 Improvement to open and green spaces provision

- i) Open space is a hugely valued community amenity around Euston. Although the replacement green space proposed in AP3 represents an improvement when compared with the original Hybrid Bill design, the impacts of the Bill and the Additional Provision on green and open space (which include the complete removal of St James' Gardens) remain inadequately mitigated;
- ii) TfL and the GLA seek a commitment to ensure that:
 - a) high quality and accessible replacement green and open space is provided for as part of the in the final HS2 Scheme;
 - b) identify adequate mitigation with the local community for the open space that is lost throughout the HS2 construction works; and
 - c) ensure that the retention of existing trees of value is maximised and that any loss as the result of development should be replaced.

2.9.4 Utilities Masterplan

- i) SES2 does not cover any assessment of the impact of the proposed utility works on road traffic. The scope of the proposed interventions will cause congestion and traffic displacement and will have in some areas a greater impact on pedestrians and cyclists than individual worksites as part of the main works. For example, the diversion of the 42" water main will involve significant works (trenches 3m wide and 3m deep) and impact on a number of roads over a substantial period of time;
- ii) HS2 Ltd should undertake a proper assessment of the highway impacts of utility works and their cumulative impact alongside other construction works and develop appropriate mitigation to minimise any adverse impacts. For example, HS2 Ltd should commit to install, where possible, utility diversions in the footway and not in the carriageway in order to reduce future disruption to the network.
- iii) Furthermore, given the volume of proposed utility diversions and the ability of the diverted utilities to meet future demand requirements, TfL and the GLA seek reassurance that HS2 Ltd include within its design parameters the additional utilities' capacity needed to support the additional development expected around the new station site.
- iv) This approach will reduce future disruption and costs and will expedite the delivery of the new development.

2.10 Synergies with Crossrail 2 (CRL2)

- i) Post HS2 Phase 2 completion, additional capacity will be required to guarantee passengers travel with ease beyond Euston to locations across London and the surrounding region. TfL analysis shows that major new capacity will be required to relieve severe overcrowding and long queues for onward journeys on the LU Victoria and Northern lines southbound from Euston. Hence the HS2 scheme will rely heavily on CRL2 proposals for a new regional rail route linking south west London to north east London and beyond, which will include a station at Euston-St Pancras;
- ii) While CRL2 is not yet a fully committed project, it will have significant benefits for London as a whole but also the Euston-St Pancras area in particular by further enhancing the area's development potential;
- iii) In respect of design, the operability of the proposed CRL2 Euston-St Pancras station would be affected by AP3's failure to deliver adequate east-west connections towards HS1 and Kings Cross St Pancras, resulting in the sub-surface area that would house the CRL2 station becoming the only efficient east-west thoroughfare for HS2/HS1 passengers;

- iv) Additionally a shorter connection between the new HS2 and the CRL2 stations under the existing NR station would provide easy interchange between the three major transport hubs;
- v) In respect of construction, TfL and the GLA are concerned that a missed opportunity to integrate CRL2 requirements in AP3 will result in unnecessary additional land take to build the CRL2 Euston-St Pancras station, leading to additional cost and unnecessary demolition. This will result in an unacceptable loss of homes, businesses and community facilities and further significant disruption to the local area;
- vi) Therefore, TfL and GLA seek HS2 to commit to deliver a set of coordinated designs for the HS2 Euston Terminus to provide adequate passive provision for the CRL2 station, avoid forcing sub-optimal solutions and coordinate construction timelines and worksites between the projects.

2.11 Designing for increased demand: station capacity

- i) The proposed AP3 design for the LU station at Euston/Euston Square represents an improvement compared to that in the Hybrid Bill, but the stations' capacity has been capped at 2041 + 20% demand levels (a figure based on current railway capacity constraints).
- ii) TfL and the GLA are also concerned that HS2 has provided no reassurance that the proposed design will perform under pressure (including service disruptions or when part of the scheme is under maintenance) or if HS2 operational changes are introduced (e.g. the longer term introduction of double deck trains for which the HS2 infrastructure has been designed).
- iii) Furthermore, the 2041 base scenario does not cater for the impacts of the proposed Northern Line Full Separation (2031) or the latest GLA higher employment forecasts. The used trip generation models should be updated to reflect these changes.
- iv) Amongst the proposed demand sensitivities there are CRL2 and the full EAP impacts on the transport network. The EAP demand analysis carried out in the SES2 considers a 'mid-level' scenario of 2,540 homes and 5,150 jobs, representing just one third of the proposed jobs generated by the regeneration of the area. No detailed modelling was delivered to assess the impact of this demand level on the proposed infrastructure.
- v) Finally, It is not clear whether the classic NR station will be able to support projected growth in demand thus undermining one of the key objectives of the HS2 network which is to open up capacity on the classic network to respond to demand (currently suppressed by overcrowding) for commuter services;

- vi) TfL and the GLA seek a commitment to assess that the AP3 designs cater for the redevelopment and regeneration of the area. To deliver this commitment, HS2 must be committed to:
 - a) developing with the support of TfL/NR additional modelling evidence to demonstrate the capacity of the AP3 design proposal (including assessing the impact of Northern Line Full Separation, CRL2, changes in the high speed services and the proposed over-station development within the HS2 development area on the LU and NR station demand);
 - b) applying TfL and NR standard industry practice to design for growth, which require stations to demonstrate capacity for 2041 levels + 30% or any higher level as identified above; and
 - c) agreeing with TfL any design changes or infrastructural safeguarding required to cater for future demand (e.g. Euston Square link and additional vertical capacity from the Victoria line platforms and to/from NR station).

2.12 Impacts of Line X re-instatement

- i) Prior to the release of the AP3 and SES2 documentation, HS2 Ltd added the requirement to reinstate Line X in the station approach, in order to ensure robust operation of classic rail services. Designs for the Line X reinstatement are currently in progress; therefore both the AP3 technical submission and the related SES2 assessment do not reflect this change.
- ii) Notwithstanding the operational reasons for the Line X re-instatement, TfL and the GLA have had no opportunity to comment upon refreshed construction plans and are concerned that the logistic impact of the Line X re-instatement has not been thoroughly assessed. The only currently known likely outcome is that the residents in Park Village East will be more adversely affected.

3.0 Proposed Alternatives

3.1 Need for a comprehensive rebuild of the existing NR station

- i) TfL and GLA are concerned about the compatibility of the AP3 scheme with the future redevelopment of the conventional station, due to the :
 - a. Construction implications for the area - the construction of the Euston HS2 Terminus alone will have a major impact on the surrounding area and community over a phased build which is expected to last 16 years from 2017 to 2033. This build period is seven years longer than the previous proposal contained within the Bill and yet the AP3 includes no improvement to the NR Station. Therefore, by the time the Euston HS2 Terminus is complete, redevelopment to the NR Station will be long overdue meaning that disruption in the area would have to recommence soon after whilst the opportunities to combine construction worksites would be lost.
 - b. Lack of design integration - current AP3's inability to take account of the requirements of the future NR Station, poses a number of significant risks to the future transport planning of the area with a retro-fit and sub-optimal design solutions and the lost possibility of cost reductions more likely to happen.
- ii) Therefore, TfL and GLA are in support of a comprehensive rebuild of the existing Network Rail (NR) station to be constructed in parallel to the HS2 Euston Terminus.
- iii) This is intended to be funded separately and not to follow the NR's normal control period infrastructure investment programmes. No additional delay should be caused to the HS2 programme and to the planned Royal Assent of the Bill (scheduled for December 2016).
- iii) The HS2 project has significant potential to enable high levels of growth not just related to the station, but in the wider area (EAP is envisaging 14,000 jobs and 3,000 homes), and in particular an opportunity to achieve both regeneration objectives in surrounding estates and wider environmental improvements. The delivery of this growth, and in particular over-station development, will be significantly undermined if a comprehensive rebuild is not delivered and opportunities to provide works to support future development and reduce later disruption are lost. Lesson Learnt from nearby King's Cross St Pancras redevelopment should be considered.
- iv) To achieve a fully integrated plan for the area, all the various projects forming the EAP should be taken into account: the HS2 Euston Terminus, the NR Station redevelopment, the proposed Crossrail 2 station and over-station development across both the HS2 Euston Terminus and the NR Station. A single entity and a joint programme integration board (including HS2 Ltd, TfL, GLA, NR and LB Camden) should be established to define the overall requirements, agree on the overall design remits and monitor progress across each project.

3.2 Use of railhead for construction

- i) TfL and the GLA are very disappointed that the SES2 does not contain details of alternative approaches to construction and does not include an outline of the main alternatives studied and the main reasons for the choice made, taking into account the environmental impacts .
- ii) TfL and the GLA are concerned that movement of construction materials and waste by rail has not been a key Euston scheme requirement and has therefore not been incorporated into the design process.
- iii) TfL commissioned an independent study in September 2015 to assess the possibility of converting as much of the construction logistics active as possible to rail, to relieve pressure on the local road network and to produce a more environmentally acceptable construction methodology.
- iv) The study has reviewed the sites available for loading materials to and from rail, quantified loading capacity and indicated the key operational requirements to make the transport of construction and waste materials by rail feasible.
- v) Additional work is required in conjunction with the rail industry and freight operators to refine the details, but the study suggests that there is capability to transport a considerable amount of construction material in/out of Euston by rail.
- vi) Therefore, TfL and the GLA seek a commitment to construct a railhead at Euston as part of the scheme in order to use rail freight to move spoil and construction material, so as to reduce AP3 related Heavy Good Vehicle (HGV) movements by up to 75%.

3.3 Use of prop-less methodology for LU infrastructure

- i) Despite extensive discussions between HS2 Ltd and LU engineers, the construction approach used in AP3 and SES2 related to the opening within the LU tunnels are based on the need for running through of LU services for up to 5 months.
- ii) The operational implications for the Euston area of this approach will be significant and are not acceptable to TfL. TfL and the GLA seek that HS2 formally recognise that the use of a prop-less methodology is an effective alternative construction approach for the LU station works, which will significantly reduce the amount of works carried out within public areas and has recently been used to good effect at Victoria Station.

3.4 Hampstead Road Bridge: design and construction methodology

- i) In the proposed AP3 construction plan, significant work is related to the need to raise the Hampstead Road Bridge by over 4 metres in height. This is

driven by the route-wide height tolerances required to allow HS2 trains to pass under such structures at speed. However, as the trains approach Euston, the speeds will be significantly lower and such a generous tolerance is unlikely to be required.

- ii) TfL and the GLA are concerned that this raised height will cause:
 - a) severance of roads abutting the approach to the bridge which must now be stopped up;
 - b) increased levels of noise for nearby receptors;
 - c) more significant landscape and visual impacts;
 - d) lengthen the construction times; and
 - e) drainage issues;
- iv) TfL and the GLA seek a commitment to revisit the proposed design and construction methodology in order to reduce the height of the bridge by at least 1 metre, and to work with Camden and TfL to reduce further the impact of the bridge on the local area;
- v) Additionally, the overall width of the bridge should be reduced to better reflect the future needs of the road (with 4 vehicular lanes plus segregated cycle lanes, pedestrian walkways and a central median strip. This will reduce the construction impacts, shorten the bridge construction period and have long term community benefits.

4.0 Compensation for Londoners

- i) As per previous submissions, the GLA is concerned that the compensation being provided for Londoners is not satisfactory. These concerns are compounded by the content of AP3 and the ES Addendum, which clarifies that in fact the impacts on London residents as a result of construction, particularly increased HGV movements, will be greater than originally thought. The GLA seeks a commitment from HS2 Ltd. that London residents and businesses blighted by the construction and operation of HS2 will receive treatment that is on a par with other areas.
- ii) The GLA is pleased that HS2 Ltd. has agreed to extend the rural compensation boundary to the tunnel portal at West Ruislip, but this creates a small disparity for those properties that are a similar distance away from the open section of HS2 by distance, but as presented, would not be eligible for compensation. These properties would be impacted by HS2 noise, in particular the 'Tunnel Boom' effect of high speed trains entering and leaving the tunnel portal. The GLA is seeking that HS2 Ltd. extend the rural support zone and home owner payment zones to cover the area within 300m of the West Ruislip tunnel portal. This would include around 200 additional residential properties.

iii) The GLA seeks an enhanced community and business fund with a minimum of £30m dedicated for London to cover public realm improvement works; local transport / infrastructure improvements (i.e. cycling or broadband); and community facility improvements. We are also seeking specific enhanced compensation/mitigation packages for residential and business areas that are particularly hard hit by HS2 construction works. This would cover:

- a) mitigation in relation to access to public transport and essential services;
- b) replacement open space and child play facilities;
- c) additional noise and dust mitigation measures;
- d) financial assistance for local businesses impacted by HS2 works; and
- e) a specific Undertaking relating to mitigation measures for residents.

5.0 Additional Provision Undertakings and other items

It should also be noted that TfL and the GLA have deferred a number of issues raised in their original petition and consultation responses in relation to the Hybrid Bill and previous submissions by HS2 Ltd., pending publication of further additional provisions. However, until this has been completed satisfactorily a number of concerns relating a range of issues including the Code of Construction Practice and Euston remain.

In addition a number of issues previously raised by TfL and the GLA are awaiting resolution through agreement of additional undertakings by HS2 Ltd. These include connectivity between the HS2 and Overground stations at Old Oak Common and greater oversight development provision.

In conclusion, whilst TfL and the GLA's previous response acknowledged good progress having been made in reducing HS2's impact through London since the 2011 consultation, it is unfortunate that subsequent progress has been much more limited. The AP3 proposals include a number of additional issues of concern, which this document outlines changes that could significantly address these concerns.

TfL, the GLA and OPDC are ready and eager to work with HS2 Ltd. on addressing all of these issues as the project develops.

Yours faithfully



Michael Colella
TfL HS2 Interface Lead Sponsor