Park Crescent Lorry Holding Area - Requirements and Optioneering

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1 Executive Summary

1.1.1 Assurances given to Transport for London (TfL) during the House of Commons Select Committee stage of the hybrid Bill included a commitment from the SoS/DfT that HS2 Ltd would be required to engage with TfL and London Borough of Camden (LBC) to carry out a study to assess proposals for reasonable alternatives for the on-street lorry holding facility planned at Park Crescent, in the City of Westminster, and submit the study to the Euston Integrated Programme Board for comment. The assurance offered to TfL (HS2 register of undertakings and assurances, reference no. 1224) was provided in response to concerns raised regarding potential conflicts of an on-street lorry holding area (LHA) at Park Crescent with the route and users of the planned Cycle Superhighway 11.

1.1.2 This report is in line with that assurance. The report summarises the technical material discussed and developed to date through a series of three workshops attended by representatives of HS2, TfL, LBC and the City of Westminster (CoW), and takes account of Euston Integrated Programme Board (EIPB) comments where possible. The report is intended to provide information on potential alternative on-street LHA options and also provide details of the preferred HS2 options and proposed plan going forward.

1.1.3 The construction of the HS2 Euston station and approach will generate a significant number of HGV movements within a heavily urbanised central London location. It is therefore proposed that the use of lorry holding areas is adopted to facilitate the efficient management of construction vehicles travelling to construction sites, thereby reducing the potential impact of construction vehicles upon the existing highway network. The Proposed Scheme, as described in the HS2 (London-West Midlands) Supplementary Environmental Statement 2 and Additional Provision 3 Environmental Statement (SES2 and AP3 ES), includes the implementation of an off-street lorry holding area at the ZSL London Zoo coach and car park. Based on the forecast HGV trip generation, additional capacity for short-stay vehicles is considered to be required and it is therefore proposed that the off-street lorry holding area is to be supported by an additional facility on-street.

1.1.4 HS2 has identified a requirement for up to 10 on-street lorry holding spaces during construction of the Proposed Scheme, particularly during peak periods of excavation between approximately 2019-2024 and 2029-2031.

1.1.5 During the workshops with TfL, LBC and CoW, the rationale for on-street lorry holding areas, and the assumptions which have been applied in order to determine capacity requirements, were discussed. TfL and LBC also identified a number of additional alternatives, which alongside those identified by HS2, have been considered in this report.

1.1.6 A total of 17 potential alternative locations to the baseline Park Crescent option are described from which a shortlist of 7 sites have been selected, following assessment. Subject to further design development, these are considered to represent reasonable alternatives to the initially proposed Park Crescent LHA to the east of the junction of Park Crescent and A4201 Portland Place. The shortlist comprises:

- Park Crescent (eastbound) west of Portland Place;
- Granby Terrace overbridge (on the basis of two-way operation at the junction of Granby Terrace overbridge and A400 Hampstead Road);
- A501 Euston Road (eastbound off-slip);
- A400 Hampstead Road (N&S of Drummond Street);
- Freight Lane;
- A404 Harrow Road; and
- Finchley Road O2 Centre Car Park.

1.1.7 Whilst recognising that any decision rests with the Secretary of State (as detailed in the assurance), it is the conclusion of HS2 that the final decision concerning the provision and location of an of on-street lorry holding area(s) should be determined following the appointment of the main works contractors for Euston Station and approach. The design of the Proposed Scheme to date provides the level of detail necessary for the purposes of the Bill and the requirements of the Environmental Impact Assessment (EIA) Regulations. The level of detailed design necessary to enable the Proposed Scheme to be constructed has yet to be carried out and will not be completed until after the Bill has secured Royal Ascent and contractors are appointed. As such, a number of variables which may have an influence on on-street LHA requirements, and therefore the selection of a preferred option(s), have not yet been confirmed at this stage of the project.

1.1.8 The implementation of on-street Lorry Holding on Park Crescent, or alternative sections of the highway, would require HS2 Ltd to utilise legal powers under Schedule 4, Clause 6 of the Bill. This would require the Nominated Undertaker to consult with the relevant authority (in relation to those sites on roads listed in table 3 of Schedule 4). In relation to any affected roads not listed in Table 3, consent would be required from the relevant authority. As such the Bill provides comfort (in the form of legally binding clauses) regarding an ongoing process of consultation in relation to this issue.

1.1.9 HS2 will engage with the local community about the location of the LHA once detailed design and construction logistic planning has progressed, but prior to any decision being made on the final location of the LHA.

1.1.10 Subject to a decision from the Secretary of State, HS2 proposes the following course of action:

- HS2 will continue to work over the next two years (including during further project development and detailed design/contractor design) to seek ways to mitigate the construction programme impacts, including consideration of the provision and location of supplementary LHA(s) to that included within the hybrid Bill.
- HS2 and DfT will continue to work with TfL, LBC and CoW

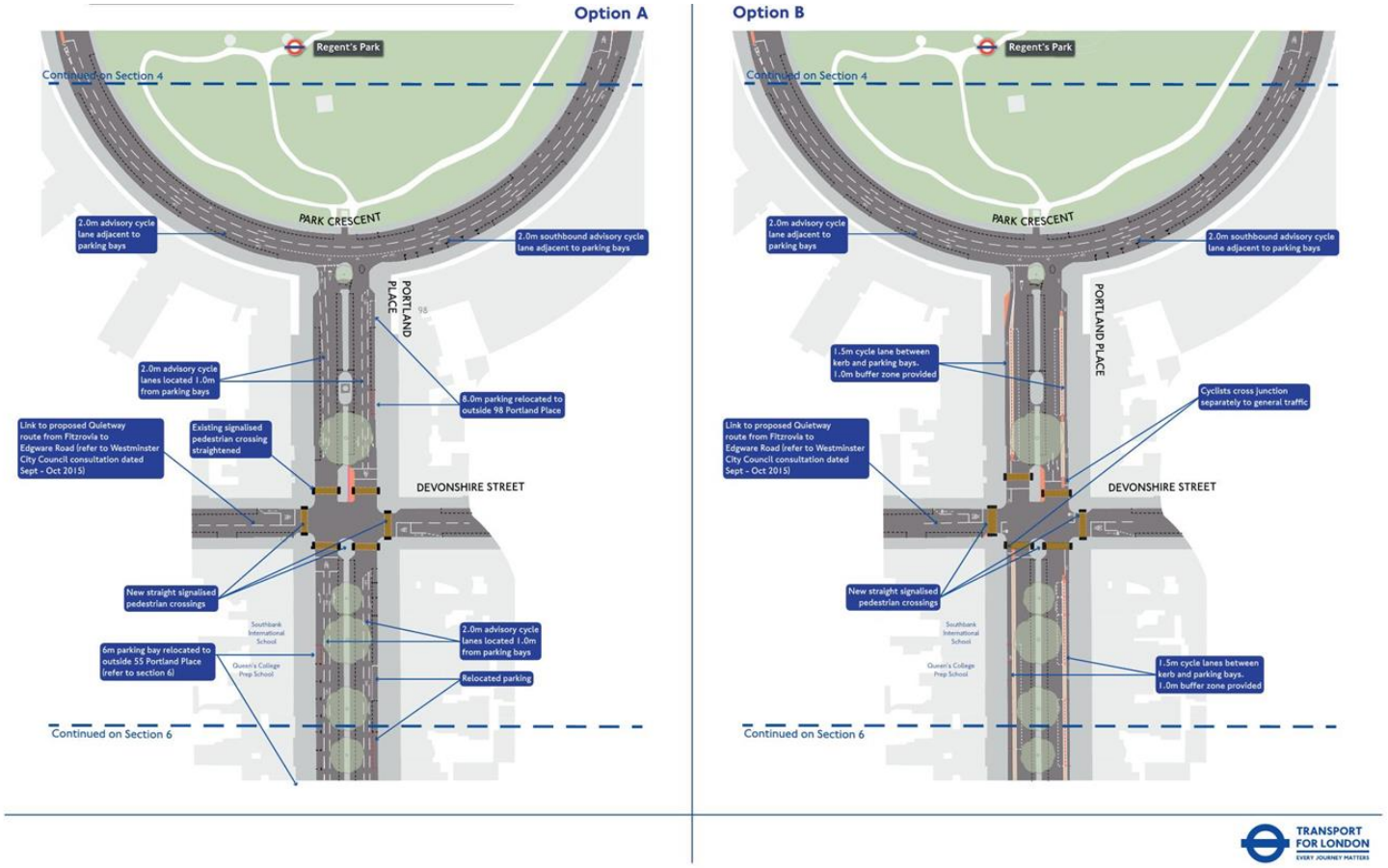
2 Background

2.1.1 The purpose of this technical report is to address the assurance given to Transport for London (TfL) that a study would be undertaken to identify any reasonable alternatives to the proposed Park Crescent Lorry Holding Area (LHA), due to the potential conflict with the proposed TfL Cycle Superhighway (CSH) 11 on Park Crescent. Within the "Assurances Relating to High Speed Rail (London – West Midlands) Bill" letter sent to TfL on 7 December 2015 the assurance relating to Park Crescent states the following:

> *"The Promoter will require the Nominated Undertaker to engage with TfL and the LBC to carry out a study to assess proposals for reasonable alternatives for the lorry holding facility planned at Park Crescent. Upon completion, the study will then be submitted to the Euston Integrated Programme Board (EIPB) for comment. This will be not later than May 2016. The Promoter will require the Nominated Undertaker to use reasonable endeavours to incorporate the comments of the EIPB in the final study"* (Ref paragraph 7.3.1).
>
> *"The final study will then be submitted to the Promoter for his consideration. The promoter will then notify the EIPB of his decision in regards to the implementation of the proposals contained within the study, no later than one month from the date of the study's submission."* (Ref paragraph 7.3.2).

2.1.2 Two options are proposed for the route of the CSH and can be seen in Figure 1. Construction on the proposed CSH 11 is due to start in 2017. The TfL proposals would introduce an advisory cycle lane running from east to west adjacent to the existing parking bays on the south side of Park Crescent.

Figure 1: Proposed CSH route options



2.1.3 This study outlines the LHA requirements for the AP3 Euston Incremental Staging Option design. In addition, the report summarises the specific design elements of the Park Crescent LHA and the optioneering exercise that has identified potential alternative locations for the provision of an on-street LHA. The report details the potential alternative locations that have been identified and notes any constraints or limitations regarding capacity, compatibility with construction programme, distance from site and construction vehicle routeing.

2.1.4 An initial consideration of construction working arrangements proposes an on-street LHA at Park Crescent, in the City of Westminster (CoW), just south of A501 Marylebone Road to the south of Regent's Park.

2.1.5 Whilst the proposed LHA at Park Crescent was not detailed and specifically assessed within the Supplementary Environmental Assessment 2 and Additional Provision Environmental Assessment 3 (SES2 and AP3 ES), it was initially identified by HS2 in order to potentially cater for the forecast number of short-stay spaces considered necessary during the construction period, that cannot be accommodated within the proposed off-street LHA at the London Zoo (ZSL) coach and car parking facility.

2.2 Relevant Consent Mechanisms

2.2.1 The set up and use of a lorry holding area on the public highway, in order to manage construction traffic movements into and out of sites and therefore on the local road network, would require HS2 to utilise powers under Schedule 4, Clause 6 of the High Speed Rail (London-West Midlands) Bill. As this states, for any temporary interference with affected roads listed in Table 3, in Part 4 of Schedule 4, the nominated undertaker would be required to consult with the relevant authority. In relation to any affected roads not listed in Table 3, consent would be required from the relevant authority.

2.2.2 Where powers under Schedule 4 are utilised, the environmental effects associated with the set-up, use of and demobilising of any on-street lorry holding areas during the construction of HS2 will need to be mitigated through the Environmental Minimum Requirements in order to ensure that deemed planning permission under the Bill continues to apply to the HS2 works.

2.2.3 Prior to potential highway possessions, the nominated undertaker may need to alter the traffic management arrangements, and amend parking, waiting and loading restrictions on sections of the highway (for example those not directly affected and occupied by HS2). This will be progressed under the Road Traffic Regulation Act 1984, via a request to the local highway authority for the road.

3 LHA requirements for Euston

3.1 Introduction

3.1.1 The construction planning for the Euston Station and Approach area includes the creation of two LHAs (1 x off-street and 1 x on-street) to efficiently manage construction vehicles travelling to and from site thereby reducing the potential impact of construction vehicles upon the existing highway network. The two proposed locations are:

- London Zoo coach and car park (off-street); and
- Park Crescent (on-street).

3.1.2 An off-street LHA will help provide a time buffer allowing vehicles to be parked close to the site and then brought onto the construction compounds in a managed way without overwhelming site accesses, loading and unloading facilities.

3.1.3 On-street locations also serve this purpose and should be as close as practicably possible to site in order to reduce the potential impact of local traffic conditions on construction vehicle times to site once they are called forward from the LHA. This in turn serves to reduce the number of HGVs on those roads local to the construction sites at any one time. In addition, it seeks to avoid the potential for queuing from construction compound accesses onto local roads and ensures vehicles can be called forward from LHAs 'just in time' as and when the site is ready to receive them. It will also assist in maximising efficiency at the construction compounds so that vehicles only arrive to the construction compound when required and called forward.

3.1.4 Off-street LHAs will generally be used for:

- Tipper lorries (three or four fixed axles) for transporting excavated materials and aggregates; and
- Articulated lorries (multi-axle tractor unit and semi-trailer) for transporting reinforcement bar and all other miscellaneous materials.

3.1.5 Any area chosen to be a designated LHA needs to be in a location where lorries can park safely and securely for periods from two to three minutes up to many hours.

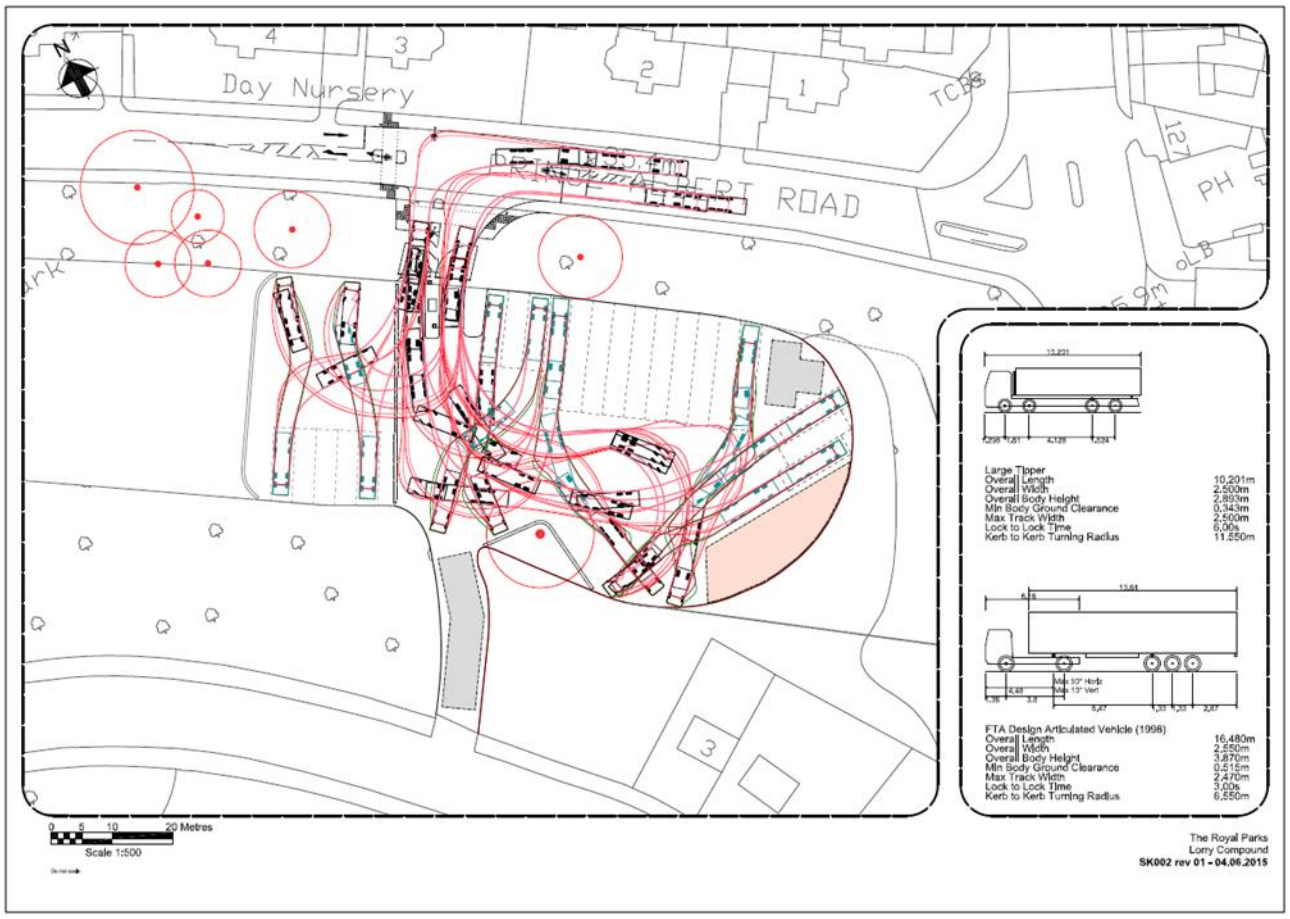
3.1.6 The forecast number of LHA vehicle spaces required is:

- Up to 21 spaces for 'short-stay' tipper vehicles; and
- Up to ten spaces for 'longer-stay' articulated vehicles.

3.1.7 The area identified within the London Zoo coach and car park off-street LHA will provide 11 spaces for tipper vehicles and ten spaces for articulated vehicles. The layout is provided in

Figure 2. The layout of the LHA has been designed to maximise the capacity and efficiency of the operation.

Figure 2: ZSL London Zoo coach and car park LHA layout



3.1.8 To provide the additional required capacity for short-stay vehicles it is likely the off-street lorry holding area will need to be supported by an additional facility on-street. Based on current assumptions, this facility is proposed to be on Park Crescent and provide space for the remaining ten spaces required for tipper lorries to support the works.

3.2 Forecast Demand

3.2.1 The forecast number of daily lorry movements both in and out of the Euston site during the peak construction period is shown below in Table 1. These figures are based on the plans as detailed in the Supplementary Environmental Statement 2 and Additional Provision 3 Environmental Statement (SES2 and AP3 ES). Table 2 shows the data that represents the percentage split by trip type for vehicles to and from the site for a number of selected time slices across the construction period. The number of trips for excavated material has been applied using the percentage split and total daily movements to inform the required amount

of lorry holding for tippers and articulated vehicles. A further illustration of the projected vehicle trips throughout construction is provided in Appendix A. The vehicle trips have been calculated through a detailed analysis of the construction programme and an estimate of the number of vehicles generated by each individual activity. This has been undertaken on a reasonable busiest case scenario and assumes that all materials would be transported by road. Further details on the potential to transport materials by rail are provided in Section 5.

Table 1: Daily lorry movements to and from Euston during peak construction period

	2018	**2019**	**2020**	**Q2 2021**	**Q3 2021**	**Peak 2022 / 2023**	**2024**	**2030**
All Traffic	236	195	203	295	350	362	292	196
HGVs	212	175	183	266	315	325	263	176

Table 2: Percentage trip split by vehicle types

	2018	**2019**	**2020**	**Q2 2021**	**Q3 2021**	**2022/2023**	**2024**	**2030**
Demolition	54%	0%	3%	0%	0%	0%	0%	0%
Excavated Materials	5%	30%	43%	84%	67%	55%	60%	28%
Concrete	8%	49%	36%	8%	26%	33%	14%	25%
Reinforcement bar	1%	1%	1%	1%	1%	1%	1%	1%
Miscellaneous	33%	22%	18%	9%	8%	12%	7%	1%

3.2.2 By applying the percentage split for vehicle types to the forecast daily lorry movements and likely operating hours of the LHAs it is possible to ascertain the level of lorry holding required across the construction programme. Chart 1 shows that the number of LHA bays considered necessary for empty vehicles, travelling to site to transport of excavated material, peaks at 22 spaces in the second quarter of 2021. This chart shows data that assumes vehicle demand is split evenly for both the on-street and off-street facilities. In contrast, Chart 2 shows data that presumes the off-street facility is kept full throughout the programme with the remainder of the vehicles then routed to an on-street LHA. Further explanation of the LHA assumptions and forecast vehicle generation are detailed within the Park Crescent – Lorry Holding Assumptions note in Appendix B.

3.2.3 Although the requirements throughout the construction period are likely to vary, the required number of on-street bays during the peak construction period, for use by excavated material lorries, is considered to be up to ten bays, and demand for lorry holding bays remains during construction from 2020 to 2024. In addition to maximising the use of tipper bays within the

off-street lorry holding, it may also be possible to utilise those bays that are designated for articulated vehicles, when demand is low, for use by tipper lorries.

Chart 1: Required number of excavated material LHA bays

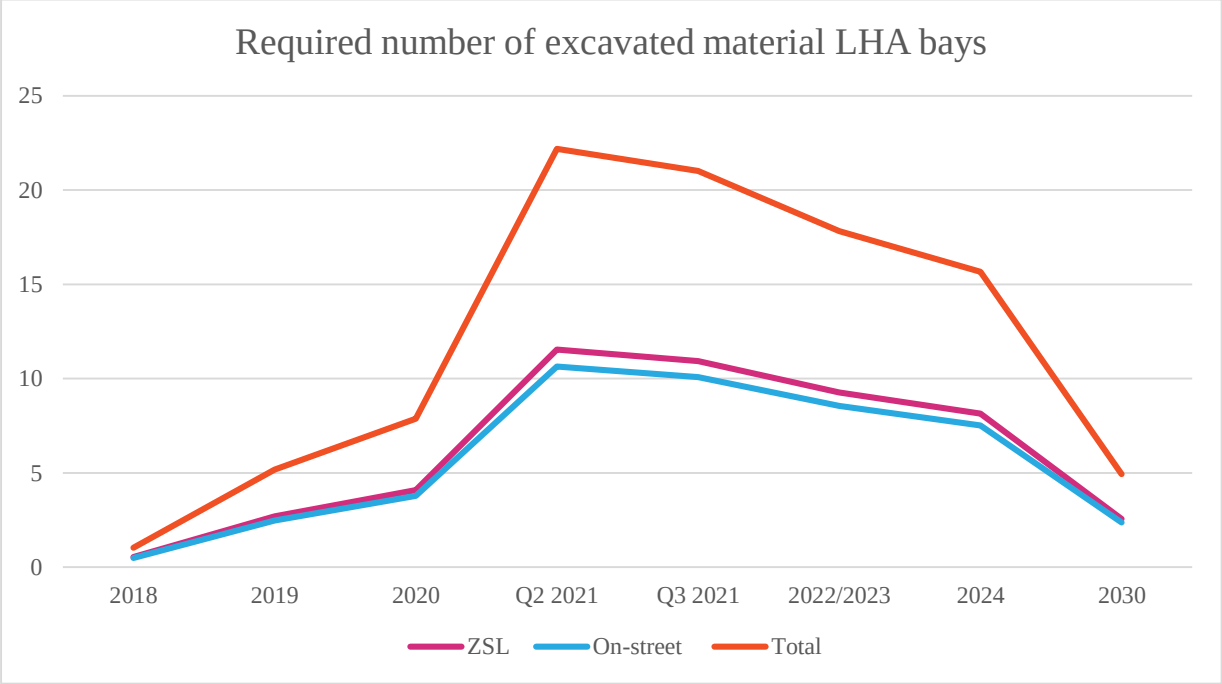
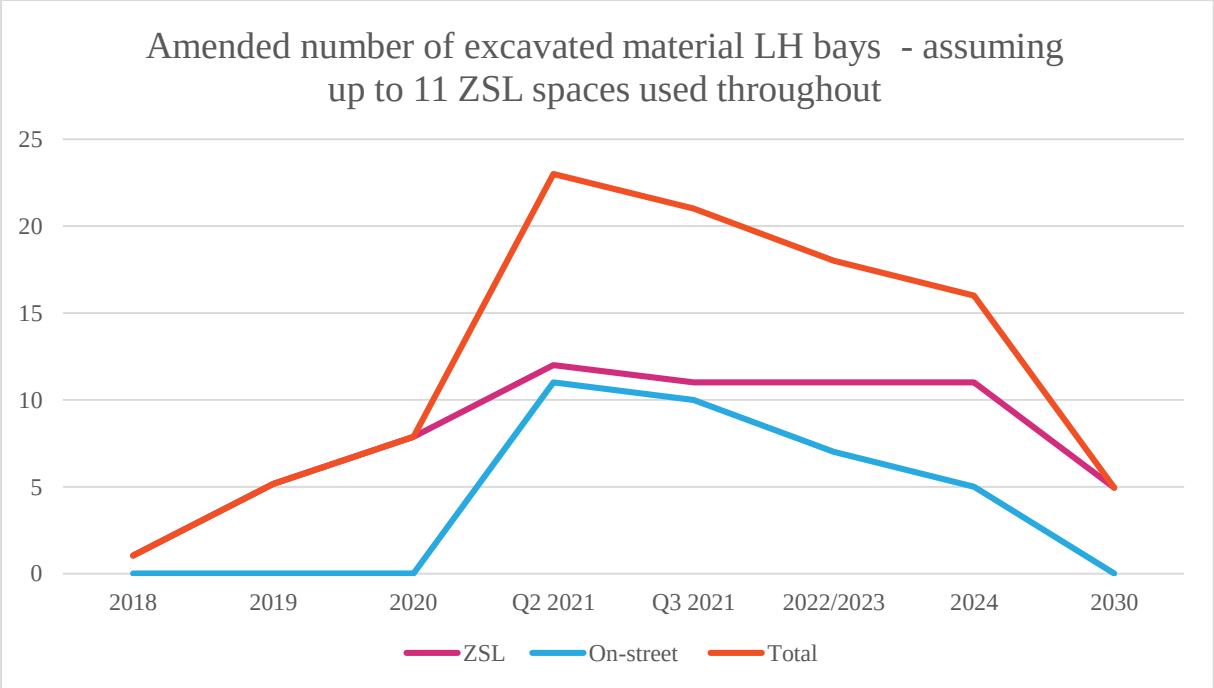


Chart 2: Required number of on-street LHA tipper lorry bays assuming the off-street facility remains full at all times



3.2.4 If the off-street LHA at the ZSL London Zoo coach and car park were to be full at all times throughout the construction programme and the additional on-street capacity reduced to the absolute minimum required for each point in the programme, or if no on-street provision was made at all, then this would remove any contingency provided by having a limited number of LHA spaces as spare capacity outside of the absolute peak period of construction. Any spare capacity in the on-street LHA outside of the absolute peak period of construction would provide some resilience should unforeseen issues arise at the construction compounds, at the off-street LHA or on the highway network.

3.3 Typical on-street LHA characteristics

3.3.1 On-street LHAs will typically require the following:

- Effective street lighting for security and vehicle safety;
- Hoarding (or other measures deemed necessary) between the LHA and footway to prevent pedestrians crossing the LHA facility;
- Marshalling post with electricity supply to include minimal office space, a toilet and waste bins, first aid and fire safety equipment;
- Hoarding (or other measures deemed necessary) between the LHA and the vehicle highway; and
- Signage and wayfinding warning general road users of the location of the LHA and to inform LHA drivers of routes to compounds.

3.3.2 Typically, a width of approximately 3.25m is required to accommodate an LHA on-street (including any hoarding or vehicle protection barriers). This would apply to all options but a narrower LHA could be provided in certain locations, if required. This would be considered at the detailed design stage.

3.4 Park Crescent facility

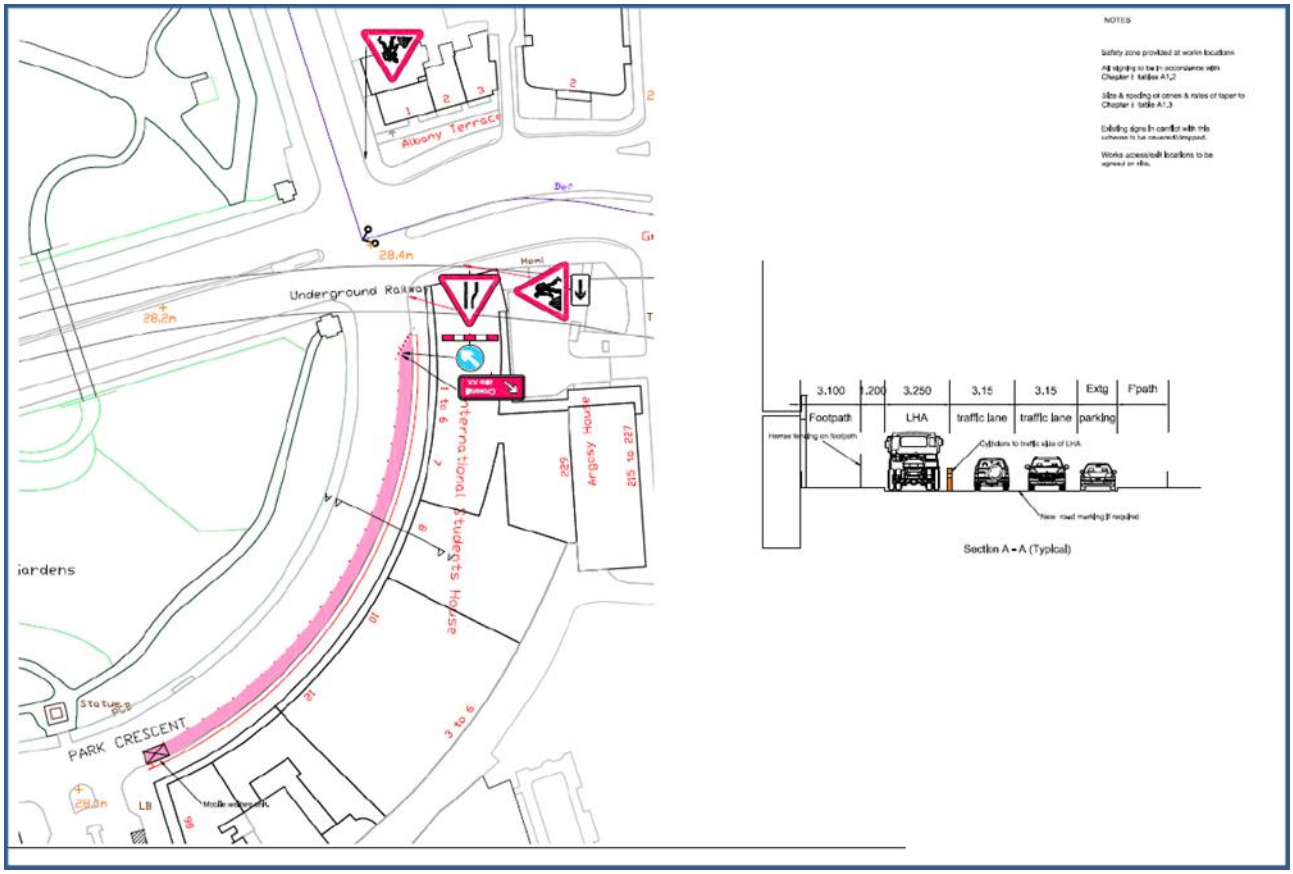
3.4.1 Park Crescent comprises regency terraces facing onto a two way road with on street parking on both sides. Railings separate the open green space area within the Crescent. Street lighting complements the age of the built elements and parking signage is present. Existing traffic movements reduce the overall tranquillity and tend to intermittently block the direct relationship between the open green space and the ground floor and pavement areas in front of the terraces. The area is covered by the Regent's Park Conservation Area and the terraces are Grade I listed (Grade I registered park and garden: Regent's Park).

3.4.2 The proposed Park Crescent facility is a linear stretch of road that could accommodate lorries arriving to be loaded with excavated materials at site. Figure 3 shows the proposed area that can provide up to ten spaces for tipper lorries. This location is likely to be operated between

07:00 and 17:00. The provision of an LHA on this section of Park Crescent would require the removal of approximately two car club parking bays, 14 pay and display parking bays and removal and relocation of one accessible parking bay on the south eastern side of the road.

3.4.3 The LHA is intended to operate from early 2019 to 2024 (construction Stage A excavation) and April 2029 to May 2031 (construction Stage B1 excavation). The Park Crescent facility could provide ten of the 21 spaces considered necessary for tipper lorries. The remainder are provided within the off-street ZSL LHA.

Figure 3: Proposed Park Crescent LHA Option



3.4.4 The Park Crescent LHA, or any alternative location, is assumed to be for the use of vehicles for the transport of excavated material. As such, it is currently envisaged that all construction vehicles that would use the LHA would approach Euston from the north-west via the A41 Finchley Road and A501 Marylebone Road (via A5205 St. John's Wood Road and A5 Edgware Road) and depart via the same route.

3.4.5 It is currently anticipated vehicles would travel to the Granby Terrace overbridge and Carriage Shed and Park Village East ramp satellite compounds or the National Temperance Hospital main compound.

3.4.6 As set out in Section 1, it is proposed that Park Crescent form part of the proposed CSH 11 with construction due to start in 2017. The TfL proposals would introduce an advisory cycle lane running from east to west adjacent to the existing parking bays on the south side of Park Crescent. The provision of the LHA in the configuration shown in Figure 2 would conflict with the CSH, possibly meaning that the advisory cycle lane would need to be suspended while the LHA is provided to ensure that there is adequate space for a general traffic lane.

4 Alternative Locations

4.1 Introduction

4.1.1 Due to the possible conflict between the proposed CSH on Park Crescent and the LHA, a number of potential alternative locations for an LHA have been considered, based on discussions with TfL, London Borough of Camden (LBC) and CoW. Alternative on-highway sites were considered (with the exception of a potential option to the west of the Finchley Road O2 Centre) and are listed as follows:

- Park Crescent (east)
- Park Crescent (west)
- A400 Hampstead Road overbridge (HRB);
- Hampstead Road (west side of road)
- Hampstead Road (east side of road);
- Harrington Square;
- A4201 Albany Street;
- Robert Street;
- Granby Terrace overbridge (GTB);
- A501 Euston Road (eastbound off-slip at junction with A400 Hampstead Road and A400 Tottenham Court Road);
- Acton Street;
- Swinton Street;
- York Way;
- Freight Lane
- Harrow Road (near A40 Westway);

- Finchley 02 Centre Car Park; and
- Hampstead Road (immediately north and south of Drummond Street).

4.1.2 All the options considered, with the exception of those located on Park Crescent, are in locations that are not on the route of any proposed CSHs at the time that this report was written.

4.1.3 The design of the Proposed Scheme to date provides the level of detail necessary for the purposes of the Bill and the requirements of the Environmental Impact Assessment (EIA) Regulations. The level of detailed design necessary to enable the Proposed Scheme to be constructed has yet to be carried out and will not be completed until after the Bill has secured Royal Ascent. As such the final layout of the construction compounds is not yet determined. Currently, there is considered to be potential to provide a small number of lorry holding spaces within the construction sites, however this cannot be confirmed at this stage of the project, but should be considered further as the project progresses.

4.1.4 For the purpose of this study it is assumed that the LHA will be used by four axle, eight-wheeled vehicles that would require 13m of space to allow for the vehicle (approximately 10m) and a buffer zone front and rear (1.5m). The total distance required to accommodate ten tipper lorries is therefore assumed to be 130m. Table 3 shows the alternative locations considered within this study and approximate lorry holding capacity for each.

Table 3: Alternative LHA Locations

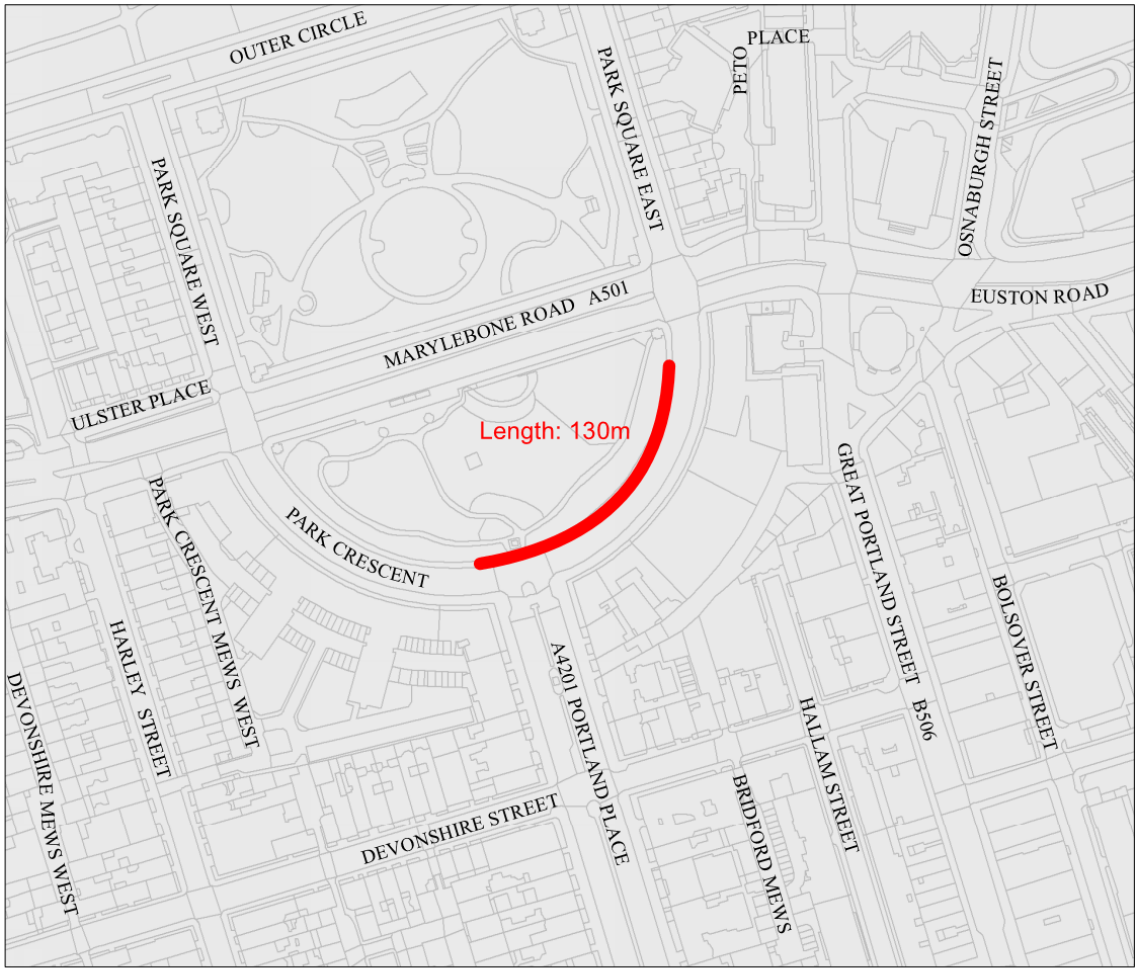
Location	Approximate Number of Spaces	Programme Availability
Park Crescent (East)	10	No anticipated programme implications
Park Crescent (West)	10	No anticipated programme implications
Hampstead Road overbridge	10	Early 2023 Onwards
Hampstead Road (west Side of road)	10	Early 2023 Onwards
Hampstead Road (east Side of road)	4	No anticipated programme implications
Harrington Square	7	No anticipated programme implications
Albany Street	6	Mid 2018 Onwards
Robert Street	4	Mid 2018 Onwards
Granby Terrace overbridge	8	Late 2020 Onwards
Euston Road (eastbound off-slip)	4-5	No anticipated programme implications
Acton Street	10	No anticipated programme implications
Swinton Street	10	No anticipated programme implications

York Way	10	No anticipated programme implications
Freight Lane	6	No anticipated programme implications
Harrow Road (near A40 Westway)	10	No anticipated programme implications
Finchley O2 Centre Car Park	10	No anticipated programme implications
Hampstead Road (immediately north and south of Drummond Street)	10	No anticipated programme implications

4.2 Park Crescent (East)

4.2.1 The TfL CSH 11 proposals include an advisory cycle lane travelling from east to west along Park Crescent. Though the CSH scheme conflicts with the potential to site lorry holding on the southern side of Park Crescent it may be possible to provide lorry holding on the northern side of the road with minimal impact on, or conflict with, the TfL proposals, as no advisory cycle lane is proposed in this direction. Any conflict could be mitigated through the provision of signage (for construction vehicles, drivers and cyclists) and by ensuring that any hoarding is provided such that vehicles departing the LHA can see cyclists coming from behind so that they are not wholly reliant on the banksman. Figure 4 shows the potential LHA eastbound on Park Crescent.

Figure 4: Plan showing the potential eastbound LHA on the east side of Park Crescent



4.2.2 The potential eastbound Park Crescent LHA could provide the necessary approximate capacity of 130m of lorry holding (10 spaces) on the northern side of the road and would be used by lorries arriving from the west using the right-turn facility at the Marylebone Road junction to gain access to Park Crescent. Construction vehicles would then park at the LHA before being called forward to site and would then use the right-turn from Park Crescent onto Marylebone Road to continue their journey to the intended site compound.

4.2.3 At the potential Park Crescent LHA a buffer of 1.5m would separate the LHA and the eastbound general traffic lane and the construction vehicles would be required to merge into the right-turn traffic from the northern most tip of the LHA. Due to the width of the lorry holding, the buffer and the retention of the proposed CSH 11 advisory cycle lane it would require the removal or relocation of parking on both sides of Park Crescent for the length of the LHA. In the north-eastbound direction on Park Crescent, cyclists would share the carriageway with general traffic (i.e. an advisory cycle lane is not provided). On the north side of the road this loss would be approximately ten residents permit holder only spaces, six

motorcycle parking spaces and nine pay and display spaces. On the south side of the road the approximate loss of parking would be two car club bays, 14 pay and display bays and one accessible parking bay. An appraisal of the potential site found that the LHA would not block any accesses to properties or other critical entrances. In addition, access to the footway on the northern side of Park Crescent would be maintained.

4.2.4 In terms of routeing for construction vehicles, the potential eastbound Park Crescent site would allow vehicles to continue their journey to their designated construction compounds without changes to construction routes. Additionally, the close proximity of this location to the main work sites for excavated materials (GTB and National Temperance Hospital) would keep journey time impacts from localised traffic congestion to a minimum. The proximity of the LHA to the junction may cause blocking at this location and therefore would require local management by the contractor.

4.2.5 The presence of large eight wheeled tipper lorries close to residential properties would be visually intrusive. Although car parking is common place on both sides of Park Crescent, this tends to be cars rather than HGVs which, at an approximate height of 3.4m would be double that of a typical car. The presence of the lorries would block views from the terraces and pavement towards the green open space and the presence of additional signage and hoardings would increase street clutter in what is considered to be a sensitive urban setting i.e. an area covered by the Regent's Park Conservation Area with Grade I listed terraces (Grade I registered park and garden: Regent's Park).

4.3 Park Crescent (West)

4.3.1 An LHA on the western side of Park Crescent (travelling eastbound) could reduce the potential impact of having an LHA close to the approach of the Park Crescent junction with Marylebone Road. Figure 5 shows the potential location of an LHA on the west side of Park Crescent.

4.3.2 The western Park Crescent LHA site could provide approximately 130m of lorry holding (10 spaces) on the northern side of the road. Construction vehicles would be expected to turn right from Marylebone Road into Park Crescent to access the LHA. From the LHA vehicles would then be called forward by the holding marshal to continue their journey to site via the right turning facility from Park Crescent onto Marylebone Road. The potential location would not require any changes to the routeing of construction vehicles to the main work sites such as GTB and National Temperance Hospital construction compounds.

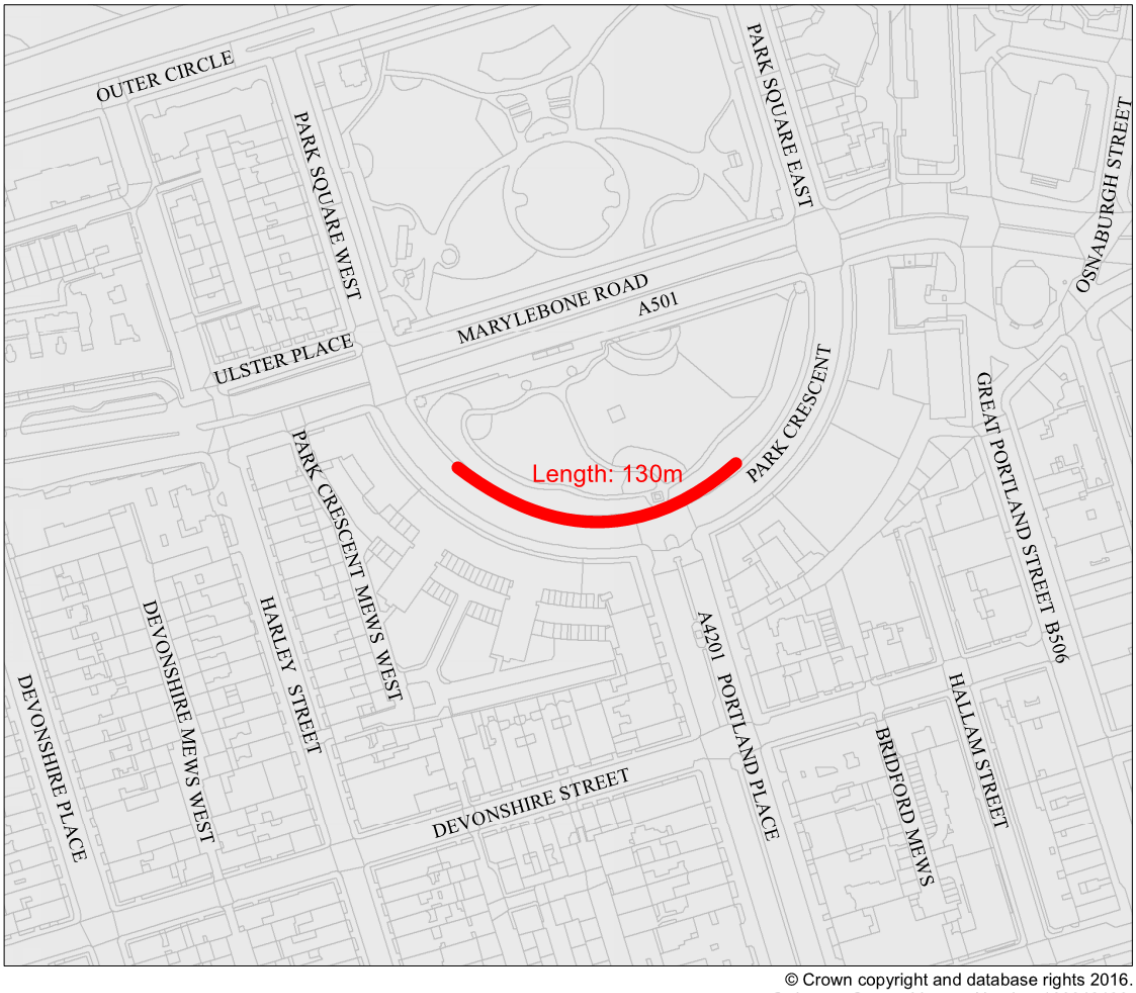
4.3.3 Due to the width of the lorry holding, a buffer between the LHA and the highway and the retention of the proposed CSH 11 advisory cycle lane it would require the removal or relocation of residential parking on both sides of Park Crescent for the length of the LHA. In the north-eastbound direction on Park Crescent, cyclists would share the carriageway with general traffic (i.e. an advisory cycle lane is not provided).

4.3.4 An appraisal of the potential site found that the LHA would not block any accesses to properties or other critical entrances. In addition, access to the footway on the northern side of Park Crescent would be maintained.

4.3.5 The close proximity of this location to the main work sites which generate excavated materials (GTB and National Temperance Hospital construction compounds) would keep journey time impacts from localised traffic congestion to a minimum.

4.3.6 In common with the Park Crescent (east) option, the presence of large eight wheeled tipper lorries close to residential properties would be visually intrusive and the presence of the lorries would block views from the terraces and pavement towards the green open space. The presence of additional signage and hoardings would increase street clutter in what is considered to be a sensitive urban setting.

Figure 5: Plan showing the potential eastbound LHA on the west side of Park Crescent



4.3.7 The Park Crescent West option would need to be considered against the proposals for the development at 16, 18-25 & 26 Park Crescent and 77-81 Portland Place. The proposals will see the demolition and redevelopment of 16-26 Park Crescent and partial demolition of 77-81 Portland Place to provide residential accommodation, with basement car parking and the provision of community uses at ground, lower ground and basement levels. In terms of access for construction vehicles, the Preliminary Construction Traffic Management Plan (CTMP) indicates that access would be taken from Park Crescent but that some vehicles will need to access via Park Crescent Mews but that it would be recommended that vehicles approach the site from the east and follow Park Crescent from the eastern end round to the site. Vehicle would then depart to the west. This approach would minimise the interaction with any potential LHA on Park Crescent West. The Preliminary CTMP indicates that the peak volume of construction vehicles would be 45 movements per day. Construction is anticipated to last three years but it is not known when construction is anticipated to commence.

4.3.8 Upon completion of the development, access to the car park would be provided from Park Crescent Mews.

4.4 Hampstead Road Overbridge

4.4.1 There may be potential to site an LHA on HRB upon completion of the bridge re-construction works. This would require the re-allocation of road space on HRB for the duration of use as an LHA. The design as proposed in the SES2 and AP3 ES included three lanes in each direction, with a bus lane and two general traffic lanes. Siting an LHA on HRB would likely require the removal of a bus lane and cycle lane in either the northbound or southbound direction. This would require both buses and cyclists to use a general traffic lane. As explained in Section 6, a separate assurance and related study to assess lowering the height of the new bridge and the lane allocation on the completed HRB may affect the suitability of this option (refer to Section 6).

4.4.2 It would not be possible to site any LHA on the bridge during its construction as it is being reduced in width to provide one lane in each direction during this time.

4.4.3 There are key benefits of siting LHA spaces on the bridge such as close proximity to two of the main construction compounds (i.e. National Temperance Hospital, Granby Terrace overbridge and Carriage Shed and Park Village East ramp). In terms of the arrival to the Euston area, there would be no change to the vehicle routeing required from that previously assumed (i.e. via A501 Euston/Marylebone Road and A41 Finchley Road). However, more locally, the provision of an LHA on HRB would require all construction vehicles using it to use Harrington Square and A400 Harrington Square (to the south of Harrington Square Gardens) to either turn to travel to the relevant compounds (if the LHA is provided on the northbound carriageway) or to turn to access to LHA (if the LHA is provided on the southbound carriageway).

4.4.4 Construction vehicles using the LHA on HRB that are required to travel from the LHA to any of the construction compounds accessed from A501 Euston Road or A4200 Eversholt Street would result in additional construction vehicle trips through the Camden Town area (for accessing compounds on A4200 Eversholt Street via A400 Camden High Street and returning southwards via Bayham Street, A400 Camden Street and A400 Oakley Square) and on Drummond Street and North Gower Street or A400 Gower Street, Grafton Way and A400 Tottenham Court Road (for accessing compounds from A501 Euston Road due to the banned left turn from A400 Hampstead Road to A501 Euston Road). To avoid requiring additional traffic to use Drummond Street and North Gower Street, the left-turn from Hampstead Road onto A501 Euston Road could be re-introduced in order for vehicles leaving this potential LHA to continue their journey to the compound accessed from A501 Euston Road and/or A4200 Eversholt Street although this would need to be discussed and agreed with TfL. Both options would require the use of Harrington Square and the A400 Hampstead Road as a turning facility.

4.4.5 For the LHA on the western side of the carriageway, it is assumed that no additional tree loss other than that identified in AP3 design would be required. Both options would require the use of Harrington Square and the A400 Hampstead Road as a turning facility. The London Square and related Georgian terraces create a more domestic scale that contrasts with the larger estates and busy thoroughfares in the vicinity. The presence of the stationary lorries along the western carriage way would not substantially change the views as the existing situation accommodates bus stops and a bus lane. In addition, at the point in time that the LHA would be in use, this would include the presence of a busy vehicular thoroughfare and the construction activity associated with HS2 would be visible to the east of HRB.

4.4.6 The LHA on the eastern side of the carriageway, would be slightly less visually intrusive than the location along the western carriageway, as the lorries would be located further away from residential properties.

4.4.7 Figure 6 and Figure 7 show the potential locations for lorry holding on the western and eastern side of HRB respectively.

Figure 6: Plan showing the potential LHA on the western side of HRB (on the northbound carriageway)

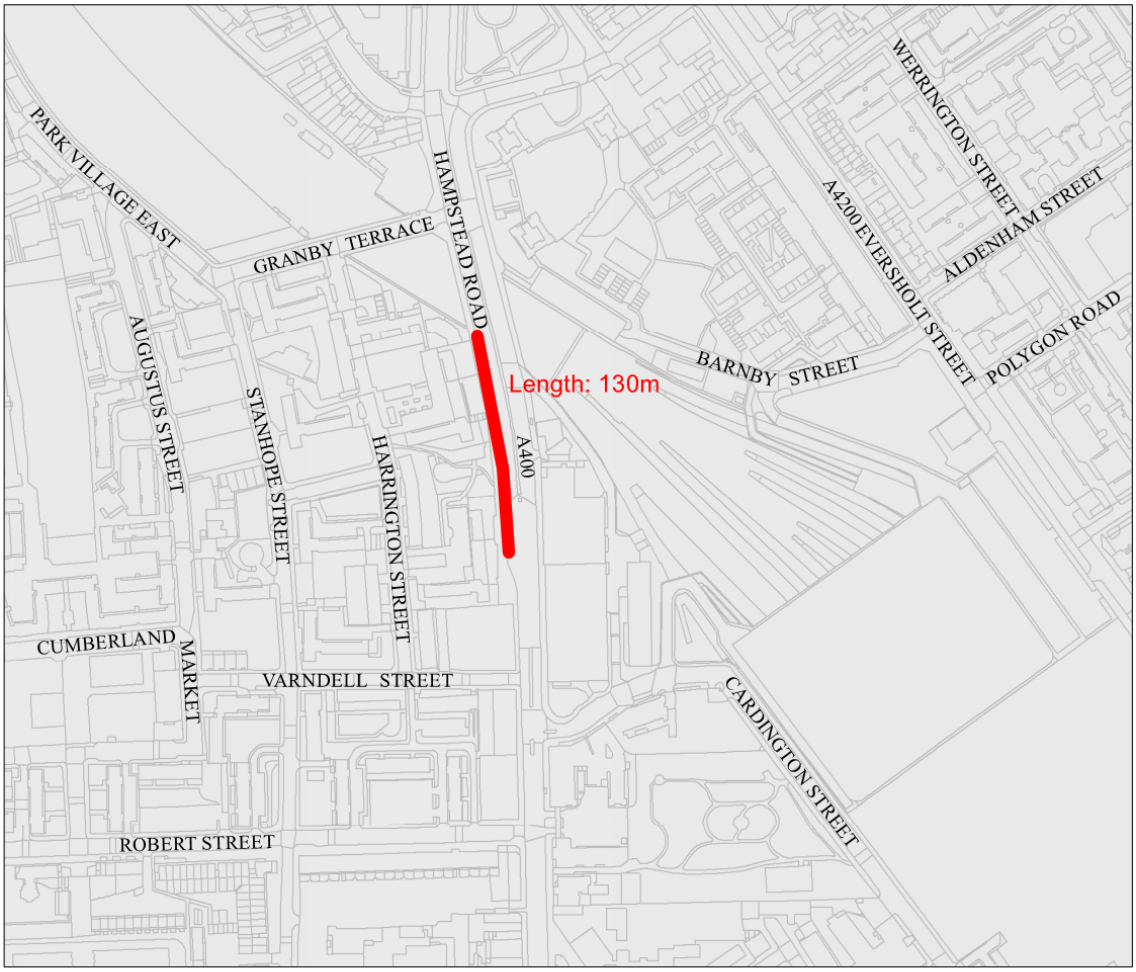
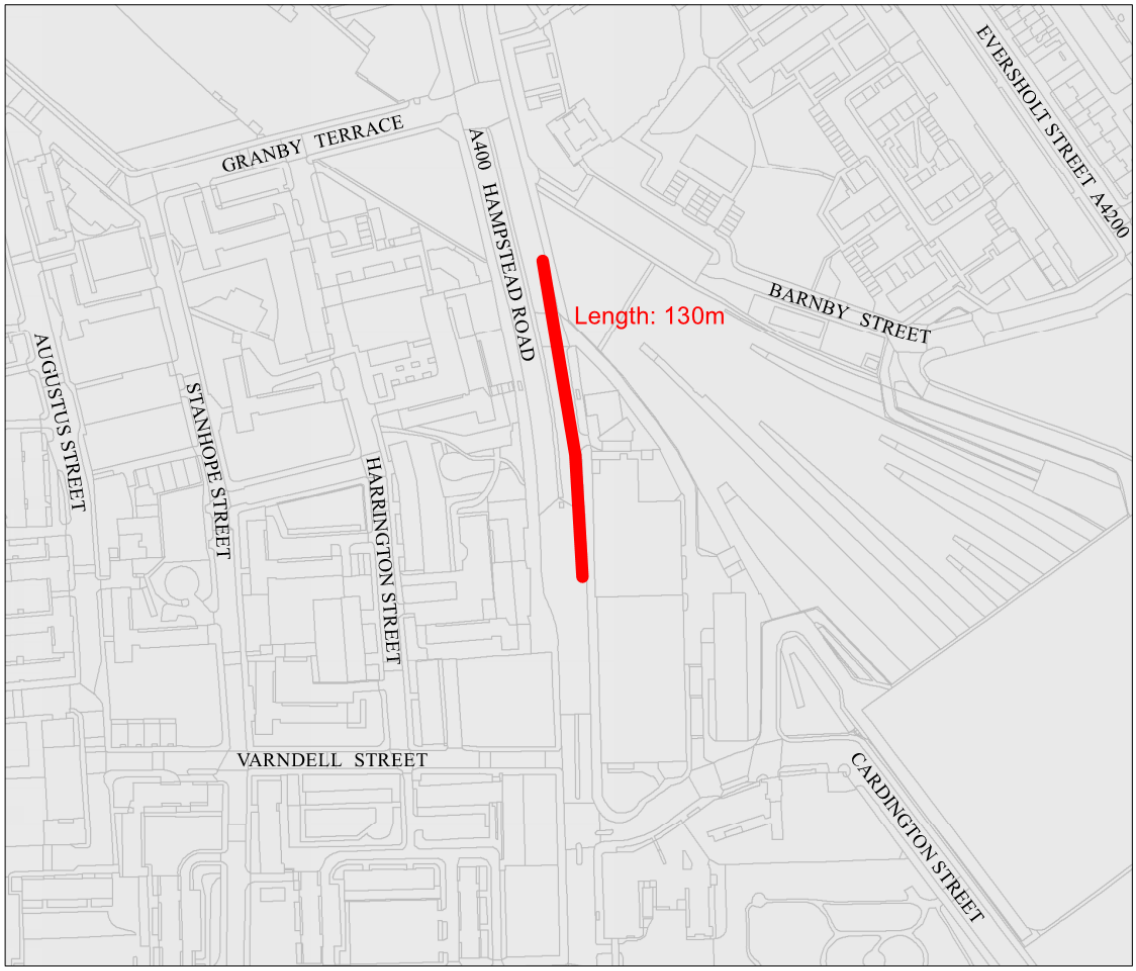


Figure 7: Plan showing the potential LHA on the eastern side of HRB (i.e. on the southbound carriageway)

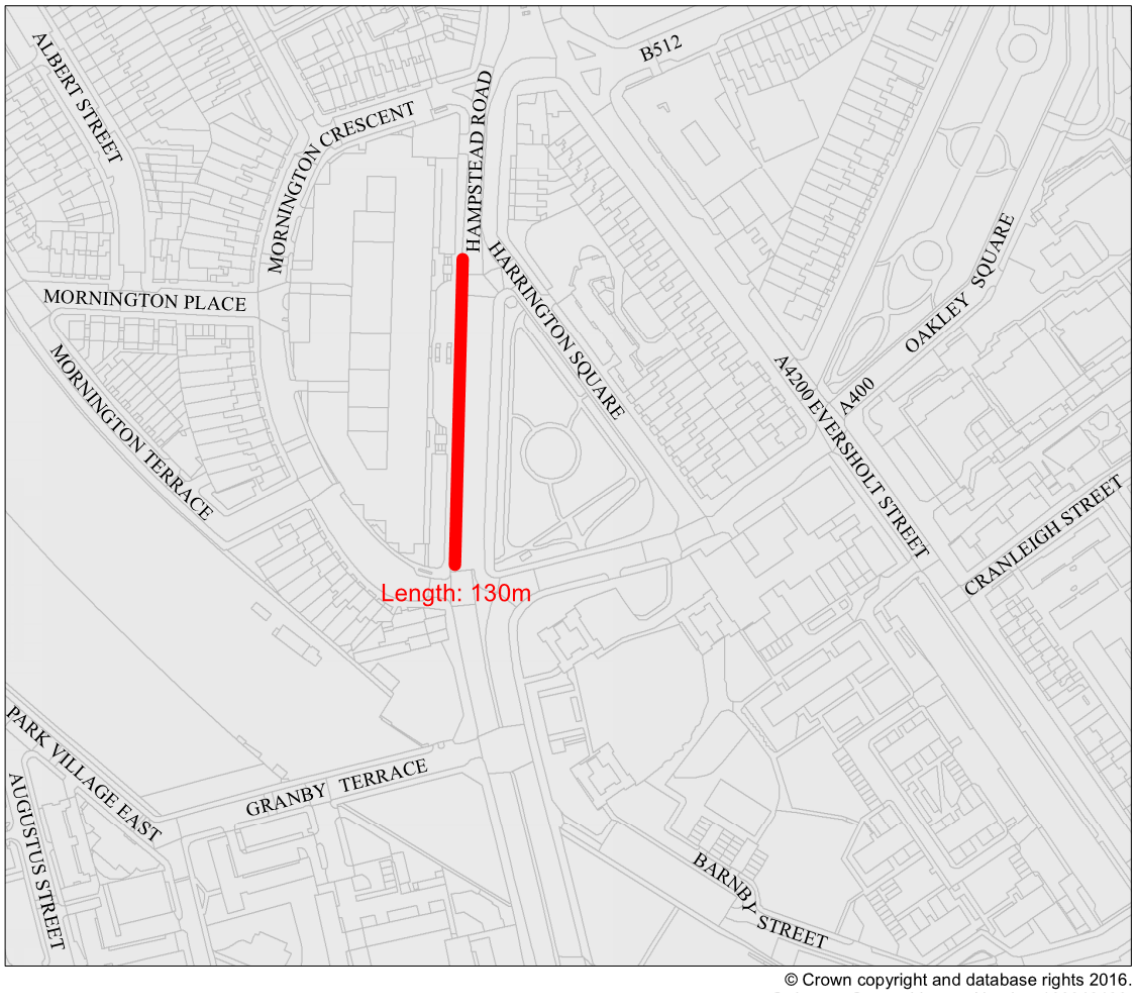


4.4.8 Although the completed HRB could provide sufficient capacity for an LHA (approximately 130 metres) on either the western or eastern side of the road, the use of HRB as a viable LHA alternative to Park Crescent is limited due to construction programme constraints. Construction is due to start on HRB by late 2019 (although utility works may be undertaken in advance of this) with planned completion date for the bridge in early 2023. Therefore, the bridge could only be used for lorry holding from early 2023 onwards. Should the bridge be chosen as a potential area to take forward for further investigation for post 2023 operation it should be noted that an alternative LHA would need to be in operation prior to the use of HRB.

4.5 Hampstead Road north of A400 Harrington Square (west side of road)

4.5.1 Figure 8 shows the section of Hampstead Road that is located immediately to the west of Harrington Square Gardens. This stretch of highway is currently four lanes wide and the width is proposed to be retained as part of the AP3 scheme design. The lane furthest west is a bus lane serving northbound buses towards Mornington Crescent, with two lanes for general traffic use and a lane for car parking and bus standing. It is possible that an LHA could be introduced for a period in place of the northbound bus lane. Figure 8 shows that lorries could be held in the area currently occupied by the bus lane and then return south towards the station using the right-turn from Hampstead Road onto Harrington Square and then continue south towards Robert Street, the National Temperance Hospital (NTH) compound or towards A501 Euston Road.

Figure 8: Plan showing the potential LHA on Hampstead Road north of A400 Harrington Square (west side of the road)



4.5.2 Although, the potential LHA is located within a short distance of the main station works, changes to the routeing of construction traffic when compared with the route to the Park Crescent LHA would be required. In terms of the arrival to the Euston area, there would be no

change to the vehicle routeing required from that previously assumed (i.e. via A501 Euston/Marylebone Road and A41 Finchley Road). However, more locally, the provision of an LHA on Hampstead Road (adjacent to Harrington Square Gardens) would require all construction vehicles utilising it to use Harrington Square and A400 Harrington Square (to the south of Harrington Square Gardens) to turn to travel to the relevant compounds.

4.5.3 In common with the Hampstead Road Overbridge option, and others which would route construction vehicles to the east of the station approach via Hampstead Road, if construction vehicles using the LHA on Hampstead Road are required to travel from the LHA to any of the construction compounds accessed from A501 Euston Road or A4200 Eversholt Street, this would result in additional construction vehicle trips through the Camden Town area and on Drummond Street and North Gower Street or A400 Gower Street, Grafton Way and A400 Tottenham Court Road. To avoid requiring additional traffic to use Drummond Street and North Gower Street, the left-turn from Hampstead Road onto A501 Euston Road could be re-introduced in order for vehicles leaving this potential LHA to continue their journey to the compound accessed from A501 Euston Road and/or A4200 Eversholt Street, as stated previously this would need to be discussed and agreed with TfL.

4.5.4 An LHA along the western side of Hampstead Road would replace the existing bus lane with large scale vehicles on a busy thoroughfare, and as such would have a limited effect on the quality of existing views from the residential properties on Harrington Square and users of the open space. The option would require the use of Harrington Square and the A400 Hampstead Road as a turning facility. The London Square and related Georgian terraces creates a more domestic scale that contrasts with the larger estates and busy thoroughfares in the vicinity. The LHA would reduce the appreciation of the Greater London House from Hampstead Road but due to the scale of the building it would still be legible in the wider townscape.

4.5.5 This stretch of road is likely to be able to accommodate the required length necessary for the LHA but the availability would be subject to the construction of HRB. During the construction of HRB, this section of the road would be reduced in width and the available length for an LHA may be compromised as the level of HRB is raised, up to and including the junction with Mornington Crescent. During this period, it is likely that an LHA that could only provide for five vehicles could be provided. Should this option be taken forward for further analysis it should be noted that a separate alternative prior to the completion of the new HRB would be required.

4.5.6 Additionally, the taxi bays (approximately six spaces), disabled parking and loading bays (joint use for approximately four spaces) that are currently provided within the northbound bus lane would be lost and may need to be re-provided elsewhere.

4.5.7 An LHA on A400 Hampstead Road (north of A400 Harrington Square) would see the removal of a bus lane (which only operates from 16:00 to 19:00), it would not however affect any bus

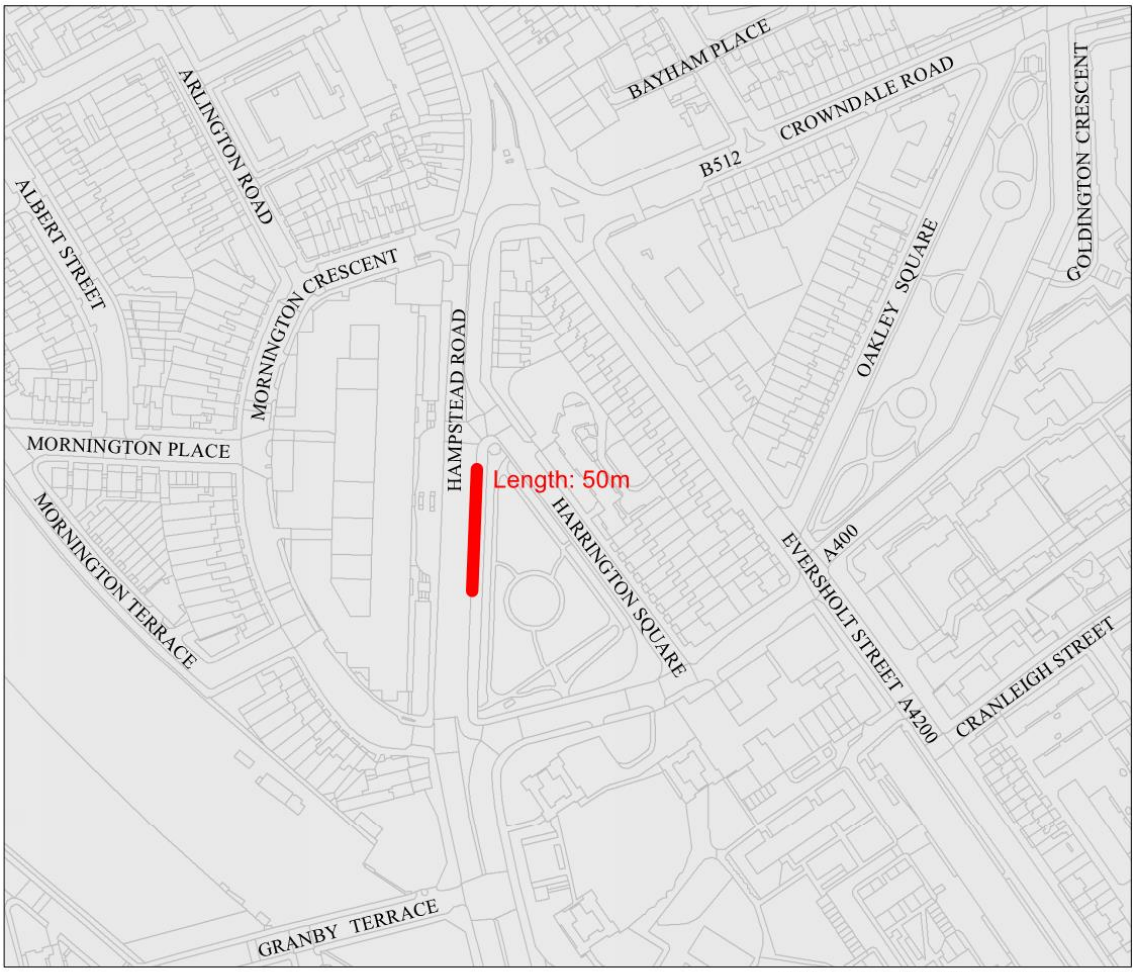
stops. An LHA on A400 Hampstead Road south of A400 Hampstead Road would likely affect bus stops.

4.6 Hampstead Road north of A400 Harrington Square (east side of road)

4.6.1 Figure 9 shows the section of Hampstead Road that is located to the west of Harrington Square Gardens on the eastern side of the carriageway. The potential LHA is approximately 50m which could accommodate around four lorry holding spaces with a further six lorry holding spaces required elsewhere if this location were to be used as an LHA. An LHA along the western side of Harrington Square would replace the existing bus lane with large scale vehicles on a busy thoroughfare and as such would have a limited effect on the quality of existing views from the residential properties on Harrington Square. However, the lorries would be notable elements in the view from the open space.

4.6.2 The option would require the use of Harrington Square and the A400 Hampstead Road as a turning facility. The London Square and related 19th century terraces create a more domestic scale that contrasts with the larger estates and busy thoroughfares in the vicinity.

Figure 9: Plan showing the potential LHA on Hampstead Road (west of Harrington Square Gardens)



4.6.3 Although, the potential LHA is located within a short distance of the main station works, changes to the routeing of construction traffic when compared with the route to the Park Crescent LHA would be required. In terms of the arrival to the Euston area, there would be no change to the vehicle routeing required from that previously assumed (i.e. via A501 Euston/Marylebone Road and A41 Finchley Road). However, more locally, the provision of an LHA on Hampstead Road would require all construction vehicles using it to use Harrington Square and A400 Harrington Square (to the south of Harrington Square Gardens) to turn to travel to the relevant compounds.

4.6.4 In common with the Hampstead Road Overbridge option, and others which would route construction vehicles to the east of the station approach via Hampstead Road, if construction vehicles using the LHA on Hampstead Road are required to travel from the LHA to any of the construction compounds accessed from A501 Euston Road or A4200 Eversholt Street, this would result in additional construction vehicle trips through the Camden Town area and on

Drummond Street and North Gower Street or A400 Gower Street, Grafton Way and A400 Tottenham Court Road. To avoid requiring additional traffic to use Drummond Street and North Gower Street, the left-turn from Hampstead Road onto A501 Euston Road could be re-introduced in order for vehicles leaving this potential LHA to continue their journey to the compound accessed from A501 Euston Road and/or A4200 Eversholt Street although as stated previously this would need to be discussed and agreed with TfL.

4.6.5 It is not anticipated that this potential option would have any anticipated programme implications.

4.7 Harrington Square

4.7.1 Harrington Square is a one-way road from north to south that runs along the east side of Harrington Square Gardens connecting Hampstead Road with A400 Harrington Square (south of Harrington Square Gardens). The road operates as one lane in the southbound direction and is approximately 8m width from kerb to kerb with parking located on the west side. A bus stop serving routes 27 and 88 is also provided on the east side of Harrington Square.

4.7.2 This LHA replacement option proposes to replace the existing parking with lorry holding which would equate to approximately 90m in length or space for seven tipper vehicles. Figure 10 shows the potential location of southbound lorry holding on Harrington Square. The location is close to Euston and therefore offers the benefit of improved timings to the site once vehicles are called forward from the lorry holding area.

4.7.3 For vehicles using this location as lorry holding they would be required to travel northbound along Hampstead Road and join Harrington Square at its northern end. In terms of the arrival to the Euston area, there would be no change to the vehicle routeing required from that previously assumed (i.e. via A501 Euston/Marylebone Road and A41 Finchley Road). However, more locally, the provision of an LHA on Harrington Square would require all construction vehicles using it to use A400 Hampstead Road, Harrington Square and A400 Harrington Square (to the south of Harrington Square Gardens).

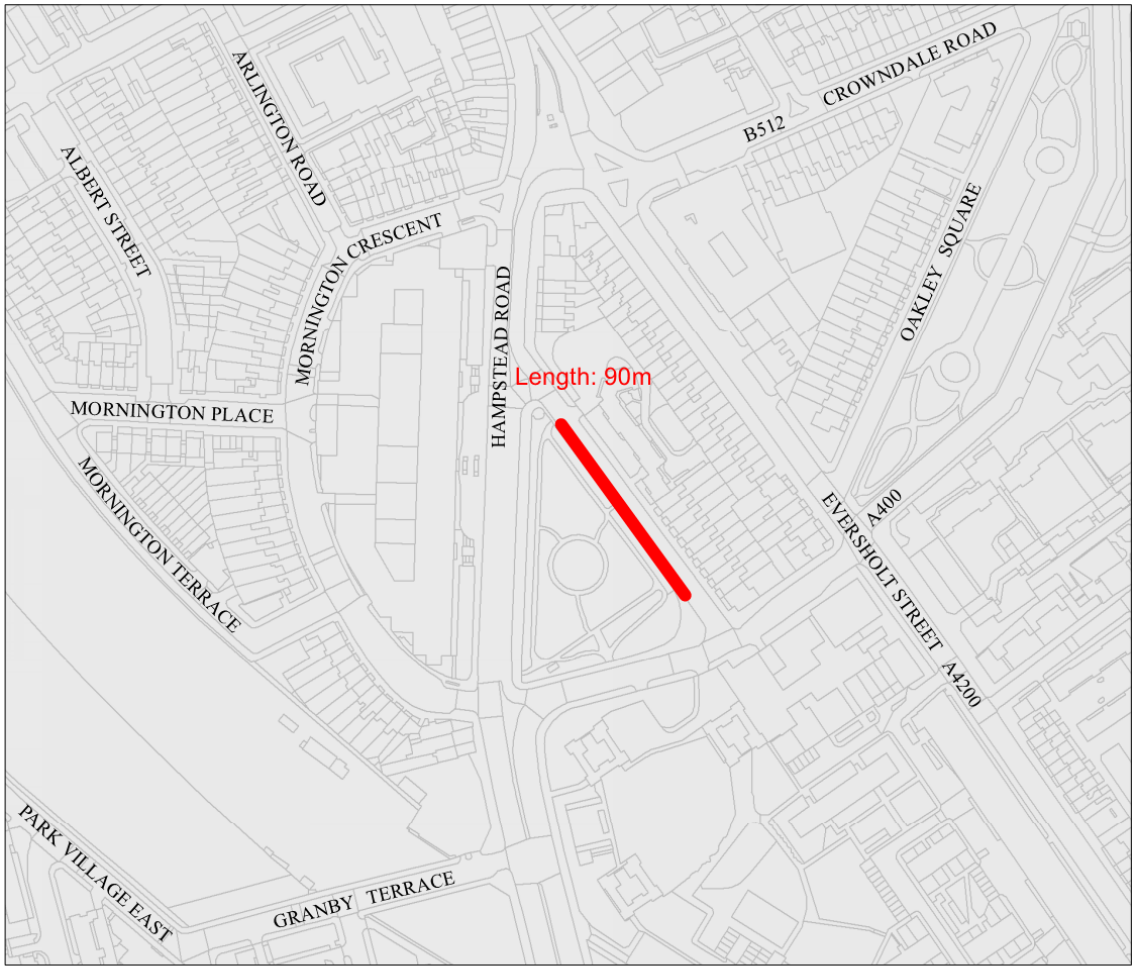
4.7.4 In common with the Hampstead Road Overbridge option, and others which would route construction vehicles to the east of the station approach via Hampstead Road, if construction vehicles using the LHA on Hampstead Road are required to travel from the LHA to any of the construction compounds accessed from A501 Euston Road or A4200 Eversholt Street, this would result in additional construction vehicle trips through the Camden Town area and on Drummond Street and North Gower Street or A400 Gower Street, Grafton Way and A400 Tottenham Court Road. To avoid requiring additional traffic to use Drummond Street and North Gower Street, the left-turn from Hampstead Road onto A501 Euston Road could be re-introduced in order for vehicles leaving this potential LHA to continue their journey to the compound accessed from A501 Euston Road and/or A4200 Eversholt Street although as stated previously this would need to be discussed and agreed with TfL.

4.7.5 The LHA adjacent to the open space of Harrington Gardens would be visually intrusive from the four storey residential properties opposite. Parking of large tipper vehicles at approximately double the height of a typical car adjacent to the square would block the direct line of sight between the 19th century terraces adversely affecting the relationship between the terraces and the park but not immediately adjacent to the residential properties.

4.7.6 The option would require the use of Harrington Square and the A400 Hampstead Road as a turning facility. The London Square and related Georgian terraces create a more domestic scale that contrasts with the larger estates and busy thoroughfares in the vicinity.

4.7.7 Lorry holding at this location would require the removal or relocation of approximately 12 spaces for local residents permit holder parking (CA-F permits), five spaces for motorcycle parking and one car club bay. The southbound bus stop at the northern end of Harrington Square could be retained as part of this proposal.

Figure 10: Plan showing the potential LHA on Harrington Square (east of Harrington Square Gardens)

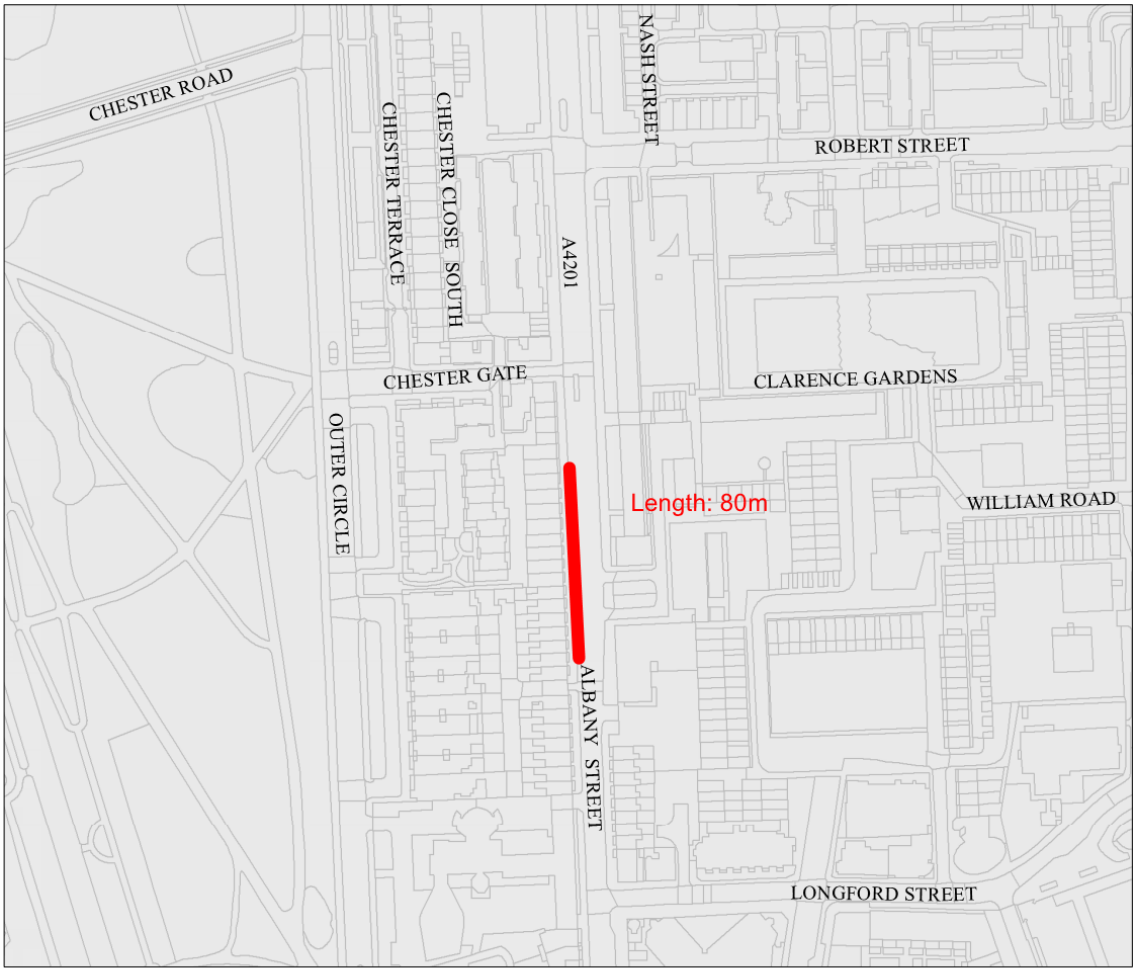


4.8 A4201 Albany Street

4.8.1 A4201 Albany Street runs parallel to the outer circle connecting with A501 Euston Road (to the south) and Gloucester Gate (to the north). The road is identified in the SES2 and AP3 ES as a route for Euston related construction vehicles, particularly those travelling to and from the ZSL coach and car park LHA and compounds to the north-east of the station.

4.8.2 The potential location on A4201 Albany Street where an LHA could be provided is shown in Figure 11. The figure shows that it would be possible to provide an LHA of approximately 80m in length on the west side of the road, equating to six spaces for tipper lorries. The provision of an LHA in this location would require the removal or relocation of approximately ten existing residents permit holder bays and the northbound bus stop P, which is located immediately south of Chester Gate. It may be possible to extend the LHA further north beyond the junction of A4201 Albany Street with Chester Gate but this would require infrastructure works including (but not limited to) the relocation of a central pedestrian island and southbound bus lane to reduce the south movement from two lanes (one bus lane and one general traffic lane) to one general traffic lane.

Figure 11: Plan showing the potential LHA on A4201 Albany Street



4.8.3 The provision of LHA on A4201 Albany Street would result in additional construction traffic being routed along Robert Street to travel to access A400 Hampstead Road as well as the Granby Terrace overbridge and Carriage Shed and Park Village East ramp construction compounds via Stanhope Street.

4.8.4 If construction vehicles using the LHA on HRB are required to travel from the LHA to any of the construction compounds accessed from A501 Euston Road or A4200 Eversholt Street, this would result in additional construction vehicle trips through the Camden Town area (for accessing compounds on A4200 Eversholt Street) and on Drummond Street and North Gower Street or A400 Gower Street, Grafton Way and A400 Tottenham Court Road (for accessing compounds from A501 Euston Road due to the banned left turn from A400 Hampstead Road to A501 Euston Road). To avoid requiring additional traffic to use Drummond Street and North Gower Street, the left-turn from Hampstead Road onto A501 Euston Road could be re-introduced in order for vehicles leaving this potential LHA to continue their journey to the

compounds accessed from A501 Euston Road and/or A4200 Eversholt Street although this would need to be discussed and agreed with TfL.

4.8.5 The location is close to main construction compounds at Euston station and therefore offers the benefit of timely arrivals to the construction compounds site once vehicles are called forward from the LHA. Should this option be taken forward for further consideration, an additional LHA would need to be identified in order to meet the forecast number of spaces required.

4.8.6 Albany Street falls partly within the Regent's Park Conservation Area and has a coherent townscape character with uniformity in building height and scale. The road is already a busy traffic route supporting bus movements. However, the LHA would introduce large scale vehicles immediately adjacent to residential properties and would have an adverse effect on visual amenity and setting of the terraces in the conservation area (some of which are Grade II listed).

4.8.7 A4201 Albany Street will also be subject to utility works during the early stages of the construction programme. The utility works are due to be completed by early to mid-2018 and while they may not affect the entire length of A4201 Albany Street or the section south of Robert Street, it may be necessary to delay the commencement of operation of an LHA on A4201 Albany Street until after the utility works are completed.

4.9 Robert Street

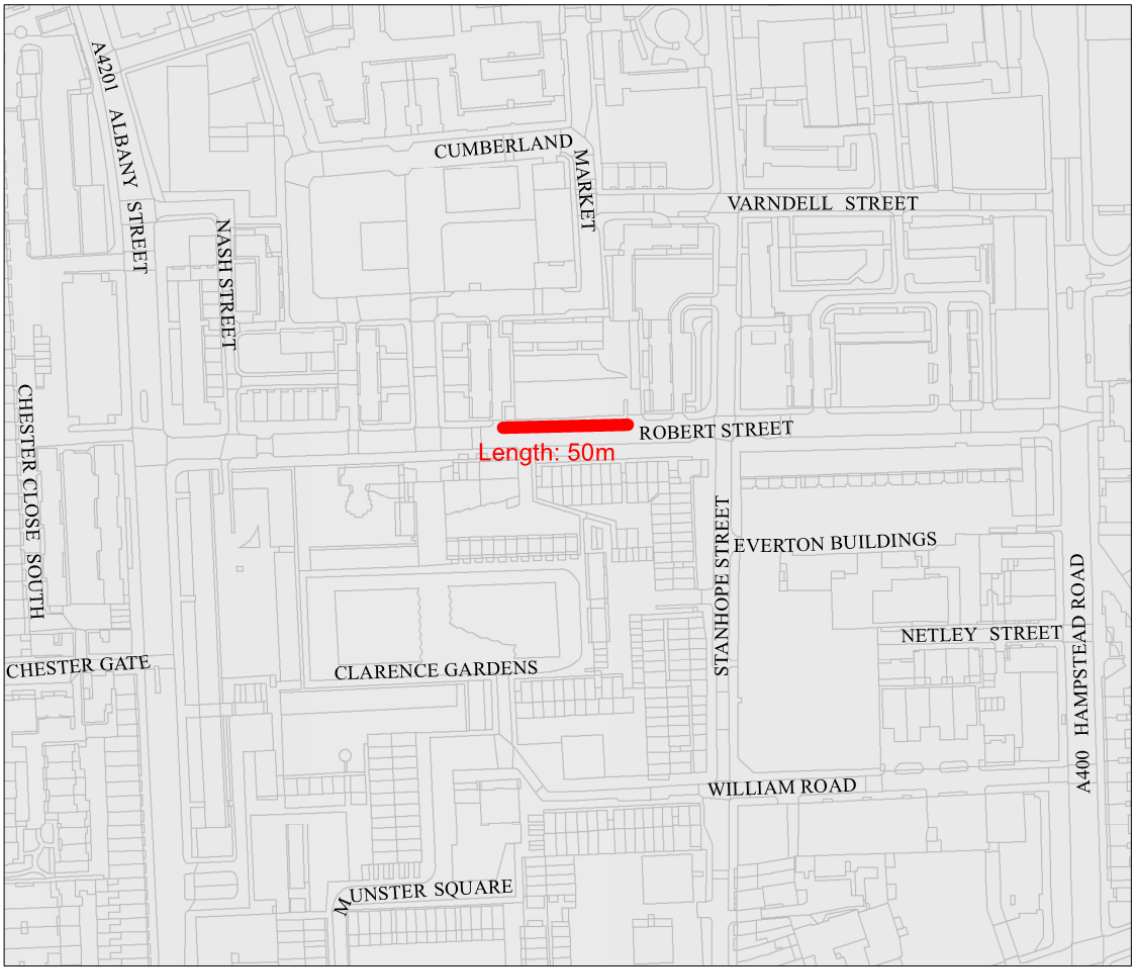
4.9.1 The potential location for an LHA on Robert Street is shown in Figure 12. Robert Street connects A400 Hampstead Road (to the east) and A4201 Albany Street (to the west) and is comprised of one lane in each direction. The road is a proposed route for construction vehicles during the Euston works for access to compounds such as Granby Terrace Overbridge and Carriage Shed and Park Village East construction compounds.

4.9.2 The area identified could provide approximately 50m of lorry holding space (approximately 4 vehicles) and would therefore need to be used in conjunction with another LHA to accommodate up to ten tipper lorries.

4.9.3 If construction vehicles using the LHA on Robert Street are required to travel from the LHA to any of the construction compounds accessed from A501 Euston Road or A4200 Eversholt Street, this would result in additional construction vehicle trips through the Camden Town area (for accessing compounds on A4200 Eversholt Street) and on Drummond Street and North Gower Street or A400 Gower Street, Grafton Way and A400 Tottenham Court Road (for accessing compounds from A501 Euston Road due to the banned left turn from A400 Hampstead Road to A501 Euston Road). To avoid requiring additional traffic to use Drummond Street and North Gower Street, the left-turn from Hampstead Road onto A501 Euston Road could be re-introduced in order for vehicles leaving this potential LHA to

continue their journey to the compounds accessed from A501 Euston Road and/or A4200 Eversholt Street although this would need to be discussed and agreed with TfL.

Figure 12: Plan showing the potential LHA on A4201 Robert Street



4.9.4 The location is close to main construction compounds at Euston station and therefore offers the benefit of timely arrivals to the construction compounds site once vehicles are called forward from the LHA. Should this option be taken forward for further consideration, an additional LHA would need to be identified in order to meet the forecast number of spaces required.

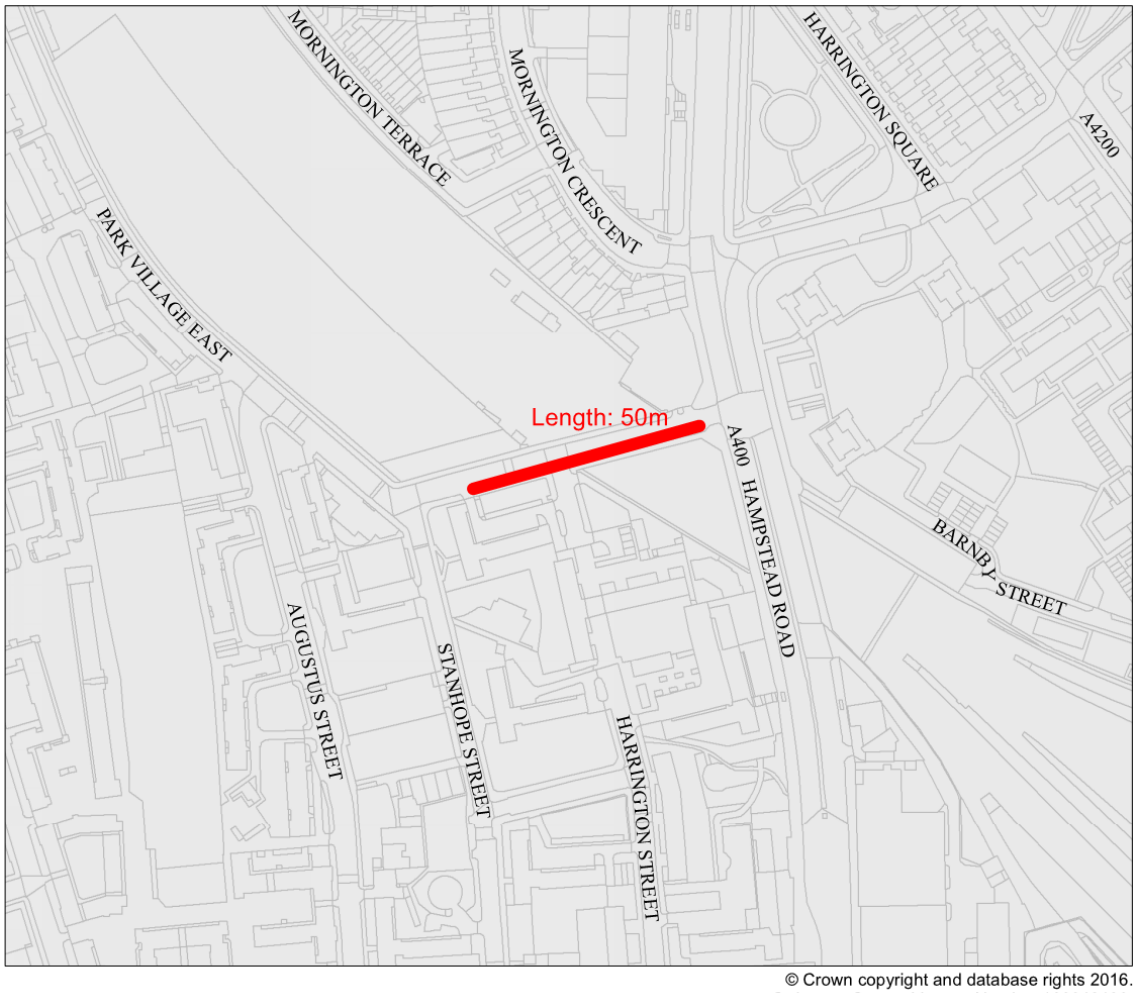
4.9.5 The presence of an LHA on the northern carriageway would be in the direct line of sight from the residential properties on both sides of the road, and lorries using on-street car parking would be twice the scale of a typical car. Residents in the adjacent residential blocks would be sensitive to the change in view as the lorries would tend to enclose views from the lower floors and would have an adverse effect on visual amenity.

4.9.6 Robert Street will also be subject to utility works during the early stages of the construction programme. The utility works are due to be completed by early to mid-2018. As such, it may be necessary to delay the commencement of operation of an LHA on Robert Street until after the utility works are completed.

4.10 Granby Terrace Overbridge

4.10.1 Figure 13 shows the potential location of lorry holding on Granby Terrace Bridge (GTB) that could provide approximately 100m of LHA space in the eastbound direction (i.e. in the direction of travel), equating to around eight spaces for tipper lorries.

Figure 13: Plan showing the potential LHA on GTB



4.10.2 GTB is currently a two lane road that travels one-way from west to east connecting Stanhope Street and Park Village East with A400 Hampstead Road. As described in the SES2 and AP3 ES, GTB is due to be demolished and rebuilt, commencing from late-2017 with a completion

date of mid to late-2022. However, GTB will only re-open to the public from early-2023 but it is anticipated that construction vehicles could use GTB from late-2020.

4.10.3 Due to the programme of works for the new bridge it would be necessary to find an alternative LHA for use prior to the completion of GTB. Alterations to construction vehicle routeing would be necessary should this option be adopted with additional traffic using Robert Street and Stanhope Street. Construction traffic using the LHA and travelling to the Granby Terrace Overbridge and Carriage Shed and Park Village East ramp construction compounds would be required to travel along Robert Street and Stanhope Street twice (once to access the LHA and again when travelling from the LHA to the compound via A400 Hampstead Road).

4.10.4 If construction vehicles using the LHA on GTB are required to travel from the LHA to any of the construction compounds accessed from A501 Euston Road or A4200 Eversholt Street, this would result in additional construction vehicle trips through the Camden Town area (for accessing compounds on A4200 Eversholt Street) and on Drummond Street and North Gower Street or A400 Gower Street, Grafton Way and A400 Tottenham Court Road (for accessing compounds from A501 Euston Road due to the banned left turn from A400 Hampstead Road to A501 Euston Road). To avoid requiring additional traffic to use Drummond Street and North Gower Street, the left-turn from Hampstead Road onto A501 Euston Road could be re-introduced in order for vehicles leaving this potential LHA to continue their journey to the compounds accessed from A501 Euston Road and/or A4200 Eversholt Street although this would need to be discussed and agreed with TfL.

4.10.5 In order to mitigate against the increased vehicle trips on Robert Street and Stanhope Street, it may be possible to utilise GTB as a two-way road with the LHA implemented on the westbound lane. This would require alterations to the layout of the junction of A400 Hampstead Road with Granby Terrace to allow vehicles to turn left onto Granby Terrace. From the LHA, those vehicles needing access directly to the Granby Terrace overbridge and Carriage Shed and Park Village East compounds could travel straight from GTB. For vehicles travelling to the NTH compound they would be required to travel south via Stanhope Street and then to the NTH from Robert Street.

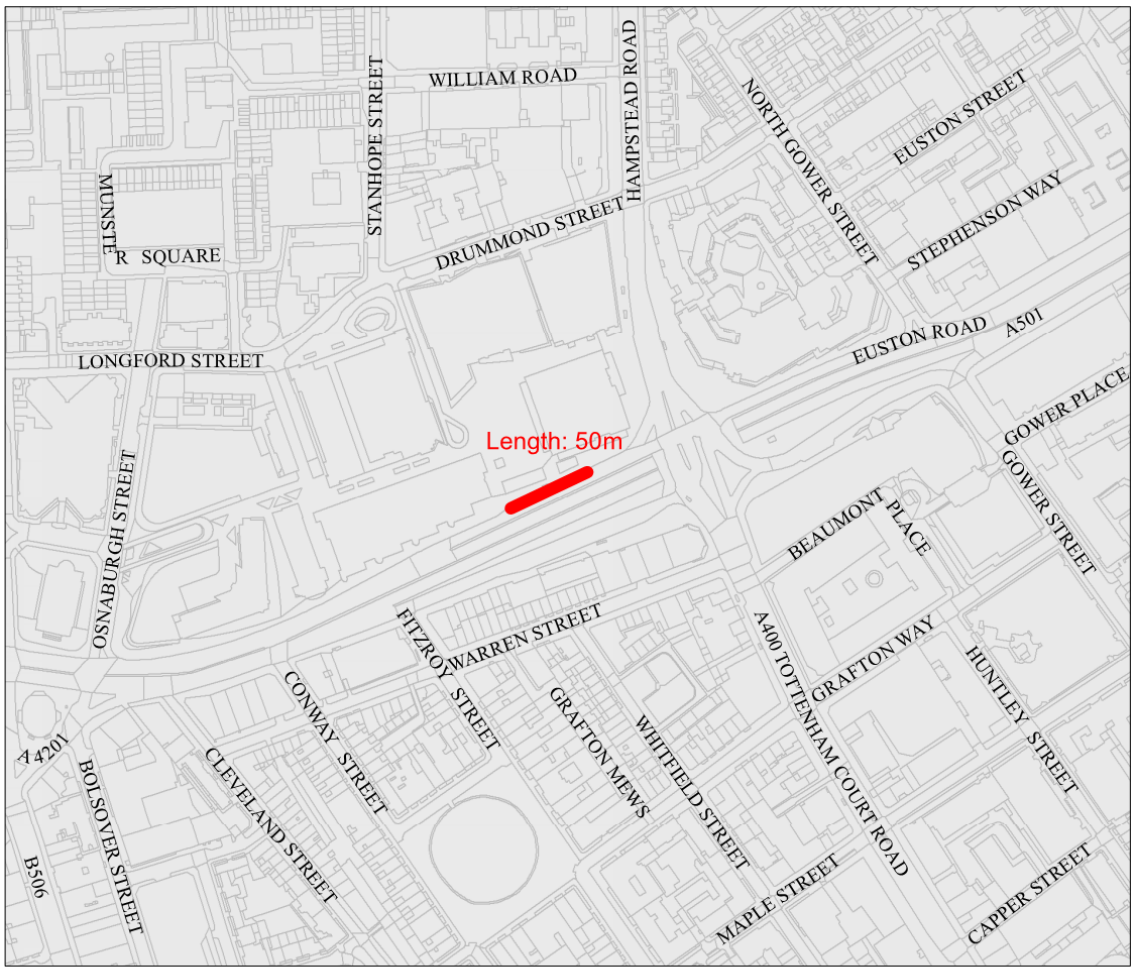
4.10.6 The presence of an LHA at this location during the predicted period of use (i.e. following demolition of the carriage shed and Eskdale) would result in limited change in the overall view from the residential blocks to the south and west due to the scale of the HS2 construction activity and replacement bridge parapets.

4.11 A501 Euston Road (eastbound off-slip)

4.11.1 The A501 Euston Road off-slip, shown in Figure 14, could provide approximately 50m of space for an LHA for around four to five spaces for tipper lorries while continuing to provide a flare to accommodate space at the stopline for four or five vehicles to left turn filter from A501

Euston Road onto A400 Hampstead Road. This section of road is currently used by existing bus stop KA serving routes travelling east along A501 Euston Road and other vehicles wishing to turn left from A501 Euston Road onto A400 Hampstead Road. The limited space available would require an additional LHA (to meet the required total of ten spaces) to be used in conjunction with the A501 Euston Road location.

Figure 14: Plan showing the potential LHA on Euston Road (eastbound off-slip)



4.11.2 This location would be unaffected by construction activities and the vehicle routeing would be unaffected, assuming the LHA could be set up and/or controlled to allow vehicles to turn left onto A400 Hampstead Road or continue straight onto A501 Euston Road on departure from the LHA.

4.11.3 It would also be necessary to find an alternative location for the existing bus stop KA, most likely immediately to the west of its existing location. The existing bus stop (bus stop Q) to the east of Euston Circus on the eastbound on-slip serves the same routes as bus stop KA. The

LHA may also require a narrowing of the middle lane on the approach to the junction with A400 Hampstead Road.

4.11.4 The presence of the LHA would add to the existing cluttered streetscape and may potentially reduce legibility for pedestrian users of the adjacent public realm but the presence of large vehicles would not represent a substantial change in the quality of the views from the commercial facilities to the north and south of the LHA.

4.12 Acton Street

4.12.1 There is the potential to site lorry holding on the southern side of Acton Street which is one-way street with two general traffic lanes located to the south-east of King's Cross and St. Pancras stations. This road could accommodate approximately ten spaces for tipper trucks as either a continuous section of holding area or in blocks along the road. Any lorry holding facility at this location is likely to result in the removal or relocation of bus stops, residential parking and other local parking and loading provision. This option would require significant changes to HGV routeing to and from the LHA and construction compounds and would result in a number of additional trips within the vicinity of Euston Station, on A501 Euston Road and in the King's Cross area. It is not anticipated that this option would have any programme implications. Figure 15 shows the potential LHA on Acton Street.

Figure 15: Plan showing the potential LHA on Acton Street

4.12.2 The LHA option falls within the Bloomsbury Conservation Area, a largely residential and coherent streetscape with three and four storey terraced properties (some of which are Grade II listed) fronting directly onto the road. The road is already a busy traffic route. However, the LHA would introduce large scale vehicles (twice the height of a typical car) immediately adjacent to residential properties and would have an adverse effect on visual amenity and setting of the terraces in the conservation area (some of which are Grade II listed). Parking bays are currently demarked with street trees which should be retained.

4.13 Swinton Street

4.13.1 Swinton Street is a one-way street running from east to west and is located to the south-east of King's Cross and St Pancras stations. The road has two general traffic lanes and a mixture of parking products located on both the north and south sides of the carriageway. This road could accommodate approximately 130m (ten spaces) of lorry holding on the north side of the

road that could be introduced in a single continuous stretch or as separate smaller blocks along the length of the road. Any lorry holding facility at this location is likely to result in the removal or relocation of bus stops, residential parking and other local parking and loading provision. This option would require significant changes to HGV routeing to and from the LHA and construction compounds and would result in a number of additional trips within the vicinity of Euston station, on A501 Euston Road and in the King's Cross area. It is not anticipated that this option would have any programme implications. Figure 16 shows the potential LHA on Acton Street.

Figure 16: Plan showing the potential LHA on Swinton Street

4.13.2 The LHA option falls partly within the Bloomsbury and Kings Cross St Pancras Conservation Areas. A coherent streetscape with three and four storey terraced properties (some of which are Grade II listed) fronting directly onto the road. Some commercial properties are present but in keeping with the overall scale of the streetscape. The road is already a busy traffic route. However, the LHA would introduce large scale vehicles (twice the height of a typical

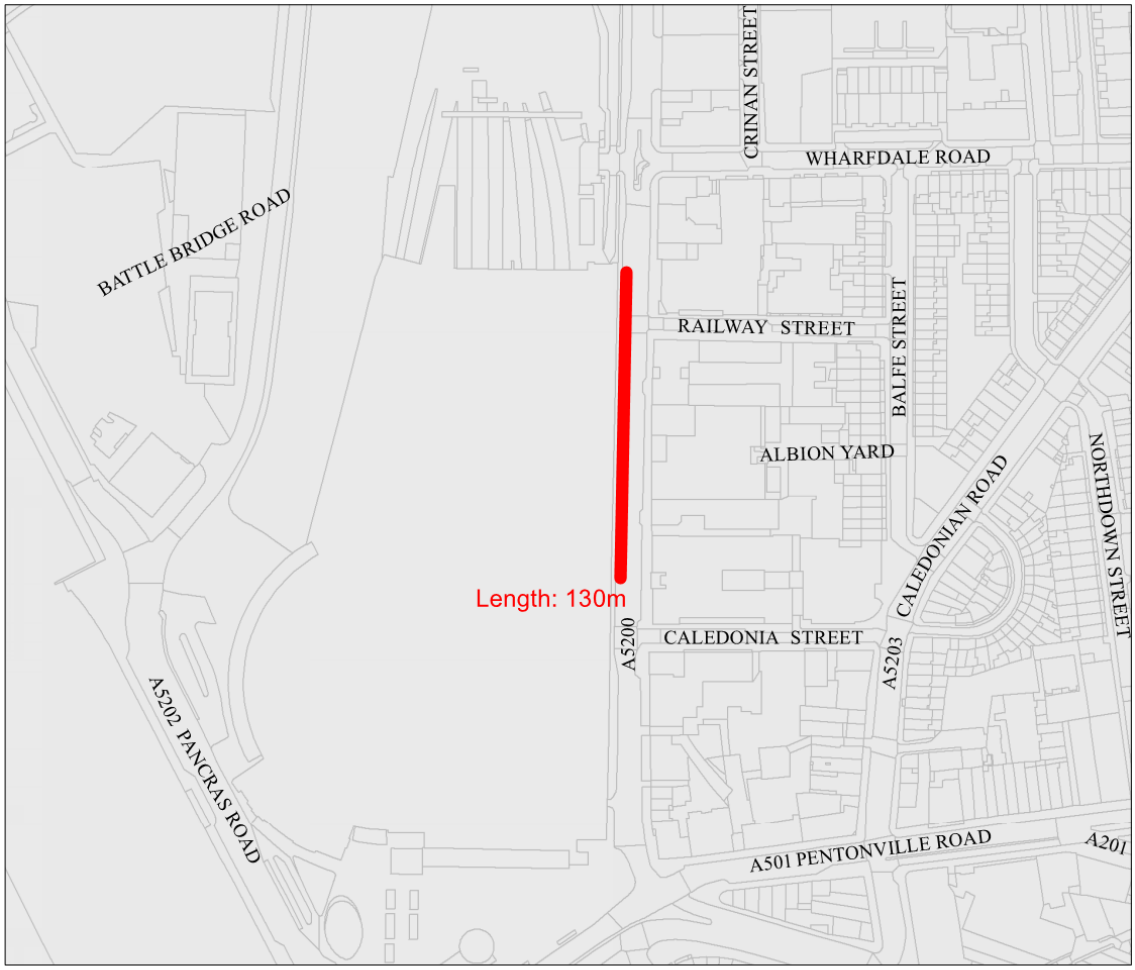
car) immediately adjacent to residential properties and would have an adverse effect on visual amenity and setting of the terraces in the conservation area.

4.14 A5200 York Way

4.14.1 Figure 17 shows the potential location for an LHA on A5200 York Way. A5200 York Way is a one-way street that runs northbound from A501 Euston Road along the east side of Kings Cross station. It is possible that this location could provide approximately 130m of holding area, the equivalent to around ten spaces for tipper lorries which would require the removal or relocation of a number of existing TfL bus stands that run along the western side of the carriageway on A5200 York Way. It is not anticipated that this option would have any programme implications.

4.14.2 In terms of routeing for HGVs to and from A5200 York Way, this option would require vehicles to travel from the west beyond the Euston Station site to access A5200 York Way. Vehicles would then be required to double back to the construction sites which would increase journey times for construction vehicles and increase the number of construction trips in the vicinity of Euston. The King's Cross Gyratory, as two-way working, would be difficult to implement with an LHA located on A5200 York Way, due to the reduced widths of the road and the siting of the LHA is reliant upon the potential for the bus standing facilities to be relocated to the King's Cross Square site.

Figure 17: Plan showing the potential LHA on A5200 York Way



4.14.3 The LHA option is adjacent to King's Cross Station (Grade I listed) and within the King's Cross St Pancras Conservation Area. King's Cross station dominates and forms a strong element in views along this straight north-south aligned road. The LHA would be close to commercial properties (with assumed residential properties on upper floors is to be confirmed). A5200 York Way already has bus stands and is a busy thoroughfare. The LHA would introduce large scale vehicles adjacent to the listed station building, but these would be similar in scale to the existing buses. The presence of an LHA may increase street clutter but would have a limited effect on the quality of existing views from the residential properties (assumed to be on upper floors to the east of A5200 York Way).

4.15 Freight Lane

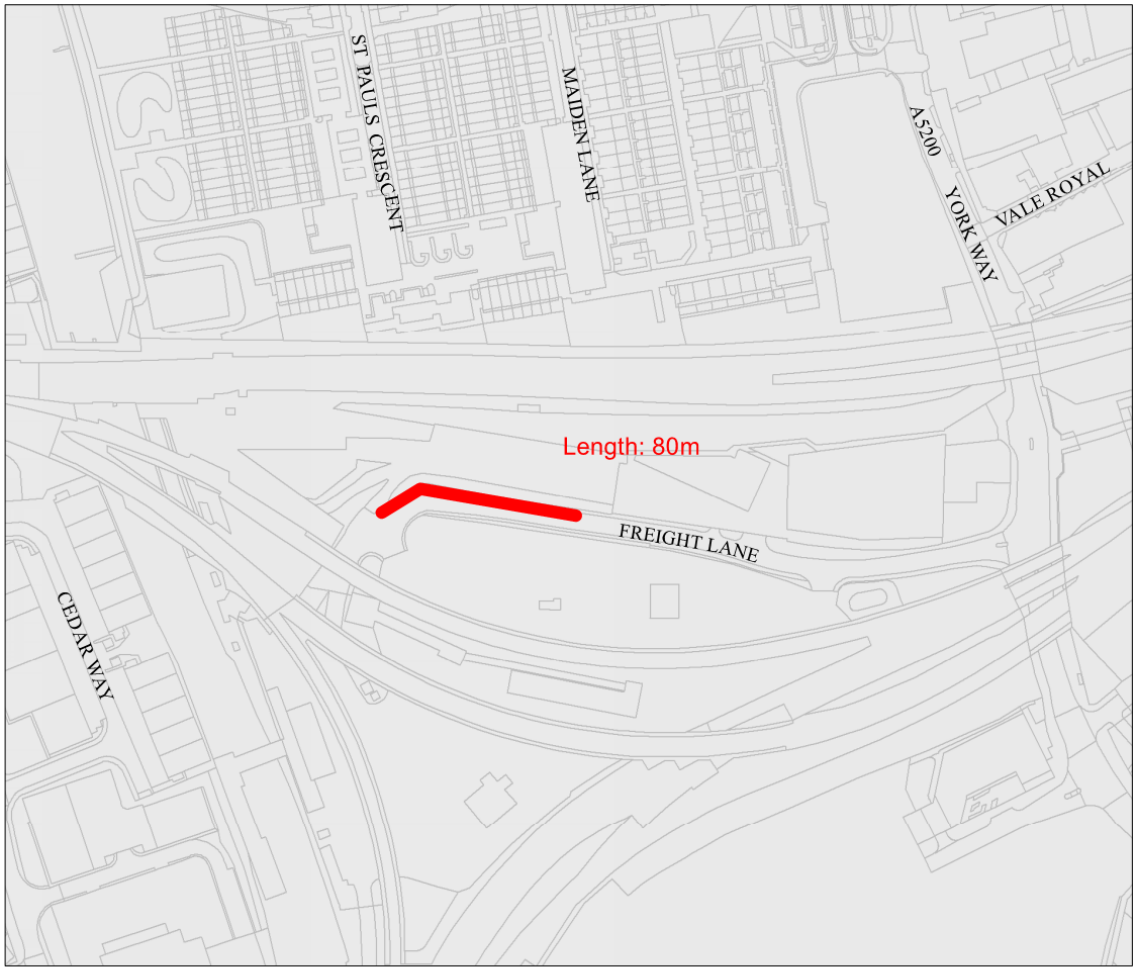
4.15.1 Figure 18 is a plan showing the potential location on Freight Lane. Freight Lane is a two-way road with one lane in each direction and is accessed from A5200 York Way. The section of

highway identified on Freight Lane as a potential LHA could provide up to 80m of holding area, equivalent to around six spaces for tipper lorries. This option would need to be used in conjunction with an additional locations to provide the required 130m of lorry holding.

4.15.2 Significant changes would be required for the routeing of HGVs to this potential LHA with vehicles travelling along Euston Road (east of Euston station) turning left onto A5200 York Way at King's Cross to travel north on A5200 York Way towards the potential facility on Freight Lane. From Freight Lane, vehicles travelling towards the main compounds travel south on A5200 York Way, turning right onto Goods Way and towards A501 Euston Road via Midland Road. Due to the absence of a right-turning facility at the A501 Euston Road junction with A400 Hampstead Road (Euston Circus), the vehicles would travel west to use B506 Great Portland Street, A4201 Albany Street and A4201 Osnaburgh Street to route back along A501 Euston Road to turn left onto A400 Hampstead Road from A501 Euston Road and continue to the compounds.

4.15.3 Siting lorry holding at this location would have no impact upon accesses to/from the highway and no anticipated programme implications are associated with this option.

Figure 18: Plan showing the potential LHA on Freight Lane



4.15.4 This LHA is located in an industrial/commercial location with no sensitive residential receptors in close proximity. It is not located in a conservation area or near listed/designated assets.

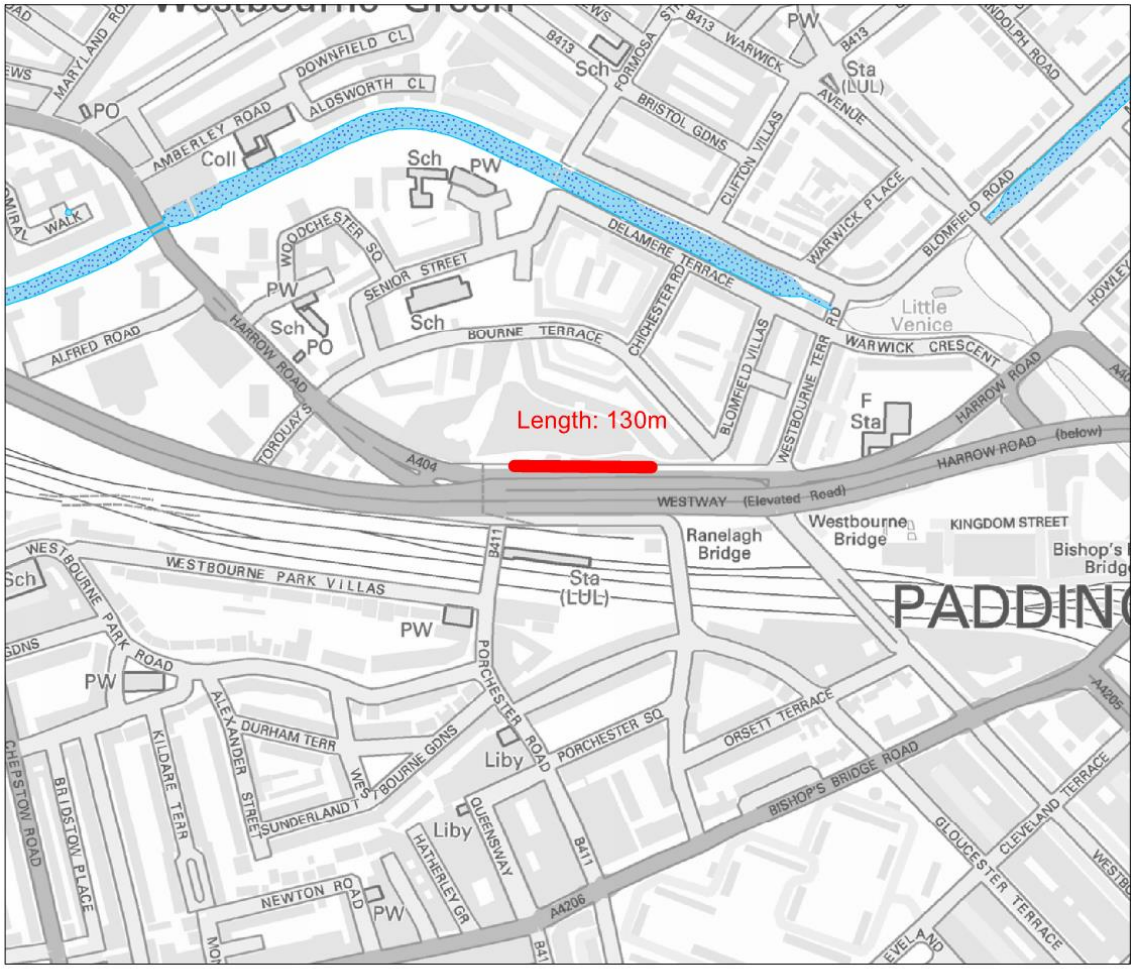
4.16 A404 Harrow Road (near A40 Westway)

4.16.1 Figure 19 shows the potential location for an LHA on A404 Harrow Road near to the A40 Westway. The section of road was previously in use as an LHA for the construction of the Crossrail scheme and could potentially provide up to 130m of holding area, equivalent to around ten spaces for tipper lorries. A404 Harrow Road at this location comprises of two lanes travelling one-way in the eastbound direction. In terms of routeing for HGVs to and from A404 Harrow Road, the option would require vehicles to deviate from the excavated materials route and there would therefore be significant changes to the baseline routeing arrangement.

4.16.2 The SES2 and AP3 ES assumed routeing arrangement would see vehicles using A41 Finchley Road, A5205 St. John's Wood Road and A5 Edgware Road before joining A501 Marylebone Road at the junction of A5 Edgware Road and A40 Marylebone Flyover/A404 Harrow Road. If this option were taken forward vehicles would be required to travel west from the junction of A5 Edgware Road and A404 Harrow Road, along A404 Harrow Road between A5 Edgware Road and the Harrow Road Gyratory, on A404 Harrow Road (westbound) west of the Harrow Road Gyratory and the A404 Harrow Road slip-lane (approximately 130m south-east of Bourne Terrace) and east on A404 Harrow Road (west of the A404 Harrow Road slip-lane) to arrive to the LHA. On leaving the LHA, construction vehicles would travel east on A404 Harrow Road between the A404 Harrow Road slip-lane (approximately 130m south-east of Bourne Terrace) and Warwick Avenue, on A404 Harrow Road (eastbound) between Warwick Avenue and the A40 on-slip road (approximately 260m west of A5 Edgware Road) and on A40 Westway between the A40 on-slip road (approximately 260m west of A5 Edgware Road) and A501 Marylebone Road (at the eastern extent of the A40 Marylebone Flyover) before re-joining the baseline route.

4.16.3 The kerbside lane would be designated as lorry holding with vehicles accessing the holding bays directly from Harrow Road. Siting lorry holding at this locations would have no impact upon accesses to/from the highway and no anticipated programme implications are associated with this option.

Figure 19: Plan showing the potential LHA on Harrow Road



4.16.4 The A404 is a two lane road adjacent to the A40 flyover and a green open space to the north. The status of this space is not clear from desktop surveys, but is noted on Natural England's priority habitat inventory as deciduous woodland. The area is dominated by transport infrastructure and traffic movement. The Maida Vale Conservation Area is to the north but unlikely to be affected by the proposals. The views from residential properties to the west are likely to be screened by existing vegetation and the presence of an LHA is not considered to change the overall quality of the views towards the A40.

4.17 Finchley Road O2 Centre Car Park

4.17.1 Figure 20 is a plan showing the potential location for lorry holding within the Finchley O2 Centre parking facilities located just of the A41 near Finchley Road London Underground station. This option could potentially provide the necessary 130m of lorry holding, equivalent to around ten spaces for tipper lorries within an off-street LHA at the car park. This would result in the loss of a number of existing spaces designated for private users to the O2 centre.

In terms of routeing to and from this location, it would not require significant changes to the proposed line of route due to the location of the O2 Centre adjacent to the A41. It is not anticipated that locating an area of lorry holding within the car park would have an impact on access arrangements for buildings nearby and there are no anticipated programme implications associated with this option. As the lorry holding would be located 'off-street' rather than on the highway, powers for the use of this location do not currently exist within the hybrid Bill, given Clause 6 of Schedule 4 to the Act is only applicable to temporary interference to any highway. Delivery of this option could only occur through an agreement with the land owner/operator and could not be implemented without this.

4.17.2 If the LHA cannot be accommodated within the car park, it could potentially be located on the access road, south of the entrance to the O2 Centre car park. This would require a local widening of the carriageway to maintain two-way traffic operation (a single lane with shuttle working is likely to be unacceptable). This would likely have implications on the operation of bus services which use the access road and may require the suspension of a bus stop FB (at the western extent of the access road), the narrowing of the footway and a dedicated private vehicle pick-up point located to the west of the car park entrance. Construction vehicles would be required to share the bus turning facility to the west of the car park.

Figure 20: Plan showing the potential LHA within the Finchley O2 Centre car park

4.17.3 There are no designated conservation areas or listed buildings in the vicinity of the proposed LHA. The residential properties to the north and north east are partially screened by existing vegetation along the railway corridor to the north. Potential conflicts between pedestrian users for the O2 car park may need to be managed. The presence of an LHA is not considered to change the overall quality of the views towards the O2 car park from residential properties.

4.18 Hampstead Road (immediately north and south of Drummond Street)

4.18.1 Figure 21 and Figure 22 show two potential sections of lorry holding that could be implemented on the western side of Hampstead Road just to the north of the junction with Euston Road and Tottenham Court Road. The southern and northern sections are approximately 80m and 50m in length respectively for a total of 130m of lorry holding space that could accommodate up to ten spaces for tipper lorries. The introduction of lorry holding

at this location would require the removal of northbound bus stops and would reduce the northbound highway from two lanes to one. This may have implications for the operation of A400 Hampstead Road. Whilst the provision of the LHA on A400 Hampstead Road at this location could reduce capacity, capacity on A400 Hampstead Road would be reduced anyway during the construction programme due to the A400 Hampstead Road overbridge works.

4.18.2 Routeing of HGVs would not require any changes from the baseline condition with vehicles travelling along Euston Road and using the left-slip facility at the junction with Tottenham Court Road onto Hampstead Road and the access into the holding facility. It is not anticipated that this option would have an impact upon access to properties along Hampstead Road and there are no anticipated programme implications.

4.18.3 However, if construction vehicles using the LHA are required to travel from the LHA to any of the construction compounds accessed from A501 Euston Road or A4200 Eversholt Street, having turned left off Euston Road onto Hampstead Road, this would result in additional construction vehicle trips through the Camden Town area (for accessing compounds on A4200 Eversholt Street) and on Drummond Street and North Gower Street or A400 Gower Street, Grafton Way and A400 Tottenham Court Road (for accessing compounds from A501 Euston Road due to the banned left turn from A400 Hampstead Road to A501 Euston Road). To avoid requiring additional traffic to use Drummond Street and North Gower Street, the left-turn from Hampstead Road onto A501 Euston Road could be re-introduced in order for vehicles leaving this potential LHA to continue their journey to the compounds accessed from A501 Euston Road and/or A4200 Eversholt Street although this would need to be discussed and agreed with TfL.

4.18.4 No listed buildings or conservation areas are present in the vicinity. Hampstead Road is a main busy thoroughfare and supports a number of bus routes. Residential properties are assumed to be present on both sides of the road, above ground floor retail facilities. The LHA would introduce large scale vehicles, but these would be similar in scale to the existing buses. The presence of an LHA, may increase street clutter but is not considered to change the overall quality of the views across Hampstead Road from residential properties and would have a limited effect on the quality of existing views from the residential properties (assumed to be on upper floors).

Figure 21: Plan showing the potential LHA on A400 Hampstead Road immediately south of Drummond Street

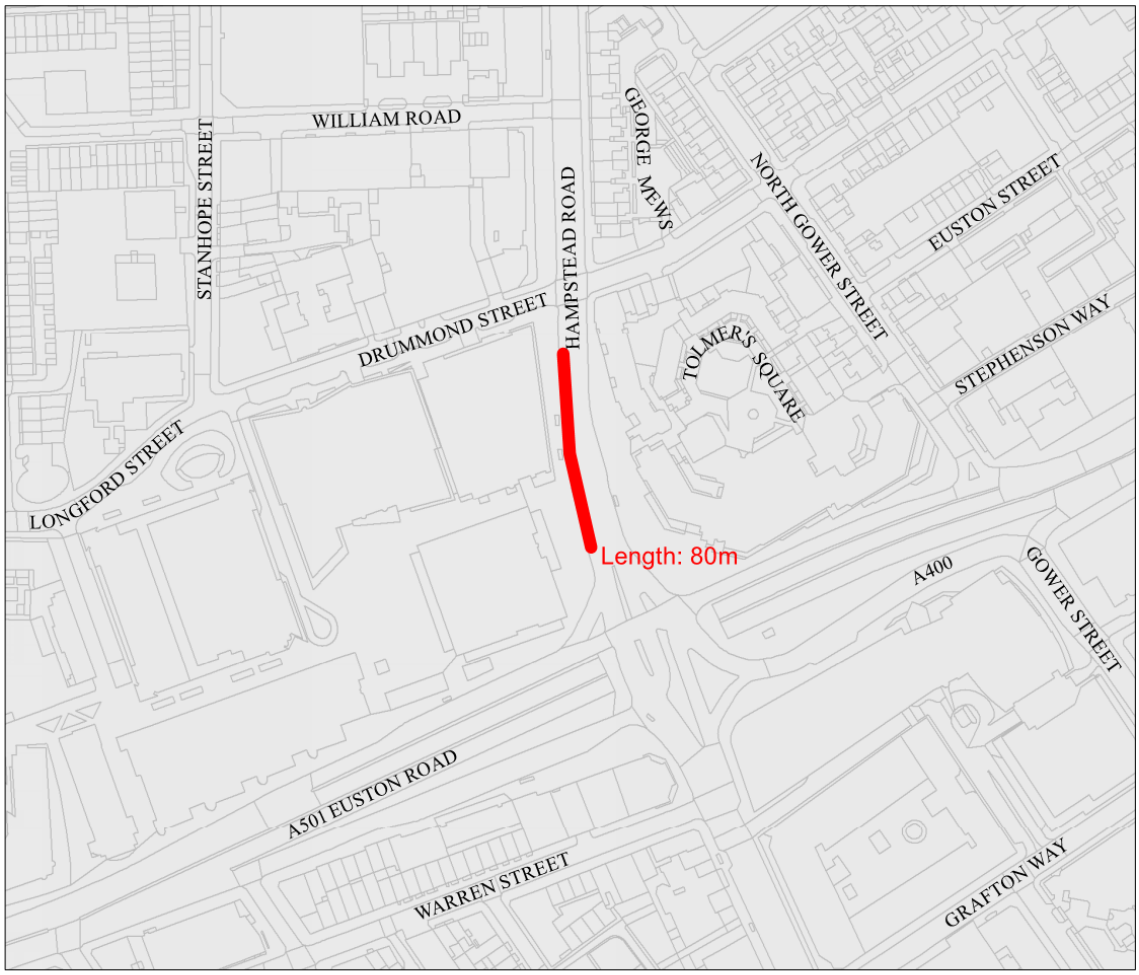
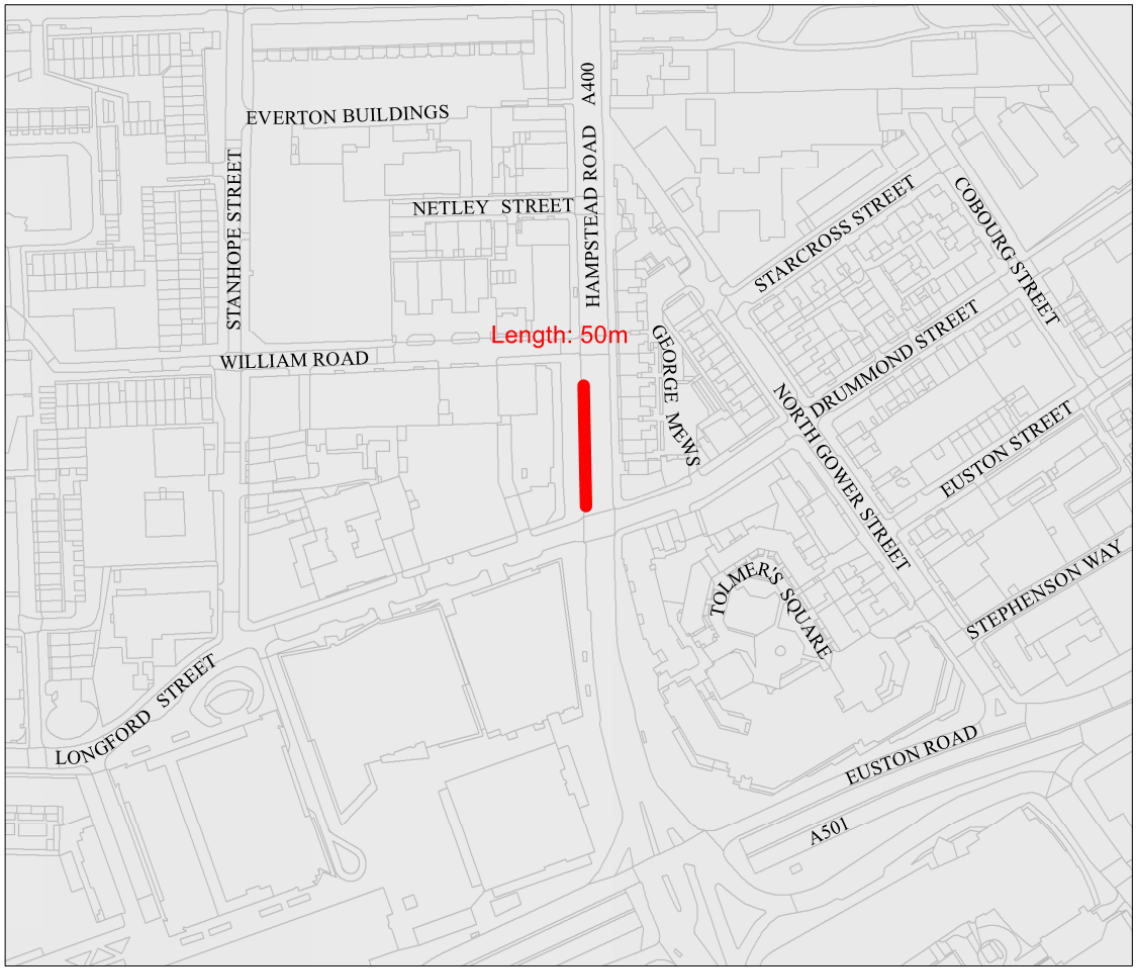


Figure 22: Plan showing the potential LHA on A400 Hampstead Road immediately north of Drummond Street



4.18.5 The option of providing an LHA on the stretch of highway immediately north of the junction with Drummond Street could be combined with other options, such as the A501 Euston Road (eastbound off-slip), if the full capacity cannot be provided at either location. Based on current predictions of capacity requirements during peak periods of construction traffic generation, this option would not be sufficient if used in isolation.

5 Impact on construction vehicle routeing of each option

5.1 Introduction

5.1.1 The Park Crescent LHA or any alternative location is assumed to be for the use of excavated material vehicles. As such, all construction vehicles that would use the LHA would arrive at Euston from the north-west via the A41 Finchley Road and A501 Marylebone Road (via A5205 St. John's Wood Road and A5 Edgware Road) and depart via the same route.

5.1.2 It is currently anticipated excavated material vehicles would travel to the Granby Terrace overbridge and Carriage Shed and Park Village East ramp satellite compounds or the National Temperance Hospital main compound.

5.1.3 The peak number of vehicles that would need to be managed through the on-street lorry holding area is forecast to be ten per hour. The Park Crescent LHA would be designed to accommodate this number to provide a one hour buffer. Any single alternative LHA would need to manage the same number of vehicles per hour and consequently alternative routes would see a maximum increase in traffic of this magnitude. If multiple LHAs are used then the ten vehicles per hour would be spread across the LHAs. With alternative LHAs with a total capacity of less than ten vehicles the consequence would be that the buffer would be less than one hour, with an increased risk that if there are issues at the construction compounds, then some vehicles would be unable to access a LHA and would therefore circulate on the local highway network. The changes to traffic only affect vehicles travelling to the compounds as there will be no interaction with the LHAs for departing vehicles.

5.2 Park Crescent (East) and Park Crescent (West)

5.2.1 For the Park Crescent (East) LHA and Park Crescent (West) options, vehicles would turn right into Park Crescent from A501 Marylebone Road at the western side of Park Crescent and return to A501 Marylebone Road at the eastern side of Park Crescent. Relative to the Park Crescent AP3 (westbound) option which would see vehicles entering Park Crescent at the eastern side of Park Crescent and exiting at the western side, the number of vehicles using the section of A501 Marylebone Road between Park Crescent east and west would reduce by a maximum of 20 per hour.

5.2.2 Onwards from Park Crescent, there would be no change to the construction vehicle routeing on any road and there would be very little change to the overall distance construction vehicles travel on the route.

5.3 Hampstead Road Overbridge

5.3.1 The provision of an LHA on HRB either on the eastern side (i.e. on the southbound carriageway) or the western side (i.e. on the northbound carriageway) would result in the following additional construction vehicle movements:

- A maximum of ten additional construction vehicle movements per hour in each direction on HRB between Robert Street and A400 Harrington Square; this is due to the fact that vehicles would need to use Harrington Square to turnaround to return to the compounds;
- A maximum of ten additional construction vehicle movements per hour in the northbound direction on A400 Hampstead Road to the west of Harrington Square (this is a one-way section of road);
- A maximum of ten additional vehicle movements per hour in the southbound direction on Harrington Square (this is a one-way section of road); and
- A maximum of ten additional vehicle movements per hour in the westbound direction on A400 Harrington Square south of Harrington Square Gardens (this is a one-way section for road).

5.3.2 Providing an LHA in either of these locations would increase the distance vehicles travel by approximately 1.25km.There would be no change to the number of construction vehicle movements on Robert Street or Stanhope Street. The routeing of vehicles from A501 Euston Road and to the strategic route to the A41 Finchley Road and beyond would not be affected by the positioning of the LHA on HRB.

5.4 Hampstead Road north of A400 Harrington Square (east and west side of road)

5.4.1 If an alternative LHA were provided on either the east or west of A400 Hampstead Road north of A400 Harrington Square, the resulting additional vehicle movements would be the same as the HRB LHA options. The distance vehicles are required to travel would increase by approximately 1.25km. There would be no change to the number of construction vehicle movements on Robert Street or Stanhope Street and the routeing of vehicles from A501 Euston Road and to the strategic route to the A41 Finchley Road and beyond would not be affected by the positioning of the LHA on HRB.

5.5 Harrington Square

5.5.1 If an alternative LHA were provided on Harrington Square Gardens, either on the west side (on A400 Hampstead Road) or on the east side (on Harrington Square), the resulting additional vehicle movements would be the same as the HRB LHA options. The distance vehicles are

required to travel would increase by approximately 1.25km. There would be no change to the number of construction vehicle movements on Robert Street or Stanhope Street and the routeing of vehicles from A501 Euston Road and to the strategic route to the A41 Finchley Road and beyond would not be affected by the positioning of the LHA on HRB.

5.6 A4201 Albany Street

5.6.1 The provision of an LHA on A4201 Albany Street would result in the following additional construction vehicle movements:

- A maximum of ten additional construction vehicle movements per hour in the northbound direction on A4201 Albany Street between A501 Euston Road and Robert Street;
- A maximum of ten additional construction vehicles movements per hour in the eastbound direction on Robert Street, east of Stanhope Street; and
- If all vehicles travel to the National Temperance Hospital main compound, there would be a maximum of ten additional construction vehicle movements per hour in the eastbound direction on Robert Street.

5.6.2 In terms of the distance travel, the provision of an LHA on Albany Street would result in a very slight reduction in the overall distance travelled by construction vehicles using the LHA. There would be no change to the number of construction vehicle movements on Stanhope Street. However, if all vehicles travel to the Granby Terrace overbridge or Carriage Shed and Park Village East ramp satellite compounds, the number of construction vehicles using Robert Street in the westbound direction would reduce by a maximum of ten vehicles per hour.

5.7 Robert Street

5.7.1 If an alternative LHA were provided on Robert Street, the resulting additional construction vehicle movements would be the same as the A4201 Albany Street option. There would be no change to the number of construction vehicle movements on Stanhope Street.

5.8 Granby Terrace Overbridge

5.8.1 The provision of an LHA on GTB, if the priority is not changed, would result in the following additional construction vehicle movements:

- A maximum of 20 additional construction vehicle movements per hour in the northbound direction on Stanhope Street (north of Robert Street) and on Robert Street (east of Stanhope Street). Construction vehicles would need to use Robert Street and Stanhope Street to access the LHA and then again to access the Granby Terrace overbridge or Carriage Shed and Park Village East ramp satellite compounds, if all vehicles were travel to these compounds;

- If all vehicles were to access the National Temperance Hospital main compound, there would be a maximum of ten additional trips per hour in the northbound direction on Stanhope Street (north of Robert Street) and on Robert Street (east of Stanhope Street);
- A maximum of ten additional construction vehicle movements per hour on GTB; and
- A maximum of ten additional construction vehicle movements per hour in the southbound direction on A400 Hampstead Road between GTB and Robert Street.

5.8.2 For construction vehicles using the LHA and travelling to the National Temperance Hospital main compound, the distance travelled would increase by approximately 0.5km. For construction vehicles using the LHA and travelling to the Granby Terrace overbridge or Carriage Shed and Park Village East ramp satellite compounds, the distance travelled would increase by approximately 1km.

5.8.3 If, however, the LHA could be provided in the westbound direction with vehicles accessing it directly from A400 Hampstead Road, the following changes to the construction vehicle movements would occur:

- If all construction vehicles travelled to the Granby Terrace overbridge or Carriage Shed and Park Village East ramp satellite compounds, there would be a reduction by a maximum of ten vehicles per hour on Robert Street and Stanhope Street. The overall distance travelled by construction vehicles using the LHA would remain the same; and
- If all construction vehicles travelled to the National Temperance Hospital main compound, there would be an increase by a maximum of ten vehicles per hour on A400 Hampstead Road (between Robert Street and Granby Terrace), Granby Terrace overbridge, Stanhope Street and Robert Street (between Stanhope Street and A400 Hampstead Road). The overall distance travelled would increase by approximately 1km.

5.8.4 The impact of introducing eastbound movements, even if only for construction vehicles, would reduce capacity on Granby Terrace overbridge, which could have implications for the operation of the local highway network. It may also mean extending the closure of Granby Terrace overbridge to general traffic for a period longer than that currently identified in the construction programme. Granby Terrace overbridge is currently scheduled to reopen to general traffic in early-2023. This would need to be tested in the CLoHAM strategic highway model.

5.9 A501 Euston Road (eastbound off-slip)

5.9.1 There would be no change to the construction vehicle routeing on any road for this option. There would be no change to the distance travelled by construction vehicles using the LHA.

5.10 Acton Street

5.10.1 The provision of an LHA on Acton Street would result in the following additional construction vehicle movements:

- A maximum of ten additional construction vehicle movements per hour in each direction on A501 Euston Road between A4201 Albany Street and A5200 York Way. West of Euston Circus, the increase in trips occurs as there is no right turn from A501 Euston Road onto A400 Hampstead Road so vehicles would travel west to B506 Great Portland Street and A4201 Albany Street to U-turn; and
- A maximum of ten additional construction vehicle trips per hour on A501 Pentonville Road, A201 King's Cross Road, A501 King's Cross Road (north of Acton Street), Acton Street and A501 Gray's Inn Road (north of Acton Street).

5.10.2 These additional trips would be experienced whether vehicles are travelling to the National Temperance Hospital main compound or the Granby Terrace overbridge and Carriage Shed and Park Village East ramp satellite compounds. The overall increase in distance travelled by construction vehicles using the LHA would be approximately 4.8km. There would be no additional trips on A400 Hampstead Road, Stanhope Street or Robert Street.

5.11 Swinton Street

5.11.1 The provision of an LHA on A501 Swinton Street would result in the following additional construction vehicle movements:

- A maximum of ten additional construction vehicle movements per hour in each direction on A501 Euston Road between A4201 Albany Street and A5200 York Way. West of Euston Circus, the increase in trips occurs as there is no right turn from A501 Euston Road onto A400 Hampstead Road so vehicles would travel west to B506 Great Portland Street and A4201 Albany Street to U-turn; and
- A maximum of ten additional construction vehicle trips per hour on A501 Pentonville Road, A201 King's Cross Road, A501 King's Cross Road (north of A501 Swinton Street), A501 Swinton Street and A501 Gray's Inn Road (north of A501 Swinton Street).

5.11.2 These additional trips would be experienced whether vehicles are travelling to the National Temperance Hospital main compound or the Granby Terrace overbridge and Carriage Shed and Park Village East ramp satellite compounds. The overall increase in distance travelled by construction vehicles using the LHA would be approximately 4.75km. There would be no additional trips on A400 Hampstead Road, Stanhope Street or Robert Street.

5.12 A5200 York Way

5.12.1 The provision of an LHA on A5200 York Way would result in the following additional construction vehicle movements:

- A maximum of ten additional construction vehicle movements per hour in each direction on A501 Euston Road between A4201 Albany Street and Midland Road. West of Euston Circus, the increase in trips occurs as there is no right turn from A501 Euston Road onto A400 Hampstead Road so vehicles would travel west to B506 Great Portland Street and A4201 Albany Street to U-turn; and
- A maximum of ten additional construction vehicle movements per hour on A501 Euston Road (between Midland Road and A5200 York Way), A5200 York Way (south of Goods Way), Goods Way, A5202 Pancras Road (between Camley Street and Midland Road) and Midland Road south of A5202 Pancras.

5.12.2 These additional trips would be experienced whether vehicles are travelling to the National Temperance Hospital main compound or the Granby Terrace overbridge and Carriage Shed and Park Village East ramp satellite compounds. The overall increase in distance travelled by construction vehicles using the LHA would be approximately 4.8km. There would be no additional trips on A400 Hampstead Road, Stanhope Street or Robert Street.

5.13 Freight Lane

5.13.1 The provision of an LHA on Freight Lane would result in the following additional construction vehicle movements:

- A maximum of ten additional construction vehicle movements per hour in each direction on A501 Euston Road between A4201 Albany Street and Midland Road. West of Euston Circus, the increase in trips occurs as there is no right turn from A501 Euston Road onto A400 Hampstead Road so vehicles would travel west to B506 Great Portland Street and A4201 Albany Street to U-turn; and
- A maximum of ten additional construction vehicle movements per hour on A501 Euston Road (between Midland Road and A5200 York Way) and A5200 York Way (south of Goods Way);
- A maximum of ten additional construction vehicle movements per hour in each direction on A5200 York Way between Goods Way and Freight Lane, and on Freight Lane itself; and
- A maximum of ten additional construction vehicle movements per hour on Goods Way, A5202 Pancras Road (between Camley Street and Midland Road) and Midland Road south of A5202 Pancras.

5.13.2 These additional trips would be experienced whether vehicles are travelling to the National Temperance Hospital main compound or the Granby Terrace overbridge and Carriage Shed

and Park Village East ramp satellite compounds. The overall increase in distance travelled by construction vehicles using the LHA would be approximately 6.7km. There would be no additional trips on A400 Hampstead Road, Stanhope Street or Robert Street.

5.14 Harrow Road (near A40 Westway)

5.14.1 The provision of an LHA on A404 Harrow Road (near A40 Westway) would result in the following additional construction vehicle movements:

- A maximum of ten additional construction vehicle movements per hour on A404 Harrow Road (westbound) between A5 Edgware Road and the Harrow Road Gyratory;
- A maximum of ten additional construction vehicle movements per hour on A404 Harrow Road (westbound) west of the Harrow Road Gyratory and the A404 Harrow Road slip-lane (approximately 130m south-east of Bourne Terrace);
- A maximum of ten additional construction vehicle movements per hour on A404 Harrow Road (eastbound) between the A404 Harrow Road slip-lane (approximately 130m south-east of Bourne Terrace) and Warwick Avenue;
- A maximum of ten additional construction vehicle movements per hour on A404 Harrow Road (eastbound) between Warwick Avenue and the A40 on-slip road (approximately 260m west of A5 Edgware Road; and
- A maximum of ten additional construction vehicle movements per hour on A40 Westway between the A40 on-slip road (approximately 260m west of A5 Edgware Road) and A501 Marylebone Road (at the eastern extent of the A40 Marylebone Flyover).

5.14.2 There would also be a reduction by a maximum of ten vehicles per hour on the A501/A40 on-slip road between A5 Edgware Road and the A40/A501 Marylebone Flyover (at Lisson Street).

5.14.3 East of the A40 Marylebone Flyover, there would be no change to the construction vehicle routeing on any road other than the Park Crescent which would not be used.

5.14.4 The additional trips outlined would be experienced whether vehicles are travelling to the National Temperance Hospital main compound or the Granby Terrace overbridge and Carriage Shed and Park Village East ramp satellite compounds. The overall increase in distance travelled by construction vehicles using the LHA would be approximately 2.9km. There would be no additional trips on A400 Hampstead Road, Stanhope Street or Robert Street.

5.15 Finchley Road O2 Centre Car Park

5.15.1 There would be no change to the construction vehicle routeing on any road for this option. However, there would a maximum of ten additional construction vehicle movements per hour

on the Finchley Road O2 Centre Car Park access. There would be a slight increase in the distanced travelled by construction vehicles using the LHA. This is estimated to be approximately 0.5km.

5.16 Hampstead Road (near Brock Street)

5.16.1 There would be no change to the construction vehicle routeing on any road for this option for construction vehicles travelling to the National Temperance Hospital or Granby Terrace overbridge and Carriage Shed and Park Village East ramp compounds. The distance travelled by construction vehicles using the LHA would not change.

6 Material by rail study

6.1.1 Assurances given to LBC and TfL during the House of Commons Select Committee stage of the hybrid Bill included a commitment from the Secretary of State (SoS)/Department for Transport (DfT) to, develop a Plan that seeks to maximise, as far as reasonable practicable, the volume of excavated and construction material moved by rail, in order to reduce numbers of HGVs associated with HS2 construction at Euston on London's roads and the consequential traffic/environmental impacts.

6.1.2 A subsequent study has investigated the feasibility of transferring a proportion of both excavated material and miscellaneous 'materials in' from road to rail. The associated '*Material by rail – Euston Station Strategic Redevelopment Board report'* was published on 27th July 2016 and is available at: https://www.gov.uk/government/publications/material-by-rail-euston-station-strategic-redevelopment-board-report

6.1.3 For the Platform 18 option, as detailed within the above report, assuming the reduction in vehicles associated with the movement of material by rail are all excavated material vehicles and 55% of the total traffic is excavated material vehicles in 2022/2023 (see Table 2), an LHA would likely require 11 spaces for tipper vehicles, rather than 18 at this period of time. However, it should be noted that the peak for excavated material vehicles is in 2021 when 84% of the total traffic would be associated with excavated materials. The reduction in traffic associated with excavated material that would be achieved through the movement of material by rail would need to be determined to identify the LHA requirements for this period.

6.1.4 While there are benefits in that the total number of vehicles using the highway network would reduce as well as other economic and environmental benefits associated with this, there are impacts/costs that should be considered:

- Likely unmitigated programme impacts of 6 months for all three options;
- Additional construction associated with decommissioning and re-commissioning of platforms and all associated civil/infrastructure; and

- Potential operational impacts on the classic railway resulting directly from the interaction of the additional freight trains with passenger services.

6.1.5 In addition to these options, the study has identified opportunities to reduce the number of concrete vehicle movements to/from the construction sites. However, given that it is assumed that concrete vehicles will travel from the depot/batching plant directly to site, any potential increase in assumed capacity of each vehicle from 6m3 to 8m3 would not influence the requirements for lorry holding in either the ZSL off-street facility or potential on-street lorry holding areas.

7 A400 Hampstead Road overbridge study

7.1.1 In response to an assurance provided to TfL during the House of Commons HS2 hybrid Bill Select Committee to investigate a reduction in the overall height of the proposed A400 Hampstead Road overbridge, a report titled *The Hampstead Road Bridge Study Report – Minimising the Proposed Height Increase*, has been prepared. The report incorporated a requirement from TfL to provide a narrower bridge which would provide two traffic lanes, a cycle lane and footway in both directions (exact dimensions are to be confirmed).

7.1.2 For the majority of the on-street LHA options considered, the reduction in the number of lanes of A400 Hampstead Road would have little or no impact other than resulting in changes to the general traffic routeing which could potentially result in additional delay on other parts of the highway network (this could only be confirmed by undertaking a detailed assessment of the highway network using the CLoHAM strategic highway model).

7.1.3 The options to provide an on-street LHA on either the east or west side of A400 Hampstead Road overbridge, following the completion of the bridge construction works, would likely result in the loss of the cycle lane in the direction the LHA is provided and would likely result in the provision of narrower general traffic lanes in the affected direction. In terms of the programme, an LHA on A400 Hampstead Road overbridge could only be provided once the construction of the bridge is complete. This is due to the fact that the bridge would be reduced to one lane in each direction during its construction.

7.1.4 As noted previously, during the construction of HRB, the section of A400 Hampstead Road overbridge north of A400 Harrington Square would be reduced in width and the available length for an LHA may be compromised as the level of HRB is raised up to and including the junction with Mornington Crescent. During this period, it is likely that an LHA on the west side of A400 Hampstead Road north of A400 Harrington Square could only provide for five vehicles.

7.1.5 The Hampstead Road Bridge Study report was published on 22nd July 2016 and is available at: https://www.gov.uk/government/publications/the-hampstead-road-bridge-study-report-minimising-the-proposed-height-increase

7.1.6 The design of the Granby Terrace overbridge may have to be reviewed and revised to ensure compatibility with revised highway alignments. As such, the outcome of the HRB study may have an effect on the feasibility of delivering an LHA on Granby Terrace overbridge, including the option to provide an LHA in the westbound direction on the bridge. This will need to be considered when the shortlisted options (see Section 8) are considered further.

8 Sifting Process

8.1.1 The Sift process has been adopted by the DfT and implemented throughout HS2 across the route during design development. It allows for the assessment and selection of options by allowing them to be compared in a like for like manner against the baseline comparator, in this instance a lorry holding area located on Park Crescent, parallel to the westbound carriageway, east of the junction with A4201 Portland Place.

8.1.2 HS2 identified a number of criteria against which to consider each of the potential locations and conducted an initial assessment of the alternatives. The criteria were discussed with TfL and LBC on 10th May 2016 and a number of the alternative LHA locations discussed in order to agree the principles of the appraisal. The sift includes a standard RAG (red, amber and green) rating analysis to represent options which provide an improvement on the baseline Park Crescent LHA (green), no change to the baseline LHA (amber) and a worsening from the baseline LHA (red). Additionally, those marked as neutral (white rating) in the sift matrix are neutral to show where a view cannot be determined at this time without further assessment while those marked as unknown (black rating) where the position cannot be determined or has elements outside of the control of HS2 Ltd.

8.1.3 Seventeen options have been considered against the criteria as shown in Table 4.

Table 4: Sift criteria

Sift Criteria	Issues to consider
HGV Routeing	• Is LHA on an existing construction traffic route • Additional vehicle movements associated with use • Additional vehicle kilometres
Construction Feasibility	• Would set-up of LHA introduce additional construction works
Programme compatibility	• Availability of LHA throughout programme • Capacity
Environment	• Proximity to residential receptors • Implications with respect to air quality • Potential visual impacts
Compatibility with other modes	• Potential impact on bus facilities • Potential impacts on parking provision • Potential impacts on taxi services
Potential impacts on vulnerable road users	• Interface with cyclists – CSH

Sift Criteria	Issues to consider
	• Interface with pedestrians • Cycle/pedestrian safety
Further Risks	• Ability to manage traffic – congestion • Dependency on completion of other programme elements
Interface with other assurances/commitments	• Conflicts with commitments provided • Related studies

9 Shortlisted Options and HS2 Position

9.1.1 The 17 options described previously have been considered against the criteria contained within Table 4, based on qualitative appraisal of the likely impacts of each option being implemented, reference should be made to completed sift appraisal table within Appendix C.

9.1.2 It is the position of HS2 Ltd that given the variables which may influence requirements for on-street lorry holding capacity, including the outcomes of the related studies discussed in sections 5 and 6 of this report; and the further development of the detailed design and associated construction and logistics planning, that it is not appropriate to identify a single option for on-street lorry holding at this stage, given the capacity of the alternatives considered varies between 4-10 lorry bays.

9.1.3 The study has therefore concluded that the locations shortlisted below constitute reasonable alternatives to the planned on-street lorry holding adjacent the westbound carriageway of Park Crescent, based on comparative appraisal of the potential impacts.

- Park Crescent (eastbound) west of Portland Place;
- Granby Terrace overbridge (on the basis of two-way operation at the junction of Granby Terrace overbridge and A400 Hampstead Road);
- A501 Euston Road (eastbound off-slip);
- A400 Hampstead Road (immediately N and S of the junction with Drummond Street);
- Freight Lane;
- A404 Harrow Road; and
- Finchley Road O2 Centre Car Park.

9.1.4 The option to provide an LHA on A400 Hampstead Road immediately north of the junction with Drummond Street, given potential impacts of the option south of this junction, could be considered in conjunction with the provision of an LHA on A501 Euston Road (eastbound off-slip). Whilst the provision of the LHA on A400 Hampstead Road at this location would likely reduce carriageway width and hence could reduce capacity, capacity on A400 Hampstead Road would be reduced anyway during the construction programme due to the A400 Hampstead Road overbridge works.

9.1.5 For the shortlisted options, a detailed assessment of the highway network performance (using the CLoHAM strategic highway model) would likely be required. This would determine any potential additional significant effects (and associated mitigation) arising from changes to highway capacity as a result of the reallocation of carriageway space to an LHA, or the effects arising from the alternative routeing of construction vehicles.

9.1.6 The Park Crescent (eastbound) option west of Portland Place would also be considered with specific mitigation measures, including provision of signage (for construction vehicles drivers and cyclists) and ensuring that any hoarding is provided such that vehicles departing the LHA can see cyclists coming from behind so that they are not wholly reliant on the banksman. Given this alternative could reduce the potential conflicts with CSH 11, when compared to the baseline option as detailed in Section 2.3, it is recommended that the baseline scheme is not taken forward.

9.1.7 The option of establishing a lorry holding facility to the west of the Finchley Road O2 Centre would provide capacity within very close proximity to the route identified for transport of excavated material and is not within close proximity to sensitive receptors. However, it must be noted that the powers to implement this option are not within the hybrid Bill and so implementation would be dependent on the agreement of the relevant stakeholders. Furthermore, given the distance of this site from the construction compounds at Euston, use of this option would introduce further risks regarding the ability to call vehicles forward to site in timely manner, given potential for increased delay due to incidents or periods of congestion. There is greater control provided by LHAs within close proximity to the construction sites they are serving.

9.1.8 The Freight Lane and Harrow Road options introduce similar risks to the Finchley Road O2 Centre option, in that they are an increased distance from the construction sites when compared to the other shortlisted options. However, there are not considered to be sensitive receptors in close proximity to either of these sites and onwards access from the LHA to construction sites would be via the TLRN or A roads.

9.1.9 Consideration should also be given to adding any sites arising as a consequence of other opportunities, such as from the outcomes of other studies or arising from other development or highway schemes that come forward. As stated previously, it is also recommended that during detailed design of the proposed scheme and development of associated construction working arrangements, opportunities for holding lorries within construction sites be identified and assessed when considering potential implementation of the options shortlisted within this report.

9.1.10 The implementation of an on-street LHA on any alternative section of the highway, would require HS2 to utilise legal powers under Schedule 4, Clause 6 of the Bill. This would require the Nominated Undertaker to consult with the relevant authority (in relation to those sites on roads listed in Table 3 of Schedule 4. In relation to any affected roads not listed in Table 3, consent would be required from the relevant authority. As such the Bill provides comfort (in the form of legally binding clauses) regarding the provision and location of on-street lorry holding areas.

9.1.11 Furthermore, HS2 will engage with the local community about the location of the LHA once detailed design and construction logistic planning has progressed, but prior to any decision being made on the final location of the LHA.

9.1.12 Detailed design and construction logistics planning will be conducted by the main works civil contractors for the Euston approach and Euston station, which are anticipated to be appointed from Q2 2017 and Q1 2019 respectively. These contractors will undertake the works which generate the forecast peak construction traffic movements associated with excavated material, between 2019-2024 and 2029-2031. Therefore, autumn 2017 is likely be an appropriate time for associated engagement. In the interim the community can provide feedback on the LHA report and the shortlisted options via the Euston Community Representatives Group, 'HS2 in Euston' commonplace website, helpdesk and via 'HS2 in Euston', the HS2 drop in centre on Hampstead Road.

10 Feedback

10.1 Introduction

10.1.1 The following section summarises those key comments provided by TfL and LBC during completion of the study, as provided during workshops on the 25 April 2016, 10 May 2016 and 21 June 2016, and following review of the EIPB report submitted for discussion on 19 May 2016, which have not been incorporated within this report. The rationale as to why this is the case is also set out against each point.

10.2 Transport for London

1. TfL considers that the 210 daily one-way tipper truck movements provides for the transportation of a quantum of material that exceeds the maximum daily amount of excavated material that will be generated at Euston. It is not clear what the estimated daily production rate of material is at Euston in tonnes and how this relates to the aforementioned 210 daily tipper truck flows.

HS2 Response - Without additional information from TfL regarding their appraisal of daily one-way tipper truck movements, it is not possible to provide further comment at this stage. The daily one-way tipper truck movements have been calculated based on the expected quantities of excavated material and are therefore considered valid.

2. HS2 Ltd needs to show detail on how the Euston worksites are currently assumed to be laid out and comment on the possibility of lorry holding spaces being allocated within them.

HS2 Response - As described in paragraph 4.1.3, the detailed layout of the construction compounds is not yet determined and will not be done so until after the Bill has secured Royal Assent, following detailed design. At this stage, the level of design necessary to enable the Proposed Scheme to be constructed will be completed along with associated construction arrangements.

3. The report should state how much further the vehicle routeing distances would be compared to the base Park Crescent option (accounting for double back distance).

HS2 Response – Vehicle routeing and distances compared to the base Park Crescent option are described for each option in Section 5 of this report.

4. The report needs to make it clear that the lorry routeing is not set as the destination(s) for the excavated material and origin locations for the construction material have not been determined yet. It would be useful if the report could give an indication for when this is likely to be concluded and when routeing discussions with the relevant planning authorities will take place.

HS2 Response - The approved vehicle routeing will not be finalised until the after the Bill has secured Royal Assent and the detailed design is underway. It is not intended to change HS2's current traffic management plans at this time. Local traffic management plans (LTMPs) will be produced in consultation with the highway and traffic authorities which will include permitted access routes and accesses for construction traffic.

5. Other emerging schemes in the locality such as cycle network proposals, King's Cross Gyratory and the West End Project need stronger consideration in the report.

HS2 Response - Appreciation of future committed and proposed schemes with regard to the proposed LHA locations has been given within this report, where relevant, and consideration is given to the interaction with cyclists throughout the report and in the sift matrix.

6. The report should give clear conclusions to the work undertaken to date along with commitments that HS2 Ltd is proposing to make. TfL considers that these commitments should include:

    a. A commitment that investigation into the potential of the O2 centre site will continue

    b. A commitment that investigation will continue into the potential use of Hampstead Road Bridge and adjacent construction sites for lorry holding as under Option 1 of the HRB study.

    c. A commitment that HS2 Ltd will re-examine the capacity requirements for Lorry Holding when the outcomes of the Material by Rail and Hampstead Road Bridge assurances are known.

    d. A commitment that HS2 Ltd will work with its contractors to determine if a second LHA area (and its size) is needed for each phase of the works.

HS2 Response - The use of the O2 Centre car park is among the shortlisted options in Section 9 and will therefore be considered further in liaison with the current owner/operator of the site.

The Hampstead Road Bridge study does not recommend Option 1 as the preferred option. Therefore, TfL's suggested LHA has not been considered at this stage.

The on-street LHA requirements will be determined following further design and construction planning and will consider the conclusion of the Material by Rail and Hampstead Road Bridge studies.

HS2 will work with its contractors regarding the provision and location of LHA for each phase of the works.

7. The next steps section should include the clear steps and timescales for the programme for LHA assessment and, if the supplementary LHA is needed, timescales for and its implementation – including the agreement of management and impact mitigation measures, governance arrangements, consultation and engagement with the public.

HS2 Response - As stated in paragraph 9.1.2, it is not considered appropriate to identify a single option for on-street lorry holding at this stage. HS2 will continue to engage with TfL and LBC regarding a programme for the above activities.

10.3 London Borough of Camden

Key Points

1. It is noted that a completed report was due to be presented to the Euston Integrated Programme Board (EIPB) in May 2016 and that this obligation has not been met. A final report needs to be presented to the EIPB with clear proposals for implementation (as set out in the assurance) in order for the EIPB to be able to give its comments on the final report. It is imperative that prompt submission is then made by HS2 of the final study to the Promoter in order that the Promoter can give his decision in adequate time for interested parties to make any necessary representations to the House of Lords Select Committee without being compromised by late arrival of such a decision.

HS2 Response - HS2 Ltd submitted a report entitled 'Euston Integrated Programme Board – Lorry Holding Report' to EIPB in May 2016, for discussion at the meeting on the 19th May. Comments were provided during this meeting and following a subsequent workshop with representatives of HS2, TfL, LBC and CoW in June 2016. This report seeks to address the comments received, in accordance with the assurance provided to TfL, and has been provided to the Promoter for consideration.

2. The report needs to set out the programme going forward, both next steps and in subsequent stages of the project with timescales. This needs to include key stages such as when contractors are appointed and when origins and destinations of materials will be known. This also needs to include procedures, governance, and public consultation.

HS2 Response - As stated in paragraph 9.1.2, it is not considered appropriate to identify a single option for on-street lorry holding at this stage. HS2 will continue to engage with TfL and LBC regarding a programme for the above activities.

3. The report need to state how and when it will be presented to the Promoter.

HS2 Response - See above

4. It is noted that none of the LHA (Lorry Holding Area) locations suggested in this study other than that at London Zoo Car Park (ZSL) was set out as a proposal or analysed in the Environmental Statement for HS2. The report needs to make clear how this omission will be addressed and how the final proposed LHA (or LHAs) will be consulted upon, the procedure to update the proposal(s) taking account of the views of interested parties.

HS2 Response - As stated in paragraph 9.1.5, a detailed assessment of the shortlisted options using the CLoHAM strategic highway model would likely be required. This would determine any likely additional significant effect arising from the provision of an on-street LHA.

5. As a matter of principle, options which involve increased construction traffic on inappropriate roads, i.e. those away from the TLRN or SRN should be avoided, in accordance with HS2's objective to minimise construction traffic on such roads wherever practicable.

HS2 Response - In general, construction traffic will use the TLRN or SRN to get to and from the Euston area and the construction compounds and this would apply, so far as is reasonably practicable, to vehicles accessing a LHA. However, local borough roads will need to be used during construction. This would be the case for some of the shortlisted options including Granby Terrace Bridge and Freight Lane.

6. On the basis of 34% of excavated materials being carried by rail (currently indicated under the materials by rail study), the 10 vehicle on-street maximum capacity should fall to about 5-7 vehicles.

HS2 Response - Section 6 of this report provides detailed of the Material by Rail study while paragraph 9.1.2 indicates that the outcome of this study, as one of a number of variables, would be required prior to selecting preferred on-street LHA. This is not available at this stage of the project.

7. Verification of CLOCS compliance of HGVs should not take place within the LHA. It would be more efficient and reduce the required capacity of the LHA if this were to take place in the contractors' depots, for example.

HS2 Response – It is currently assumed CLOCS verification would be undertaken at the LHA rather than at contractor's depots. This enables HS2 checks to be undertaken in one location rather than requiring HS2/checking personnel to be stationed at all contractor depots. However, if checks were undertaken at contractor depots, it would not reduce the space requirements for the LHA as the use of the LHA is likely to peak in the earlier part of the day, so capacity would still be required.

8. The study needs to make clear how stage B1 at Euston has been assessed and how the need for LHAs will be reviewed as work on this stage progresses.

HS2 Response - Appendix A provides the forecast construction traffic flows for the entire duration of the programme while Section 3.2 sets out the forecast demand for the programme.

9. The report needs to be clearer about when a second LHA would be needed (if at all) and confirm whether the LHA being considered would only act as an overspill when ZSL LHA reaches capacity or, if not, how the second LHA would operate in relation to the ZSL LHA.

HS2 Response - Section 3.2 provides detail on the demand for LHAs and how the on-street facility would interact with the off-street facility.

10. Other emerging schemes in the locality such as London Cycle Grid proposals, the King's Cross Gyratory and the West End Project need stronger consideration in the report.

HS2 Response - Appreciation of future committed and proposed schemes with regard to the proposed LHA locations has been given within this report, where relevant, and consideration if given to the interaction with cyclists throughout the report and in the sift matrix.

11. The potential for use of construction compounds/haul roads for holding lorries need to be assessed in this report.

HS2 Response - As described in paragraph 4.1.3, the final layout of the construction compounds is not yet determined and will not be done so until after the Bill has secured Royal Assent. It is at this stage, the level of detailed design necessary to enable the Proposed Scheme to be constructed will be completed.

12. Where options of limited capacity depend upon use of more than one additional LHA, the LHAs should be assessed as a whole package in the report.

HS2 Response - Only one of the shortlisted options would require the use of more than one additional LHA (A501 Euston Road eastbound off-slip and A400 Hampstead Road north of Drummond Street). Any further assessment would consider the impact of these options together.

13. The impact on the highway network should be tested against other relevant highway models (e.g. LINSIG, TRANSYT), not only the CLOHAM strategic highway model.

HS2 Response - The level of assessment required would be determined for each option that is to be assessed at the appropriate time. Use of tools in addition to the CLoHAM strategic highway model would be considered if appropriate.

14. Some of the options indicate an increase in construction vehicle mileage. The increased environmental costs (and benefits of using rail) should be identified and taken into account in the assessment of different LHA locations. The results should also feed into the materials by rail study and take account of outcomes from that study.

HS2 Response - The outcomes of each of this study, the Material by Rail study and any other relevant studies will be considered together at the appropriate time, at which point additional capacity requirements beyond that provided by the off-street LHA at the Zoological Society of London (ZSL) London Zoo car park (also referred to as the Gloucester Slips Vehicle Park) will be determined.

15. There is a need for close co-ordination between the various studies being carried out concurrently, for example the materials by rail study and HRB study. Their implications on each other need to be set out and taken into account. For example, could further opportunities arise for sites for LHAs in options for the HRB study? If so, these options should be added and analysed and, in turn, they could add to the benefits of those options when assessed under those other studies (e.g. would it be feasible to use HRB for a period under HRB option1, provided this produced benefits to the community, relieved impacts on residential roads off the TLRN/SRN and did not increase environmental costs.

HS2 Response - The outcomes of each of this study, Hampstead Road Bridge study and any other relevant studies will be considered together at the appropriate time.

16. Park Crescent (East) – Show on a plan with legible annotations how CS11 cycle lanes could be accommodated with the LHA in place and kerbside parking rearranged.

HS2 Response - This level of detail would be considered as part of the detailed design of this option. However, it is understood that the CSH11 lanes would only be provided on the south/east side of Park Crescent, while the kerbside parking on this side of the road would be retained. To provide a LHA on the north side of Park Crescent (east), the parking on this side of the road would need to be removed. For cyclists travelling north, cycle lanes would be provided on the south/west side of Park Crescent (west).

17. Park Crescent (East) – The issues re proximity to the junction need mitigations, not merely management by the contractor, and this should be elaborated upon in the report.

HS2 Response - This level of detail would be considered as part of the detailed design of this option. However, it is envisaged that the LHA could be sited appropriately to ensure that the exit from the LHA would be an appropriate distance from the junction of Park Crescent (east) and A501 Marylebone Road.

18. Hampstead Rd Overbridge – Camden disagrees with the assertion that the impact on views from residential premises caused by 10 parked lorries is equivalent to the impact on views of a bus stop and bus lanes, nor the inference that the presence of other construction activity nearby somehow justifies additional visual impacts.

HS2 Response – the conclusions reported within the sift appraisal matrices are based on the professional judgement of topic experts, in-line with the approach detailed within the HS2 EIA Scope and Methodology Report.

19. LB Camden have made a number of detailed comments on the sift table included in Appendix C, regarding the following alternative locations:

    - 3.6 Harrington Square;
    - 3.7 Albany St;
    - 3.8 Robert St;
    - 3.11 Acton St;
    - 3.12 Swinton St; and
    - 3.13 York Way

HS2 Response - The above options have not been shortlisted given the number of issues noted in sift table.

20. Hampstead Rd, near Brock St – Potential conflicts with the West End Project needs to be assessed. The impacts on the highway network should be tested against other relevant highway models (e.g. LINSIG, TRANSYT), not only the CLOHAM strategic highway model, which is too crude to fully assess the full impact. The report needs to set out the level of congestion that would be caused as well as how traffic (including cyclists, buses, general traffic and other construction traffic) could pass the LHA in a satisfactory manner.

HS2 Response - This level of detail would be considered as part of the detailed design of this option. This would include consideration of the West End Project and any other relevant schemes. However, it is not envisaged that there would be any significant conflicts between the West End Project and the provision of a LHA on Hampstead Road north of Drummond Street. The level of assessment required would be determined for each option that is to be assessment at the appropriate time. Use of tools in additional to the CLoHAM strategic highway model would be considered if appropriate.

21. LB Camden have suggested that section 4. Impact on construction vehicle routeing of each option, be set out as a sub section alongside each option in section 3 rather than as a separate section 4, to ease understanding for the reader. It is also stated

that reference is made to comments set out above for each section, which are not repeated here. Where options indicate increases in construction vehicle mileage, the increased costs in environmental costs (and benefits of using rail) should be identified and taken into account in the assessment. The results should also feed in to the materials by rail study. It is unacceptable to direct more construction traffic on to roads off of the TLRN/SRN and that also pass through residential areas.

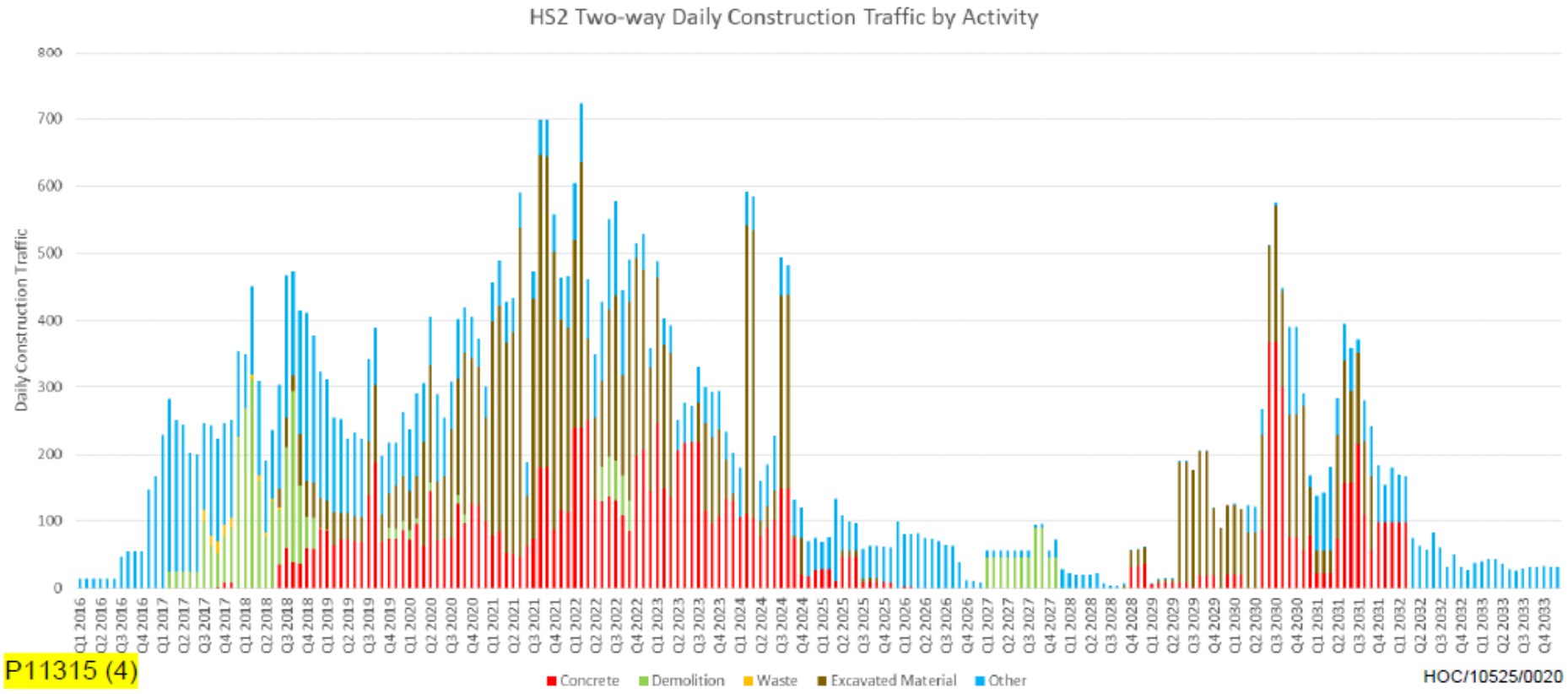
HS2 Response - The structure of the report has not been changed as it was considered important that vehicle mileage associated with each option be considered separately. A detailed assessment of the shortlisted options using the CLoHAM strategic highway model would likely be required. This would determine any potential additional significant environmental effects arising from the provision of an on-street LHA and associated mitigation measures.

22. Hampstead Rd North – East side: Environment – it is not clear what is meant by 'increase or change to traffic distribution will not trigger requirement for additional air quality assessment' and there is no information on this in the report' – needs elaboration in the report to justify statement. Note: This comment applies to all references to this in subsequent options.

HS2 Response – construction traffic movements to the LHA, where not along existing construction traffic routes identified within the SES2 and AP3 ES, do not exceed the screening criteria identified within the HS2 EIA Scope and Methodology Report, above which detailed air quality assessment is considered to be required. However, as stated in the sift appraisal matrix, for a number of options the combined traffic changes of all HS2 activities will need to be examined further.

Appendix A – Daily Construction Traffic

AP03 Two-way Daily Construction Traffic by Activity



Appendix B – Lorry Holding Area Assumptions

Background

The purpose of this technical note is to outline the Lorry Holding Area (LHA) assumptions and anticipated usage and capacity requirements for the AP3 Euston Incremental Staging Option design.

LHA Assumptions

The following assumptions regarding the use of LHAs by construction vehicles have been applied within this technical note:

- It is assumed that lorries shall arrive at construction sites no earlier than 08:00;
- LHAs will be in use from 07:00;
- Ready mixed concrete trucks will be checked for compliance in the local depot and demolitions vehicles, after a daily check, will be able to travel direct to site without undertaking continual checking at LHAs;
- All other lorries are assumed to be required to undertake approval checks at LHAs prior to travelling to site to ensure FORS and CLOCS compliance although returning vehicles would not need to be checked on second or subsequent visits and may not need to be routed via the LHA. However, use of the LHA is likely to peak in the earlier hours of the day so capacity would still be required; and
- A one hour buffer has been assumed as a holding period to account for those times that site conditions may require it.

LHA Capacity and Usage

The forecast number of daily lorry movements both in and out of the Euston site during the peak construction period is approximately 325. Approximately 650 average daily combined two-way vehicle trips.

To calculate the required number of lorry holding the following split by trip type has been applied:

- Demolition 0% - this will occur predominantly in the first two years of construction and has therefore not been included in the sizing of the lorry holding area required;
- Excavated Materials 55%;
- Concrete 33% - concrete is perishable and therefore will arrive direct to site and will not be required to use the proposed LHA;
- Reinforcement bar 1%; and
- Miscellaneous 12%.

For peak time usage it has been assumed that 67% of vehicles would use the LHAs (Excavated materials, reinforcement bar and miscellaneous types).

On-street LHA Usage

An on-street LHA is primarily required for tipper lorries (excavated materials) which comprises 55% of construction vehicle usage type. These are likely to operate between 7am and 5pm (10hrs).

Therefore:

- Peak Daily tipper lorry movements (325 total peak daily movements x 55%) = 179 per day;
- 179/10 = approximately 18 lorry movements per hour; and
- A 1 hour buffer period is assumed = 18 lorries.

Hence it is assumed that a total of 18 LHA spaces will be required during construction. Of this total 11 spaces can be provided within the proposed off-street LHA (ZSL coach and car park) and therefore between 7 and 10 on-street spaces are forecast to be required.

Off-street LHA Usage

The proposed off-street ZSL LHA will cater for lorries carrying miscellaneous materials and reinforcement bar.

Therefore:

- Miscellaneous and reinforcement lorries (325 total peak daily movements x 13%) = 43 vehicle movements per day;
- These materials will tend to be delivered from long distance;
- The vehicles will travel to the ZSL LHA and drip feed to site through the 10hr period;
- It is assumed that the majority of these movements will be with articulated lorries; and
- A 2 hour buffer period is assumed = 9 to 10 spaces for articulated lorries.

Hence it is assumed that ZSL LHA will have provision for:

- 11 spaces for tipper lorries (3 or 4 fixed axles); and
- 9 to 10 spaces for articulated lorries (multi-axle tractor unit and semi-trailer).

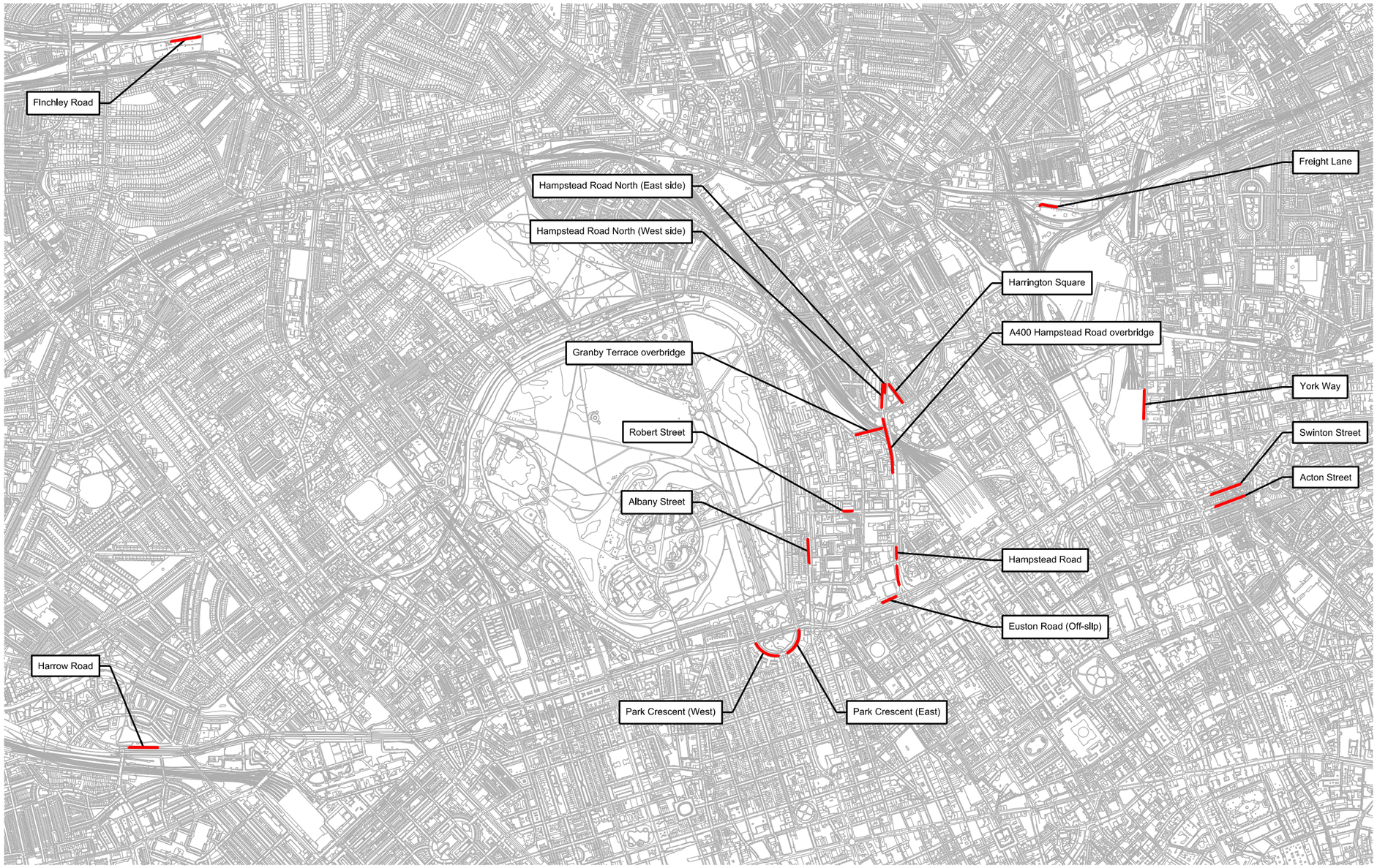
Appendix C – Sift Appraisal Matrix

On-Street LHA Sifting Record Sheet														
	AP03 Construction and Logistics Option - Park Crescent		**Park Crescent (Eastbound) East Side of Crescent**		**Park Crescent (Eastbound) West Side of Crescent**		**A400 Hampstead Road overbridge (HRB)**		**Hampstead Road (North) West Side of Road**		**Hampstead Road (North) East Side of Road**		**Harrington Square**	
Description of Proposed Works	Westbound Lorry Holding Area (LHA) on the south side of Park Crescent that can accommodate approximately 10 tipper lorries.		Eastbound LHA running on the north side of Park Crescent that can accommodate approximately 10 tipper lorries. Proposed LHA could be located on the eastern side of the crescent close to the junction with Marylebone Road. Proposal is likely to require the removal or relocation of parking bays on both sides of Park Crescent (for the length of the LHA) but would retain planned TfL CSH 11. No change to the HGV line of route would be necessary.		Eastbound LHA running on the north side of Park Crescent that can accommodate approximately 10 tipper lorries. Proposed LHA could be located on the western side of the crescent close to the junction with Marylebone Road. Proposal is likely to require the removal or relocation of parking bays on both sides of Park Crescent (for the length of the LHA) but would retain planned TfL CSH 11. No change to the HGV line of route would be necessary.		Potential to site an LHA on HRB upon complete of the bridge re-construction works and could provide approximately 10 spaces for tipper lorries. The proposal would require the re-allocation of road space on HRB for the duration of use as an LHA. The LHA could be provided on either the west or east side of HRB. Some changes to the line of HGV routing would be required and would slightly increase the number of HGV trips within the vicinity of Euston Station.		Potential to site lorry holding on Hampstead Road immediately to the west of Harrington Square Gardens on the western side of the carriageway. The LHA would require the removal or relocation of the existing Bus Lane and parking and loading facilities. The proposal could accommodate approximately 10 tipper lorries and would be available post bridge construction (early 2023 onwards). This proposed scheme would require changes to the proposed HGV routing.		Potential to site lorry holding on Hampstead Road immediately to the west of Harrington Square Gardens on the eastern side of the carriageway. The LHA would require the removal or relocation of the existing bus standing facilities and could accommodate approximately 4 spaces for tipper lorries. There are no anticipated programme implications for this potential scheme however changes to the proposed HGV routing would be required.		Approximately 7 spaces could be sited on Harrington Square which would require the removal or relocation of a number of residential parking spaces. No implications with regard to construction programme however HGV vehicles need re-routing from proposed line of route to site. HGV re-routing would be required for this proposed scheme	
Options Appraisal Criteria		Score		Score		Score								
HGV Routing / Vehicle Miles	A westbound lorry holding area on park crescent would effectively double the number of HGV's using the stretch of Marylebone Road between the eastern and western Park Crescent junctions.		Improved routing to TLRN. Removes doubling of trips between the eastern and western Marylebone junctions with Park Crescent		Improved routing to TLRN. Removes doubling of trips between the eastern and western Marylebone junctions with Park Crescent		Slight change to routing resulting in increased number of trips and vehicle mileage. Would require routing of lorries via Harrington Square which is not on TLRN		Slight change to routing resulting in increased number of trips and vehicle mileage. Would require routing of lorries via Harrington Square which is not on TLRN		Slight change to routing resulting in increased number of trips and vehicle mileage. Would require routing of lorries via Harrington Square which is not on TLRN.		Slight change to routing resulting in increased number of trips and vehicle mileage. Would require routing of lorries via Harrington Square which is not on TLRN	
Construction Feasibility	Hoarding and lane marking adjustments required. No changes to kerb alignment. Possible changes required to signal junctions on either side of Park Crescent.		Hoarding and lane marking adjustments required. No changes to kerb alignment. Possible changes required to signal junctions on either side of Park Crescent.		Hoarding and lane marking adjustments required. No changes to kerb alignment. Possible changes required to signal junctions on either side of Park Crescent.		Changes to lane allocation required, lining and hoarding implementation. Unlikely to result in changes to kerb alignment. Cannot be implemented during the reconstruction of the bridge.		Changes to lane allocation required, lining and hoarding implementation. Unlikely to result in changes to kerb alignment, Cannot be implemented during the reconstruction of the bridge. Removal of bus lane, bus stops and parking required.		Changes to lane allocation required, lining and hoarding implementation. Unlikely to result in changes to kerb alignment. Removal of bus standing facilities required.		Removal of residents parking and motorcycle parking facilities. Hoarding and lining required. No changes to kerb alignment.	
Programme Compatibility	No programme implications Up to 10 bays could potentially be provided		No programme implications Up to 10 bays could potentially be provided		No programme implications Up to 10 bays could potentially be provided		Only available from early 2023 onwards. Up to 10 bays could potentially be provided		Only available from early 2023 onwards. Up to 10 bays could potentially be provided.		No programme implications Up to 4 Bays could potentially be provided		No programme implications Up to 7 bays could potentially be provided	
Environment	Close to residential and commercial properties, likely to result in a change in the quality of the view for residential receptors. Sensitive setting due to designated/listed assets and conservation area. Potential for impact on townscape character.		Changes traffic distribution removing vehicles from a short section of Marylebone Road into Park Crescent. Close to residential and commercial properties, likely to result in a change in the quality of the view for residential receptors. Sensitive setting due to designated/listed assets and conservation area. Potential for impact on townscape character.		Changes traffic distribution removing vehicles from a short section of Marylebone Road into Park Crescent. Close to residential and commercial properties, likely to result in a change in the quality of the view for residential receptors. Sensitive setting due to designated/listed assets and conservation area. Potential for impact on townscape character.		Increase or change in traffic distribution due to LHA will not trigger requirement for additional air quality assessment. However, the combined traffic changes of all HS2 activities will need to be examined further and requires routing of traffic through Harrington Square. Close to residential properties but unlikely to substantially affect the quality of the existing view in the context of the busy A400 and commercial properties present currently and the HS2 construction activities when the LHA would be in use. The option to place the LHA on the eastern side of the carriageway would be slightly less intrusive than the western option by virtue of the distance to residential properties, such as Cartmel.		Increase or change in traffic distribution due to LHA will not trigger requirement for additional air quality assessment. However, the combined traffic changes of all HS2 activities will need to be examined further. Minimal impact on quality of view or townscape character for the location of the LHA, adjacent a busy thoroughfare. Would require routing of lorries via Harrington Square.		Increase or change in traffic distribution due to LHA will not trigger requirement for additional air quality assessment. However, the combined traffic changes of all HS2 activities will need to be examined further. Minimal impact on quality of view or townscape character for the location of the LHA, adjacent a busy thoroughfare. Would require routing of lorries via Harrington Square.		Increase or change in traffic distribution due to LHA will not trigger requirement for additional air quality assessment. However, the combined traffic changes of all HS2 activities will need to be examined further. Sensitive location close to residential properties (no. 15-24 Grade II listed) and adjacent to a designated London Square. Presence of LHA likely to result in a change in the quality of the view for residential receptors. Potential for impacts on townscape character and would require routing of lorries via Harrington Square.	
Compatibility With Other Modes (Bus, Taxi, General Traffic etc.)	Proximity to junction with Marylebone Road may adversely impact upon queuing and congestion on Park Crescent and Marylebone Road. It is likely that signal control at the junctions of Park Crescent will need to be upgraded/assessed.		Proximity to junction with Marylebone Road may adversely impact upon queuing and congestion on Park Crescent. Reduced conflict with CSH 11 due to the location of the LHA on the northern side of the road. Signal control of Park Crescent would need to be assessed to ascertain likely impact of LHA. Requires the removal of parking facilities.		Signal control of Park Crescent would need to be assessed to ascertain likely impact of LHA. Requires the removal of parking facilities.		May impact upon bus infrastructure on the reconstructed bridge. May impact upon congestion on Hampstead Road		Impacts upon bus infrastructure and taxi. Safety issues regarding HGV's crossing multiple lanes of general traffic to continue route to construction site. May impact upon congestion on Hampstead Road		Impacts upon bus standing facilities. Bus standing may need to be relocated or removed as part of this proposed option		Requires the removal of parking facilities. It is not envisaged that this option will impact upon boarding and alighting at the nearby southbound bus stop.	
Compatibility with Vulnerable Road Users (Cyclist and Pedestrians)	Incompatible with the proposed TfL CSH 11 route that is planned to run from east to west along the south side of Park Crescent.		Proposed LHA will be located on the route of CSH 11. Reduced conflict with CSH 11 due to the location of the LHA on the northern side of the road.		Proposed LHA will be located on the route of CSH 11. Reduced conflict with CSH 11 due to the location of the LHA on the northern side of the road.		Likely to require the removal or temporary suspension of cycle facilities on HRB delaying operational use of cycle infrastructure.		Suspension of the bus lane would require an increased number of cyclists to use the remaining general traffic lanes.		May impact upon Cycle Hire located on the footway adjacent to this potential LHA location.		No physical impact upon any cycle infrastructure though the route is relatively well used by cyclists	
Related Assurances/Commitments	Material by Rail Study		Material by Rail Study		Material by Rail Study		Outputs of HRB Study and outputs of Material by Rail Study will need to be taken into account		Outputs of HRB Study and outputs of Material by Rail Study will need to be taken into account		Material by Rail Study Bridge Study		Material by Rail Study	
Key Risks	Parking Cycle Safety Routing risks		Parking Despite reduced conflict with CSH when compared to baseline option - cycle safety risks remain Routing risks		Parking Despite reduced conflict with CSH when compared to baseline option - cycle safety risks remain Routing		Dependent on bridge reconstruction. Bus and Cycle infrastructure. Breakdowns could affect resiliance of route on Harrington Square but route currently accommodates bus stop and traffic lane.		Dependent on bridge reconstruction. Bus infrastructure. Pedestrian movements associated with office use Breakdowns could affect resiliance of route on Harrington Square but route currently accommodates bus stop and traffic lane.		Bus Infrastructure. Pedestrian movements associated with office use Physical dimensions of road - removal of bus stand Breakdowns could affect resiliance of route on Harrington Square but route currently accommodates bus stop and traffic lane.		Parking Cycle routing Breakdowns could affect resiliance of route on Harrington Square but route currently accommodates bus stop and traffic lane.	

Description of Proposed Works	**A4201 Albany Street** Northbound LHA that can provide approximately 6 spaces on Albany Street which would require a number of residential bays to be removed. Likely to be available from Mid 2018 onwards. HGV re-routing would be required for this proposed scheme.		**Robert Street** Can provide approximately 4 spaces for LHA that would result in the removal/relocation of a number of parking spaces. Available from Mid 2018 onwards. HGV re-routing would be required for this proposed scheme.		**Granby Terrace overbridge (GTB)** This option could provide space for approximately 8 tipper lorries within a dedicated LHA. The potential to locate lorry holding at this location would be required after the bridge is reconstructed but before it is opened for public use. It is likely GTB could be used from Late 2020 onwards. Hoarding and lining would be required for this option but minimal changes to routing of HGVs would be necessary		**A501 Euston Road (Eastbound Off-Slip at junction with A400 Hampstead Road)** The proposed location could accommodate approximately 4-5 spaces for tipper lorries on the eastbound arm of Euston Road at the junction with Hampstead Road and Tottenham Court Road. There are no programme implications with this potential option.		**Acton Street** There is the potential to accommodate approximately 10 spaces for tipper lorries on Acton Street on either the north or south side of the road. Lorry holding on Acton Street would require the removal of bus and parking infrastructure. There are no programme implications associated with this option.	
Options Appraisal Criteria											
HGV Routing / Vehicle Miles	Slight change to routing resulting in increased number of trips and vehicle mileage		Slight change to routing resulting in increased number of trips and vehicle mileage		No significant change to routing. Residential routes avoided assuming further development of 2-way junction with HRB		No change to routing		Significant change to routing resulting in increased number of trips and vehicle mileage	
Construction Feasibility	Removal of residents parking. Implementation of hoarding and lining to denote LHA. Relocation of bus stop required and potential works to island crossing. Utilities works along this stretch of highway must be undertaken prior to any use as a LHA.		Removal of residents parking. Implementation of hoarding and lining to denote LHA. Relocation of bus stop required and potential works to island crossing. Utilities works along this stretch of highway must be undertaken prior to any use as a LHA.		Further detailed work required to assess the potential for the reconstructed bridge to remain two-way during the operation of an LHA at this location.		Removal or relocation of bus stop required. Lane marking and hoarding.		Lane marking, LHA hoarding and the removal or relocation of bus infrastructure and parking facilities required.	
Programme Compatibility	Available from mid 2018 onwards Up to 6 bays could potentially be provided		Available from mid 2018 onwards Up to 6 bays could potentially be provided		Only available from late 2020 onwards Up to 8 bays could potentially be provided		No programme implications 4-5 bays could potentially be provided		No programme implications Up to 10 bays could potentially be provided	
Environment	Increase or change in traffic distribution due to LHA will not trigger requirement for additional air quality assessment. However, the combined traffic changes of all HS2 activities will need to be examined further. Sensitive location very close to residential properties in a conservation area. Presence of LHA likely to result in a change in the quality of the view for residential receptors and the setting of the terraced residential properties in the conservation area. Routing of lorries would place additional traffic on Robert Street.		Increase or change in traffic distribution due to LHA will not trigger requirement for additional air quality assessment. However, the combined traffic changes of all HS2 activities will need to be examined further. Sensitive location very close to residential properties. No listed buildings or conservation areas are present in the vicinity. Presence of LHA likely to result in a change in the quality of the view for residential receptors but only limited effects on townscape character. Use would place additional traffic on Robert Street.		Increase or change in traffic distribution due to LHA will not trigger requirement for additional air quality assessment. However, the combined traffic changes of all HS2 activities will need to be examined further. Limited change in the overall view from the residential blocks to the south and west due to the scale of the HS2 construction activity and replacement bridge parapets.		No change in routing so no implications with respect to air quality assessment. Presence of LHA would not represent a substantial change in the quality of views.		Increase or change in traffic distribution due to LHA will not trigger requirement for additional air quality assessment. However, the combined traffic changes of all HS2 activities will need to be examined further given significant change in routing. Sensitive location very close to residential properties, likely to result in a change in the quality of the view for residential receptors. Sensitive setting due to designated/listed assets (Grade II listed properties in residential use) and road wholly within Bloomsbury conservation area. Area is currently a coherent streetscape with residential properties fronting onto the pavement. Parking bays demarked with street trees - a number of these may be removed, dependent on detailed design.	
Compatibility With Other Modes (Bus, Taxi, General Traffic etc.)	Impact upon bus and parking infrastructure.		Removal or relocation of parking required.		GTB is intended to be used exclusively for construction vehicles upon completion until approximately mid 2023 when it is planned to re-open to public traffic.		Removal of bus infrastructure required. May impact upon congestion on Euston Road		Removal of parking and bus infrastructure required.	
Compatibility with Vulnerable Road Users (Cyclist and Pedestrians)	No physical impact upon any cycle infrastructure though the route is relatively well used by cyclists		No physical impact upon any cycle infrastructure.		No physical impact upon any cycle infrastructure.		No physical impact upon any cycle infrastructure.		No physical impact upon any existing cycle or pedestrian infrastructure. Should this option be taken forward to the next stage it should be developed taking into account emerging future cycle and pedestrians schemes.	
Related Assurances/Commitments	Material by Rail Study		Material by Rail Study		Material by Rail Study		Material by Rail Study		Material by Rail Study	
Key Risks	Use early in programme dependent on completion of utility works Bus infrastructure, parking and pedestrian facilities. Potential conflicts with diverted general traffic as a result of CSH11 introduction		Use early in programme dependent on completion of utility works. Parking.		Dependent on bridge reconstruction.		Bus infrastructure.		Bus infrastructure and parking.	

	Swinton Street		**York Way**		**Freight Lane**		**Harrow Road (near A40 Westway)**		**Finchley 02 Centre Car Park**		**Hampstead Road (near Brock Street)**		**Site Compounds**				
Description of Proposed Works	There is the potential to accommodate approximately 10 spaces for tipper lorries on Swinton Street on either the north or south side of the road. Lorry holding on Acton Street would require the removal of bus and parking infrastructure. There are no programme implications associated with this option.		Approximately 10 spaces for tippers could be located northbound on York Way. This is likely to result in the removal or relocation of a number of bus stands on the west side of the road. Significant changes the HGV routing to and from this potential LHA would be required. It is likely there will be no programme implications associated with this option.		Potential to site approximately 80m of lorry holding on Freight Lane (6 spaces) immediately opposite the cement works. This would result in the the removal of existing informal waiting/loading. Significant changes to the HGV routing to and from this potential LHA would be required. It is likely there will be no programme implications associated with this option.		There is the potential to site approximately 130m of holding area on Harrow Road near to the A40 Westway. This would require the reduction of the one-way two lane road so a single lane in the eastbound direction. No programme implications are associated with this option.		The Finchley O2 Centre car park could potentially provide the necessary 130m of lorry holding to achieve the 10 spaces for tippers required. The introduction of lorry holding would result in the loss of a number of parking spaces at the existing car park. Minimal routing changes would be required and no programme implications are associated with this option.		There is the potential to site lorry holding on Hampstead Road on the west side of the road near to Brock Street and the Hampstead Road junction with Tottenham Court Road and Euston Road. The LHA would be split into two sections with the total combined space able to provide for approximately 10 spaces for tipper lorries. Bus stops would need to be removed/relocated and a northbound traffic lane converted to lorry holding.		Potential for lorry holding to be located within site compounds dependant upon availability of space for the vehicles to enter and exit safely.		
Options Appraisal Criteria																	
HGV Routing / Vehicle Miles	Significant change to routing resulting in increased number of trips and vehicle mileage	🔴	Significant change to routing resulting in increased number of trips and vehicle mileage	🔴	Significant change to routing resulting in increased number of trips and vehicle mileage	🔴	Significant change to routing resulting in increased number of trips and vehicle mileage	🔴	Minimal change to routing.	🟡	Minimal improvement to routing given requires no diversion from strategic excavated material route.	🟢	Improved routing and reduction in vehicle mileage.	🟢			
Construction Feasibility	Lane marking, LHA hoarding and the removal or relocation of bus infrastructure and parking facilities required.	🔴	Lane marking, LHA hoarding and the removal or relocation of bus infrastructure required. Potential reduced impact on bus stand	🔴	Lane marking, LHA hoarding and the removal or relocation informal waiting/loading.	🟢	Lane marking, LHA hoarding and the removal of a traffic lane.	🟡	Lane marking, LHA hoarding. Not feasible to provide option on the highway and therefore cannot be delivered within the powers under Schedule 4 of the Bill.	⚫	Lane marking, LHA hoarding and the removal of a northbound traffic lane for the lorry holding. Bus infrastructure removal/relocation required.	🔴	To be assessed following further development	⚪			
Programme Compatibility	No programme implications Up to 10 bays could potentially be provided	🟡	No programme implications Up to 10 bays could potentially be provided	🟡	No programme implications Up to 10 bays could potentially be provided	🟡	No anticipated programme implications. Up to ten spaces for tipper lorries can be provided.	🟡	Implementation would be subject to further consents outside of the existing Bill powers, which if feasible would introduce significant risks to programme	⚫	No anticipated programme implications. Up to ten spaces for tipper lorries can be provided.	🟡	To be assessed following further development	⚪			
Environment	Increase or change in traffic distribution due to LHA will not trigger requirement for additional air quality assessment. However, the combined traffic changes of all HS2 activities will need to be examined further given significant change in routing. Sensitive location, very close to residential properties, likely to result in a change in the quality of the view for residential receptors. Sensitive setting due to designated/listed assets (Grade II listed properties in residential use) and in a conservation area. There are some larger scale buildings present associated with the Nuffield Hearing and Speech Centre.	🟡	Increase or change in traffic distribution due to LHA will not trigger requirement for additional air quality assessment. However, the combined traffic changes of all HS2 activities will need to be examined further given significant change in routing. Close to commercial properties and residential properties, likely to result in a limited change in the quality of the view for residential receptors although York Way already has bus stands and is a busy thoroughfare. Sensitive setting as LHA option is adjacent to King's Cross Station (Grade I listed) and within the Kings Cross St Pancras Conservation Area. King's Cross station dominates and forms a strong element in views along this straight north-south aligned road.	🟡	Increase or change in traffic distribution due to LHA will not trigger requirement for additional air quality assessment. However, the combined traffic changes of all HS2 activities will need to be examined further will need to be examined further given significant change in routing. Industrial/commercial location with no sensitive residential receptors in close proximity to LHA. Not in conservation area or near listed/designated assets.	🟢	Increase or change in traffic distribution due to LHA will not trigger requirement for additional air quality assessment. However, the combined traffic changes of all HS2 activities will need to be examined further will need to be examined further given significant change in routing. The A404 is a two lane road adjacent to the A40 flyover and a green open space to the north, noted on Natural England's priority habitat inventory as deciduous woodland. The area is dominated by transport infrastructure and traffic movement. The Maida Vale Conservation Area is to the north but unlikely to be affected by the proposals. The views from residential properties to the west are likely to be screened by existing vegetation and the presence of a LHA is not considered to change the overall quality of the views towards the A40.	🟢	Given limited implications for vehicle routing will not trigger requirement for additional air quality assessment. There are no designated conservation areas or listed buildings in the vicinity of the proposed LHA. The residential properties to the north and north east are partially screened by existing vegetation along the railway corridor to the north. Potential conflicts between pedestrian users for the O2 carpark may need to be managed. The presence of a LHA is not considered to change the overall quality of the views towards the O2 car park from residential properties. Given option reliant of area with existing car park, this may introduce further socio-economic impacts.	🟢	Change in traffic distribution due to LHA will not trigger requirement for additional air quality assessment. Potential traffic impacts will need to be examined further. No listed buildings or conservation areas are present in the vicinity. Hampstead Road is a main busy thoroughfare and supports a number of bus routes. Residential properties are present on both sides of the road above ground floor retail facilities. The presence of a LHA is not considered to change the overall quality of the views across Hampstead Road from residential properties.	🟢	To be assessed following further development	⚪			
Compatibility With Other Modes (Bus, Taxi, General Traffic etc.)	Removal of parking and bus infrastructure required.	🔴	Removal or relocation of bus infrastructure required, option only considered to be viable if bus stands relocated. With Kings Cross Gyratory in place, two way working may be challenging with LHA at this location due to reduced widths of the road.	🔴	No existing on-street restrictions/infrastructure	🟢	No likely impact upon public highway infrastructure provision. Lane drop from one to two lanes required.	🟢	No likely impact upon public highway infrastructure provision	🟢	Lane drop from one to two lanes required. Bus infrastructure removal/relocation necessary.	🔴	No likely impact upon public highway infrastructure provision	🟢			
Compatibility with Vulnerable Road Users (Cyclist and Pedestrians)	No physical impact upon any cycle or pedestrian infrastructure.	🟢	No physical impact upon any cycle or pedestrian infrastructure.	🟢	The location does not appear to be well used by cyclists or pedestrians.	🟢	No likely impact upon public highway infrastructure provision	🟢	No likely impact upon public highway infrastructure provision	🟢	No physical impact upon any cycle infrastructure though the route is relatively well used by cyclists	🟡	No likely impact upon public highway infrastructure provision	🟢			
Related Assurances/Commitments	Material by Rail Study	🟡	Material by Rail Study	🟡	Material by Rail Study	🟡	Material by Rail Study	🟡	Material by Rail Study	🟡	Material by Rail Study	🟡	Material by Rail Study	🟡			
Key Risks	Bus infrastructure and parking.	🔴	Bus infrastructure. Dependent on planning conditions Kings Cross Gyratory	🔴	Dependent on planning conditions	🔴	Impact upon local traffic congestion.	🔴	Necessary planning powers to implement scheme. Option cannot be delivered within the highway, reliant on use of private car park. Delivery dependent on whether separate consents feasible.	⚫	Potential to remove/relocate bus infrastructure. Impact upon local traffic system.	🔴	Space available within compounds to provide LHA	🔴			

Appendix D - Alternatives Location Plan


Finchley Road
Hampstead Road North (East side)
Hampstead Road North (West side)
Granby Terrace overbridge
Robert Street
Albany Street
Harrow Road
Park Crescent (West)
Park Crescent (East)
Euston Road (Off-sllp)
Hampstead Road
Harrington Square
A400 Hampstead Road overbridge
Freight Lane
York Way
Swinton Street
Acton Street