

Job Name: Stag Brewery, Mortlake
Job No: 38262
Note No: TN039 – Rev Final
Date: January 2021
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Checked By: Greg Callaghan
Subject: Implications of Hammersmith Bridge Closure

1.1 Introduction

- 1.1.1 This technical note has been prepared by Stantec to discuss the implications of the Hammersmith Bridge closure on the Stag Development during both the operational and construction phases. A number of comments have been raised during the consultation process, requesting clarification of the implications of the development with the closure of Hammersmith Bridge and this note provides further analysis on this.
- 1.1.2 There has been no opportunity to gather any further data due to Covid – 19, however new traffic surveys and modelling will be undertaken prior to the implementation of the highway improvements. The Environmental Statement and modelling work undertaken for the Transport Assessment have therefore been based on traffic data obtained prior to the closure of the bridge and pre-Covid 19 and are representative of the reasonable likely traffic conditions in the area, as agreed with Transport for London (TfL). This note provides analysis of the implications of the bridge closure using the most up to date information available for Hammersmith Bridge.
- 1.1.3 Hammersmith Bridge is a suspension bridge that crosses the River Thames in west London. It links the southern part of Hammersmith in the London Borough of Hammersmith and Fulham (LBHF), on the north side of the river, and Barnes in the London Borough of Richmond upon Thames (LBRuT), on the south side of the river.
- 1.1.4 Hammersmith Bridge was closed to motorists in April 2019 after critical faults in the cast iron casing were found. Hammersmith and Fulham Council then shut the bridge to pedestrians and cyclists in August 2020, after it was considered unsafe due to large cracks that were formed during the heatwave in the summer.
- 1.1.5 In addition, all river traffic under the bridge is also prevented, including closing of the pedestrian walkways under Hammersmith Bridge.
- 1.1.6 The bridge forms part of a key north- south route linking LBHF and LBRuT. The Department for Transport (DfT) have recently confirmed that they have put together a Task Force, which includes members of Transport for London (TfL), Greater London Authority (GLA), LBHF and LBRuT. They will first work towards reopening the bridge for cyclists and pedestrians, before moving on to enabling the return of motor traffic.
- 1.1.7 At a meeting held with the public on 28th October 2020, the Task Force confirmed that a study had been undertaken that showed there was a 10-1 benefit to cost ratio for the bridge to be re-opened and consider this as a high priority for SW London. They stated that they had a Detailed Design package ready for both Phase 1 Emergency Stabilisation and Phase 2 Permanent Stabilisation. In addition, they had completed the Concept Design for Phase 3 Main Strengthening Works.
- 1.1.8 Subject to agreeing a funding package they stated that the following timeline would be required for the re-opening of the bridge:

- 66 Working days to start of ferry contract – service commencement targeted for spring 2021.
- 4 months to understand condition of all pedestals – possible controlled opening to pedestrians and cyclists.
- 7 months emergency stabilisation – Open to pedestrians and cyclists for a limited period.
- 21 months permanent stabilisation – open to pedestrians and cyclists.
- 30 months strengthening – open to previous traffic loading.
- **Total time to full bridge re-opening – 64 months (5 years and 4 months)**

1.1.9 The Stag Brewery development is currently proposed to be fully operational in September 2027 with peak construction currently identified for 2023, subject to gaining all of the relevant approvals.

1.1.10 While no start dates have been confirmed, the Task Force were confident that they would be able to agree on a funding package shortly. Based on the proposed programme for Hammersmith Bridge (5 years and 4 months) and full operation of the Stag Development (September 2027), if funding is agreed before May 2022 then the bridge should be fully operational before September 2027.

1.1.11 This technical note provides a comparison of traffic on the local highway network before and after the bridge closure and discusses the implications of the bridge closure during both the operational and construction phases of the project. However, it is noted that it is likely the bridge could be reopened to all vehicles before the development is proposed to be fully operational. The development will however be opened in phases, which will likely be prior to the bridge re-opening. Further details are provided within this technical note.

1.2 Implications of Bridge Closure on Local Highway Network

1.2.1 In order to assess the implications of the bridge closure on the highway network surrounding the development, data has been provided by TfL and collected by a third party sub-consultant for the number of vehicles travelling over Chiswick Bridge and for each link through Chalkers Corner. Chiswick Bridge is the next crossing of the Thames to the west of Hammersmith Bridge and leads directly into Chalkers Corner.

1.2.2 The data provided by TfL includes a traffic counter located on Chiswick Bridge. Data has been gathered for 2017, 2018 and 2019 (post closure) and the daily average has been provided by TfL over the year for Tues to Thurs only. The data is provided from a counter located on the south side of the Bridge and provides accurate data of two-way vehicular movements crossing Chiswick Bridge.

1.2.3 Figures 2.1 – 2.4 show the results of the vehicles per hour crossing the bridge in both directions in the AM and PM peak periods for the different years.

Figure 2.1 Southbound Traffic over Chiswick Bridge - AM Peak

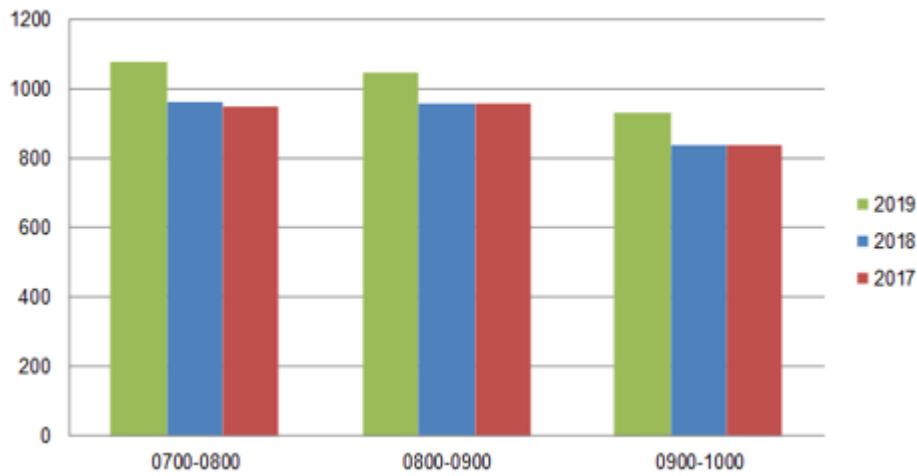


Figure 2.2 Southbound Traffic over Chiswick Bridge - PM Peak

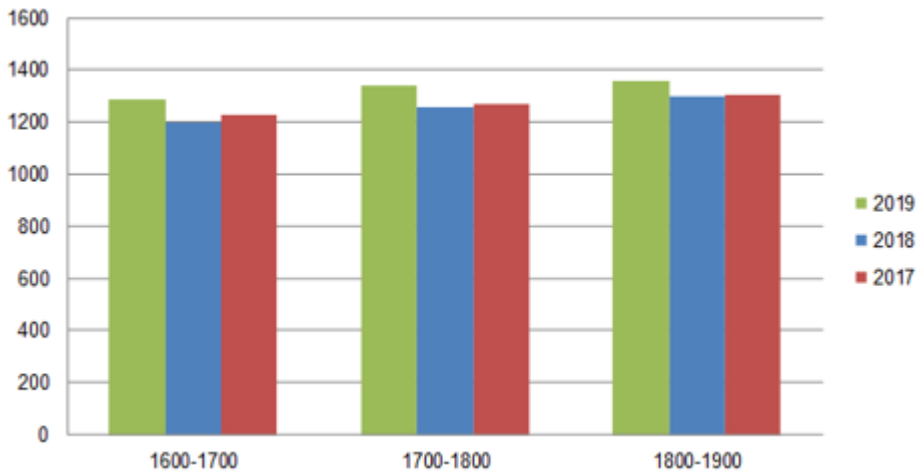


Figure 2.3 Northbound Traffic over Chiswick Bridge - AM Peak

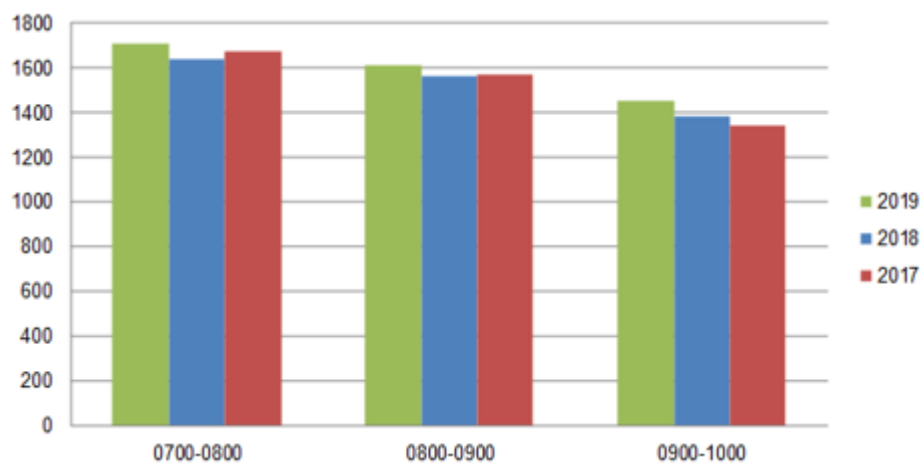
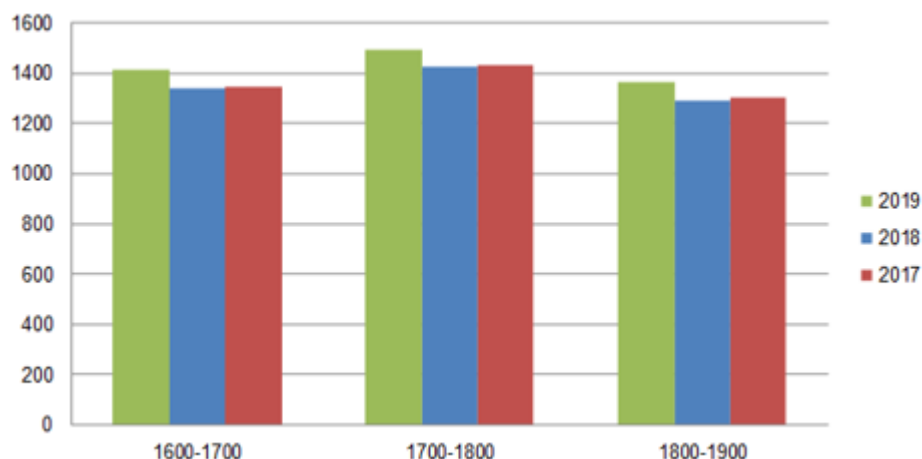


Figure 2.4 Northbound Traffic over Chiswick Bridge - PM Peak



1.2.4 The results show that there was an increase in vehicles from 2017 to 2019 in both directions over Chiswick Bridge in both the AM and PM peak periods. In addition, 2017 and 2018 figures are relatively flat, which was when Hammersmith Bridge was open. The increase in number of vehicles between 2017 – 2019 in the AM Peak (08.00 – 09.00) and PM Peak (17.00 – 18.00) and as a % of the traffic are detailed below.

- Southbound AM Peak = +87 (+8%)
- Southbound PM Peak = +65 (+5%)
- Northbound AM Peak = +42 (+3%)
- Northbound PM Peak = +62 (+4%)

1.2.5 This increase in traffic is to be expected as Hammersmith Bridge is closed and vehicles re-route to alternative crossing points over the Thames. Notably however the increase in traffic shown relates only to a small portion of existing Hammersmith Bridge traffic, which DfT traffic data suggests was used by approximately 1,300 vehicles in the peak hours.

1.2.6 Traffic surveys were also undertaken by a third-party sub consultant at Chalkers Corner both before and after the closure of Hammersmith bridge on the following dates:

- Pre-Bridge Closure – 27th June 2017
- Post Bridge Closure – 2nd July 2019

1.2.7 As part of the assessment the peak hours used as part of the Transport Assessment have been considered:

- AM Peak – 08:00 - 09:00
- PM Peak – 17:00 – 18:00

1.2.8 A comparison of recorded traffic flows both entering and exiting (travelling away) from Chalkers Corner for the pre and post Hammersmith Bridge closure is shown on Figures 2.5 and 2.6 for the AM and PM peaks, respectively. In addition, the total traffic along each link for both directions are shown on Figure 2.7.

Figure 2.5 Total Vehicles Entering / Exiting Chalkers Corner – AM Peak

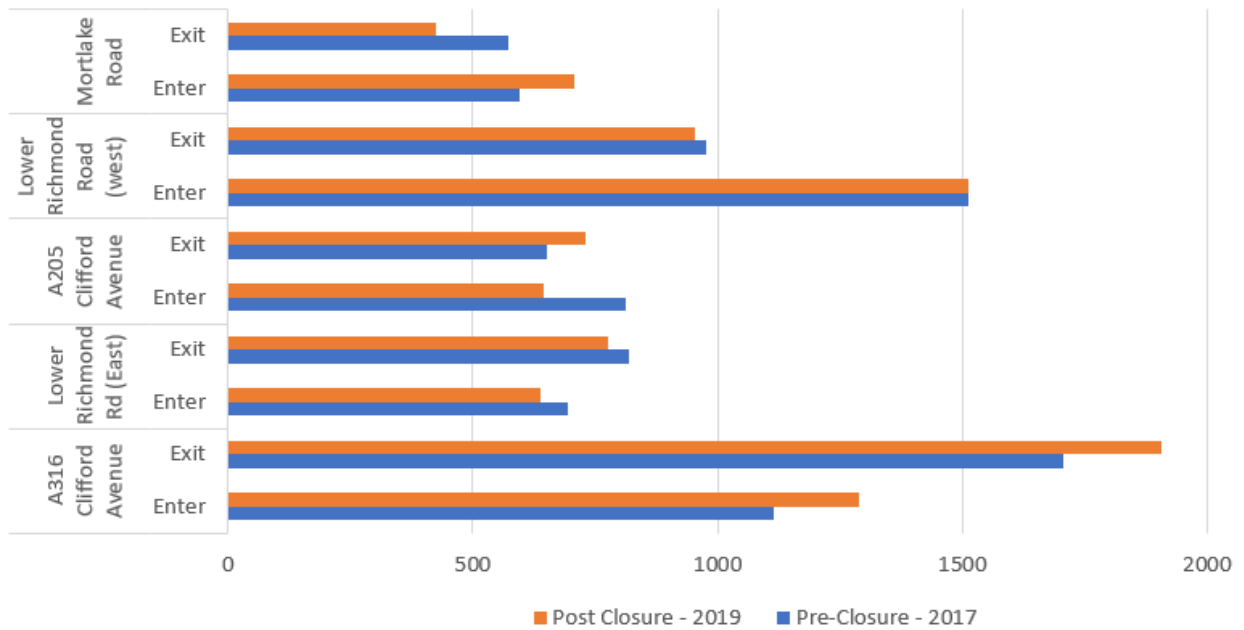


Figure 2.6 Total Vehicles Entering / Exiting Chalkers Corner – PM Peak

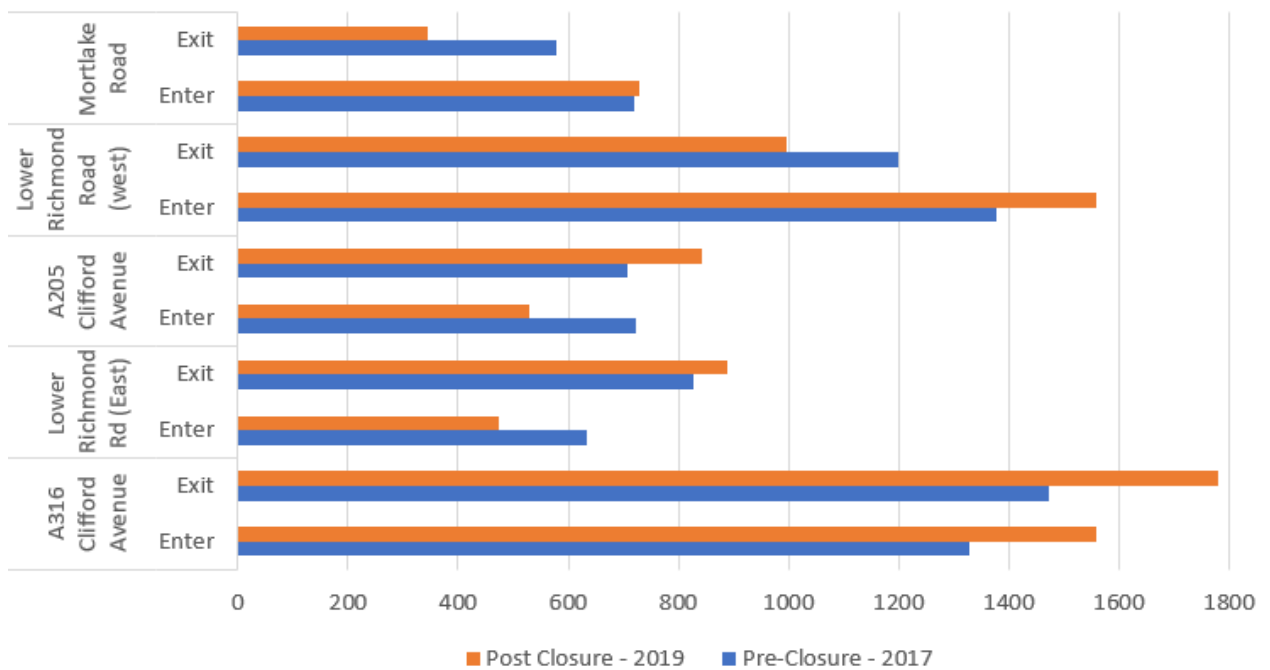
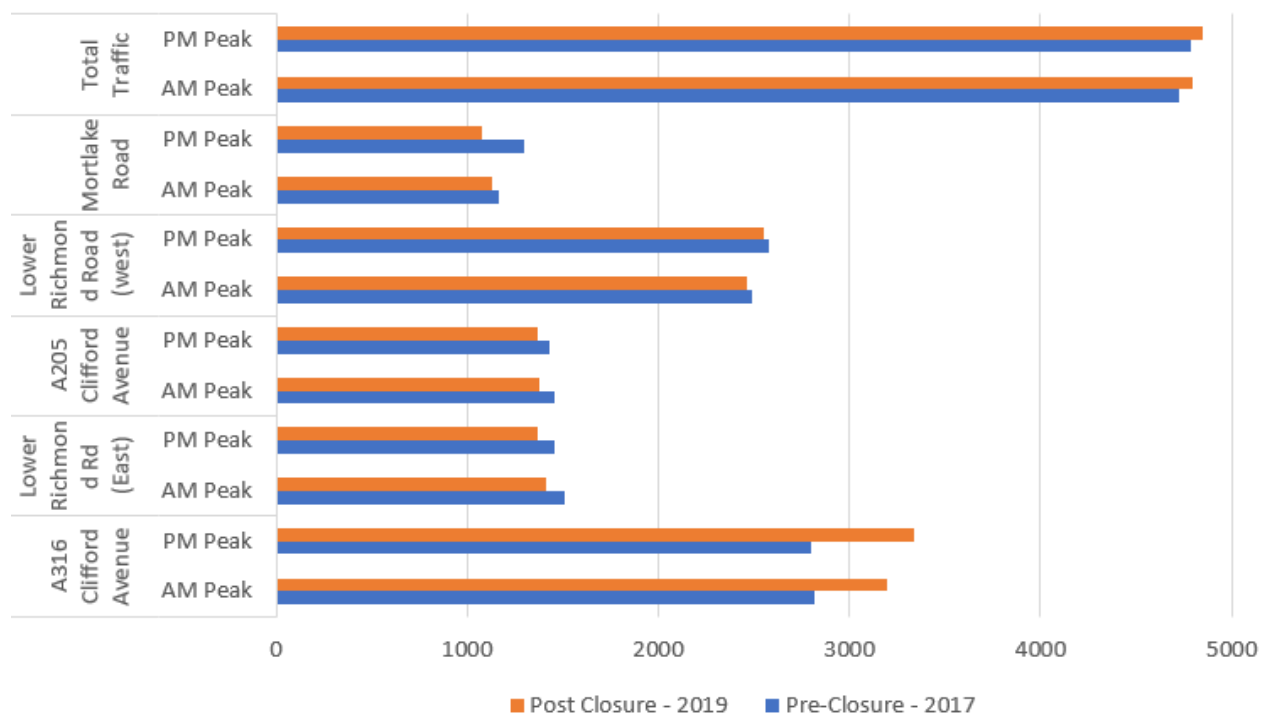


Figure 2.7 Total Vehicles along each Link through Chalkers Corner



1.2.9 The key findings from the comparison of traffic through Chalkers Corner as a result of Hammersmith Bridge Closure are as follows:

- Increase of vehicles entering junction from Clifford Avenue (east) and A205 Mortlake Road in AM Peak.
- Increase of vehicles entering the junction from Clifford Avenue (east), Clifford Avenue (west) and Mortlake Road in PM Peak.
- A reduction of vehicles entering the junction from the A205 Clifford Avenue and Lower Richmond Road (east) in both AM Peak and PM Peak.
- Total traffic along Lower Richmond Road (east) decreases by 99 vehicles (6.5%) in the AM Peak and 94 vehicles (6.4%) in the PM peak.
- Overall Increase of 67 (1.4%) vehicles in AM Peak through the junction.
- Overall Increase of 67 (1.3%) vehicles in PM peak through the junction.

1.2.10 Notably the survey data indicates that traffic along Lower Richmond Road adjacent to the development has decreased as a result of the Hammersmith Bridge Closure. However, traffic along A316 Clifford Avenue from the bridge over the Thames has increased, which is consistent with the ATC data provided by TfL. Overall, the survey data indicates an increase in traffic levels following the closure of Hammersmith Bridge through Chalkers Corner, however this represents only an overall 1.4% and 1.3% increase to the AM and PM peaks respectively through the junction.

1.2.11 While the results are based on a small data set, the results of the traffic surveys show very similar results to the outputs provided by TfL. It can therefore be concluded that the increase in total traffic travelling through Chalkers Corner as a whole is minimal (1.4% or less) and that there is a decrease in traffic using Lower Richmond Road, adjacent to the development.

1.2.12 In addition, while the overall traffic volumes have not significantly increased, there has been a shift in the volume of traffic on certain links. TfL have confirmed that signal timing changes have been made following the Hammersmith Bridge closure to reflect this shift in volume providing additional green time to certain movements to manage demand.

1.3 Phased Development Opening Implications

1.3.1 Comments received on the planning application consultation suggested that the implications of the development phasing and bridge closure are considered in more detail. The proposed phasing of the development is shown in Figure 3.1 and detailed in Table 3.1 below:

Figure 3.1: Development Phasing

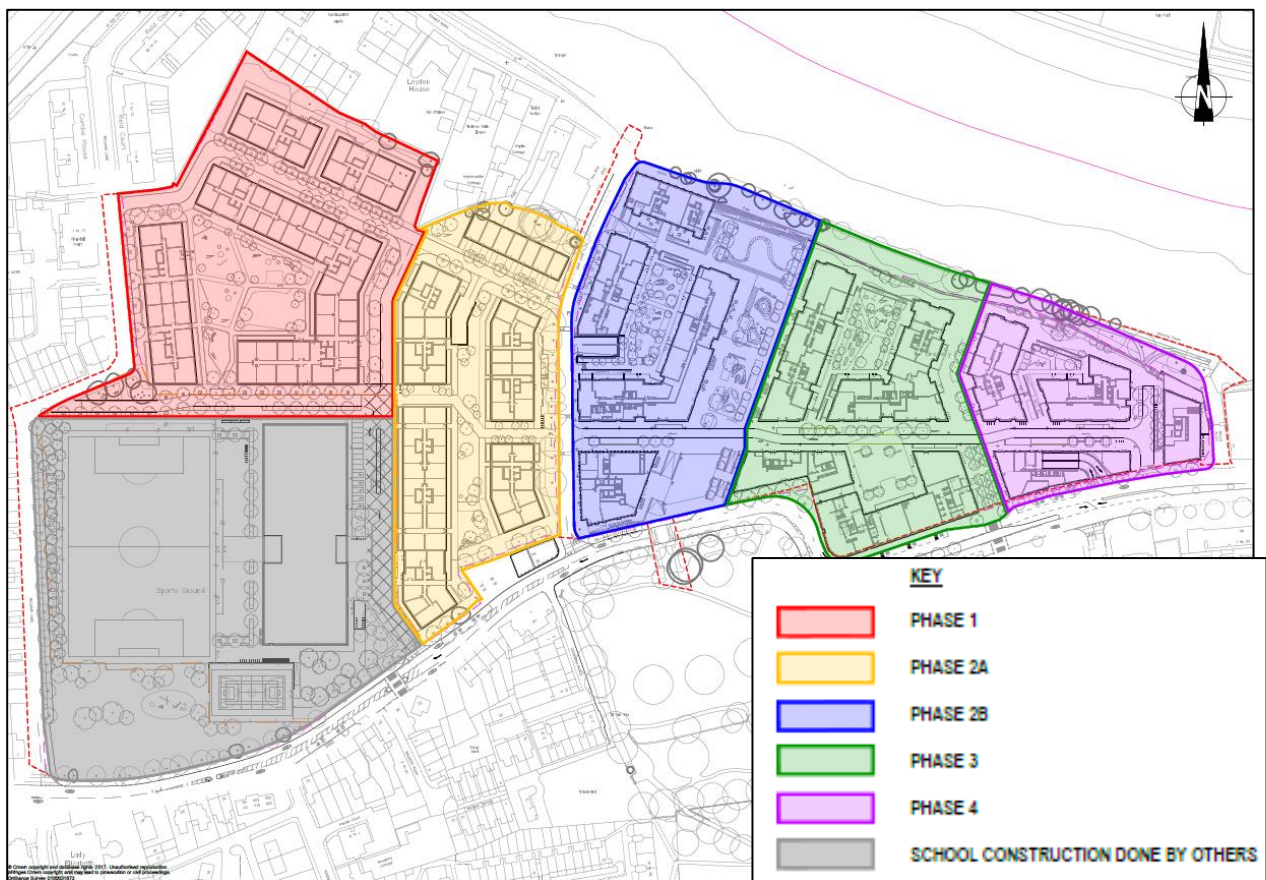


Table 3.1: Development Proposed Phasing Details

Phase	Blocks	Residential Units*	Car Spaces	Occupation Year Post Planning Consent	Estimated Completion Date
School	N/A	Nil	15	3 years	Oct-23
1	18,19,20,21	284	0	4 years	Jun-24
2a	13,14,15,16,17,22	390	70	4-6 years	Feb-26
2b	2,3,4	207	126	4-5 years	Feb-25
3	5,6,7,8,	219	135	6-7 years	Jan-27
4	9,10,11,12	150	147	6-7 years	Sept-27
	Dev Total	1250	478		

*Non-residential land uses, including flexible use located in buildings 1-12

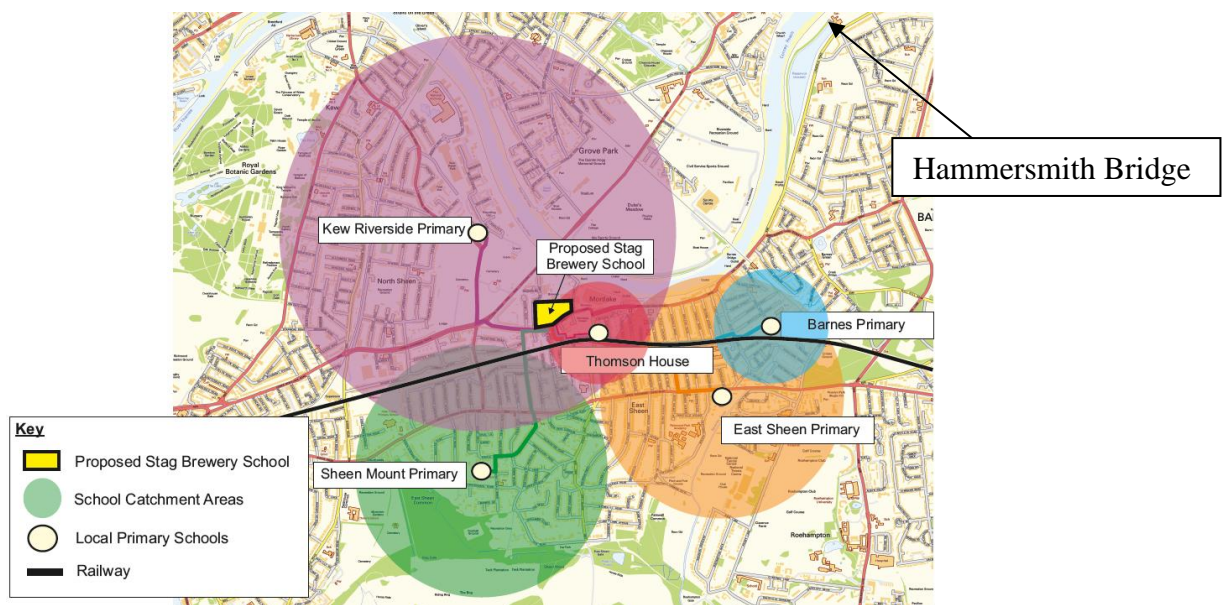
- 1.3.2 Notably Phases 3 and 4 of the development accounts for 58% (282/478) of the available parking spaces at the development. In addition, both phases are not anticipated to be completed until 2027, when the bridge could be re-opened. The non-residential, excluding the school will not be brought forward until the later stages of development in Phases 2b, 3 and 4. However it is more likely that non-residential properties will be let once the development is more fully developed.
- 1.3.3 The total vehicle trips generated by the development have been calculated for each year for all land uses and proportioned with the number of car parking spaces that will be available in each phase. As agreed with TfL it is assumed that the school will not be fully occupied from opening and instead will take a number of years to be full. The school trips have therefore been split over three years. For the purposes of the analysis it is assumed that 50% of the school will be occupied on the first year, 25% on second year and 25% on third year. This assumption is based on Year 7 being oversubscribed, sixth form and later years being more difficult to fill in the earlier years. The calculated accumulated trip generation for the development by year is provided in Table 3.2.

Table 3.2: Development Accumulative Yearly Vehicular Peak Hour Trip Generation

Year	AM Peak 08:00 – 09:00			PM Peak 17:00 – 18:00		
	Arr	Dep	2-way	Arr	Dep	2-way
2023	41	36	76	5	7	12
2024	61	53	114	7	11	17
2025	90	100	191	32	25	57
2026	95	116	213	45	31	76
2027	153	174	326	108	117	225

- 1.3.4 Notably a large proportion (46%) of the vehicular trips are associated with the school in the AM Peak.
- 1.3.5 A review of the likely school catchment area using data for local primary schools provided by LBRuT is presented on Figure 3.2.

Figure 3.2: School Catchment Area



NB, Catchments based on data provided by LBRuT / Achieving for Children

- 1.3.6 The local primary school catchment areas, which the new secondary school is likely to cater for and the distance that Hammersmith Bridge is located from the school shows that it is unlikely that any school trips would be affected by the bridge closure.
- 1.3.7 Notably, the majority of the remaining development trips are associated with the later phases of the development, which is when the car parking will be operational. Should funding be made available for the bridge repairs early in 2021, then using the Task Forces predicted programme (5yrs and 4 months), the bridge could be re-open in 2026.
- 1.3.8 With the mitigation proposed at Chalkers Corner, together with other highway improvements proposed to be constructed prior to the development being operational, the suggested limited number of vehicles that would use Hammersmith Bridge and the reduced number of trips with the phased opening of the development the implications of the bridge closure is considered to be no significant change to that presented in the TA and ES documents.

1.4 Implications during Operation of Development

- 1.4.1 While no start dates have been confirmed for the works to Hammersmith Bridge, the Task Force were confident that they would be able to agree on a funding package and begin work shortly. Based on the proposed programme for Hammersmith Bridge and opening of the Stag Development if funding is secured before May 2022 then the bridge should be fully operational before September 2027, which is the proposed date for the development to be fully operational. It is therefore considered reasonably likely that the bridge will be re-opened prior to the development being fully operational.
- 1.4.2 However, should Hammersmith Bridge not be re-opened by the time the development is fully operational some development traffic travelling towards Hammersmith would be re-routed through Chalkers Corner and across A316 Great Chertsey Road bridge. This would also be the case for the phased development; however, the implications would notably be less with less development traffic.
- 1.4.3 The distribution of the development traffic as agreed with TfL/LBRuT as part of the original application with Hammersmith Bridge open is shown in Figure 4.1 and 4.2 below for both the AM and PM peak periods respectively. This has been based on TfL's strategic model for the surrounding area, which is the agreed methodology for determining the distribution of traffic for the development.

Figure 4.1 Development Traffic Trip Distribution – AM Peak

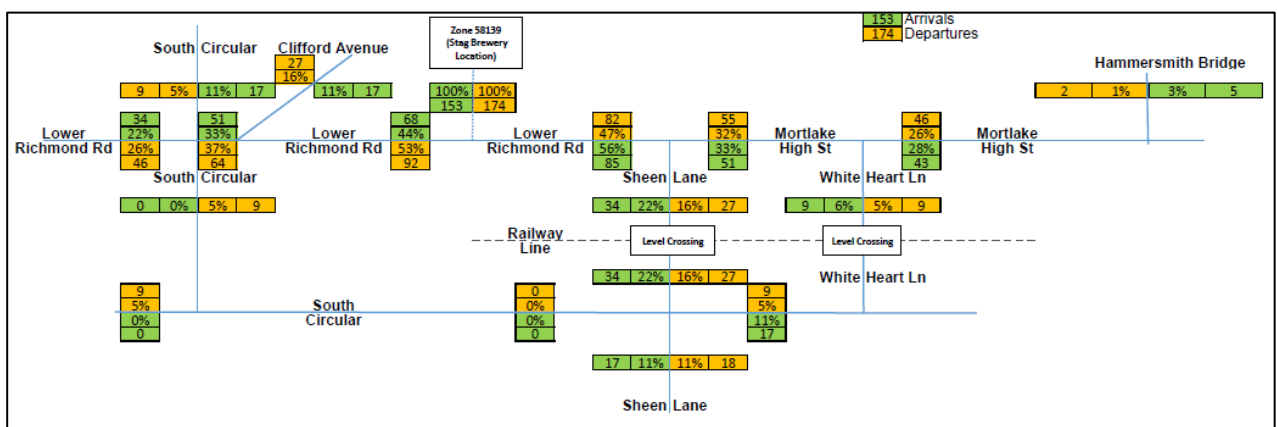
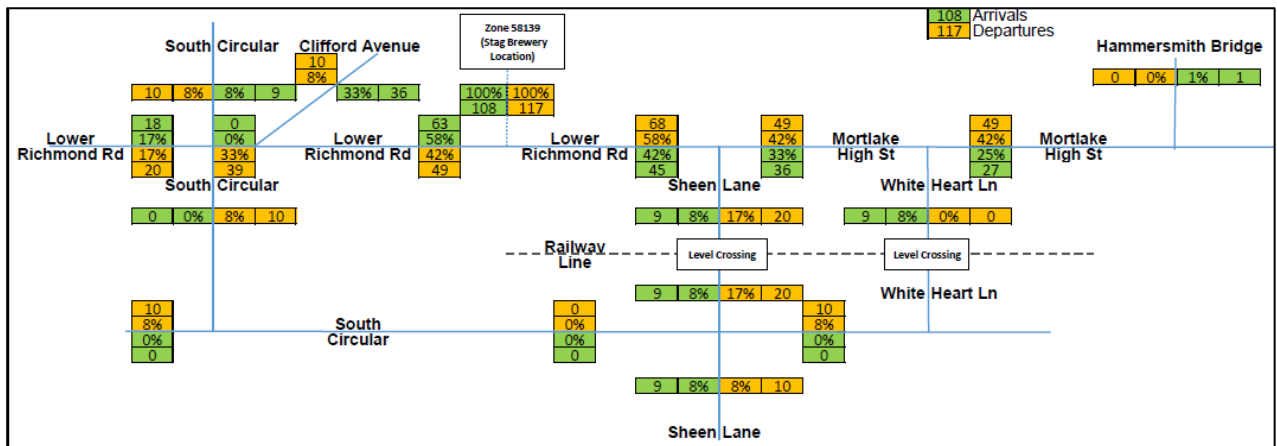


Figure 4.2 Development Traffic Trip Distribution – PM Peak



- 1.4.4 The development traffic distribution shows that the level of vehicle trips using Hammersmith Bridge are minimal.
- 1.4.5 The vehicles that would have used Hammersmith Bridge if it was open and still require to cross over The Thames would be redistributed via other bridges which could include Chalkers Corner and Chiswick Bridge. However, the number of vehicles to be redistributed is shown to be very low.
- 1.4.6 Overall, the low number of development trips using Hammersmith Bridge and the relatively low numbers of additional traffic travelling through Chalkers Corner (1.4% increase) indicate that the impacts on Chalkers Corner would be low. In addition, discussions held with TfL have highlighted that the proposed mitigation scheme is still relevant and provides a suitable mitigation for the fully built out development. The implications of the bridge closure are therefore considered to not be significant and the conclusions of the Transport Assessment and ES remain valid.
- 1.4.7 Furthermore, should the bridge not be re-opened until after the development is fully operational, providing that the proposed mitigation is delivered, it is considered with the small overall change in baseline traffic that the development trips will be able to be accommodated on the highway network. This would require changes to the signal timings at Chalkers Corner which would be picked up by further traffic surveys and modelling work undertaken prior to the implementation of the proposed mitigations.

1.5 Implications during Construction

- 1.5.1 The consultation responses have also queried whether the implications of the closure of Hammersmith Bridge have been considered during construction.
- 1.5.2 A framework Construction Management Plan produced by Aecom details that prior to the commencement of the main contract works the Principal Contractor will be required to register and comply with all of the requirements of the Considerate Contractors Scheme (CCS) ensuring that their project methodology is tailored to the specific requirements of the CCS Code of Practice and the requirements of the London Borough of Richmond upon Thames. This industry recognised body is the leading initiative to encourage construction projects to recognise their surroundings with sensitivity, employment awareness and positive considerations. It is a voluntary code of practice that encourages:
 - Recognition of neighbors and maintaining a good neighbor policy.
 - Minimise environmental damage.
 - Use of sustainable materials, methods and resources.

- Clean site and local vicinity.
 - Safety.
- 1.5.3 The project specification will identify a grade to which the Principal Contractor must attain, and it is recommended that the Principal Contractor is contractually obliged to achieve this grade. This will include ensuring that all vehicle routes to / from the site are along strategic routes avoiding local roads where possible.
- 1.5.4 A review of the strategic road network indicates that vehicles travelling from the wider network should not be directly impacted by the Hammersmith Bridge Closure. Only vehicles travelling from local areas such as Hammersmith from the north-east direction would be impacted, which is an unlikely route that construction vehicles would take. In addition, these routes could even be banned as part of the full Construction Management Plan. The strategic routes to the development from north, south, east and west London are illustrated on Figure 5.1.
- 1.5.5 The peak construction year for the development is likely to be during the demolition and excavation of the proposed basements and is proposed to be 2023. This has been estimated to be 164 two-way vehicle trips over the day. Notably only a limited number of these trips would occur in peak hours and would be spread out over the day.
- 1.5.6 The re-opening of the bridge due to the extensive repairs required will not be reopened prior to this date. Any construction vehicles travelling towards the development from Hammersmith or North-east London direction would therefore be re-routed across A316 Great Chertsey Road (Chiswick Bridge). The routes vehicles could use both with Hammersmith Bridge open and closed are illustrated on Figure 5.2.
- 1.5.7 The route via Hammersmith Bridge is 4.2km / 2.6 miles to the development, whereas the route across A316 Great Chertsey Road (Chiswick Bridge) is 5km / 3.1 miles.
- 1.5.8 Due to the low number of construction vehicles likely to be impacted and the small increase in travel distance as a result of the Hammersmith Bridge Closure the implications of the bridge closure is considered to be negligible for construction traffic.
- 1.5.9 In addition, in response to queries raised by LBRuT for construction traffic a full Construction Management Plan will be completed as part of the planning conditions, as agreed with the original scheme. This will include further details of the impact on the network during peak construction, condition of the highway asset and agreement on construction routes.
- 1.5.10 After the peak construction year (2023), the amount of development construction traffic will reduce. Also, most of the construction generated traffic will be outside of peak hours. Based on the phasing and yearly predicted development traffic as shown on Table 3.2, the traffic generated by the development once fully operational would be greater than any time during construction when less of the development is operational. Therefore, the conclusions that the mitigation for Chalkers Corner are adequate for the scheme once fully operational would also remain for the construction phases of the development.

Figure 5.1 Vehicle Routes to Development

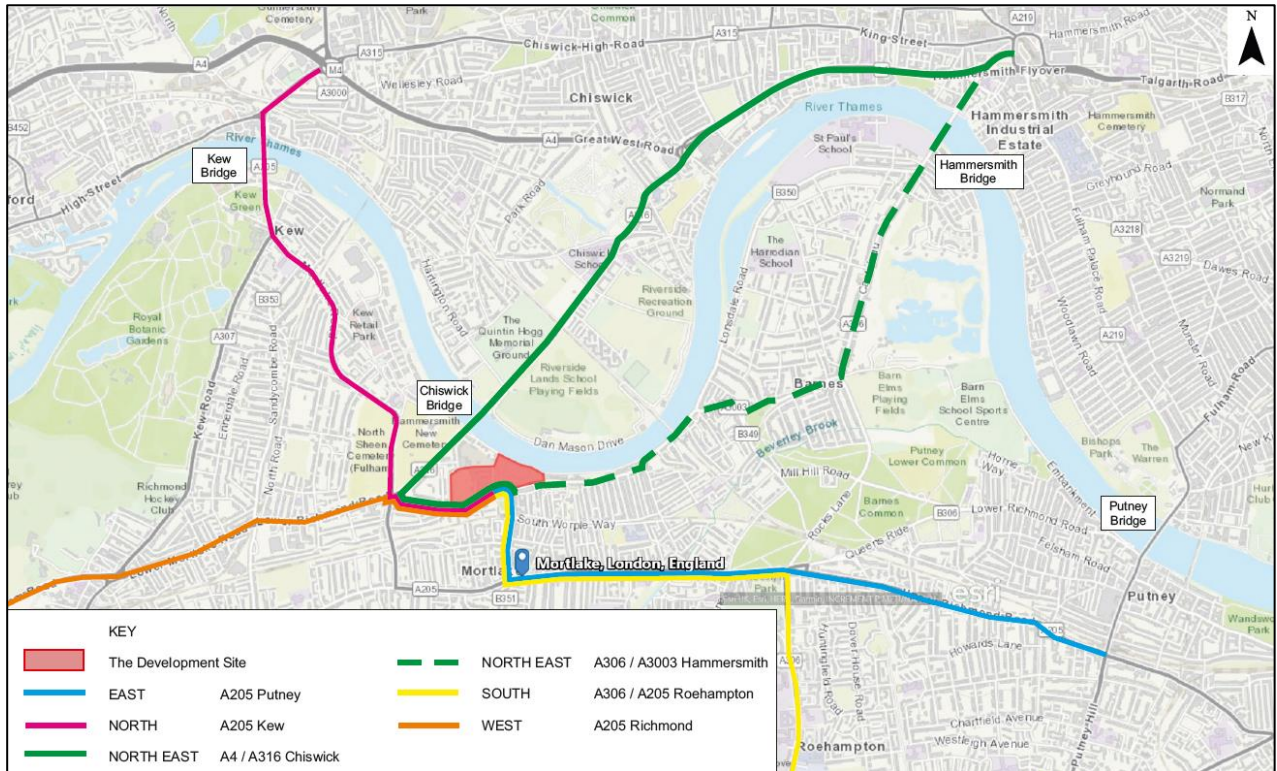
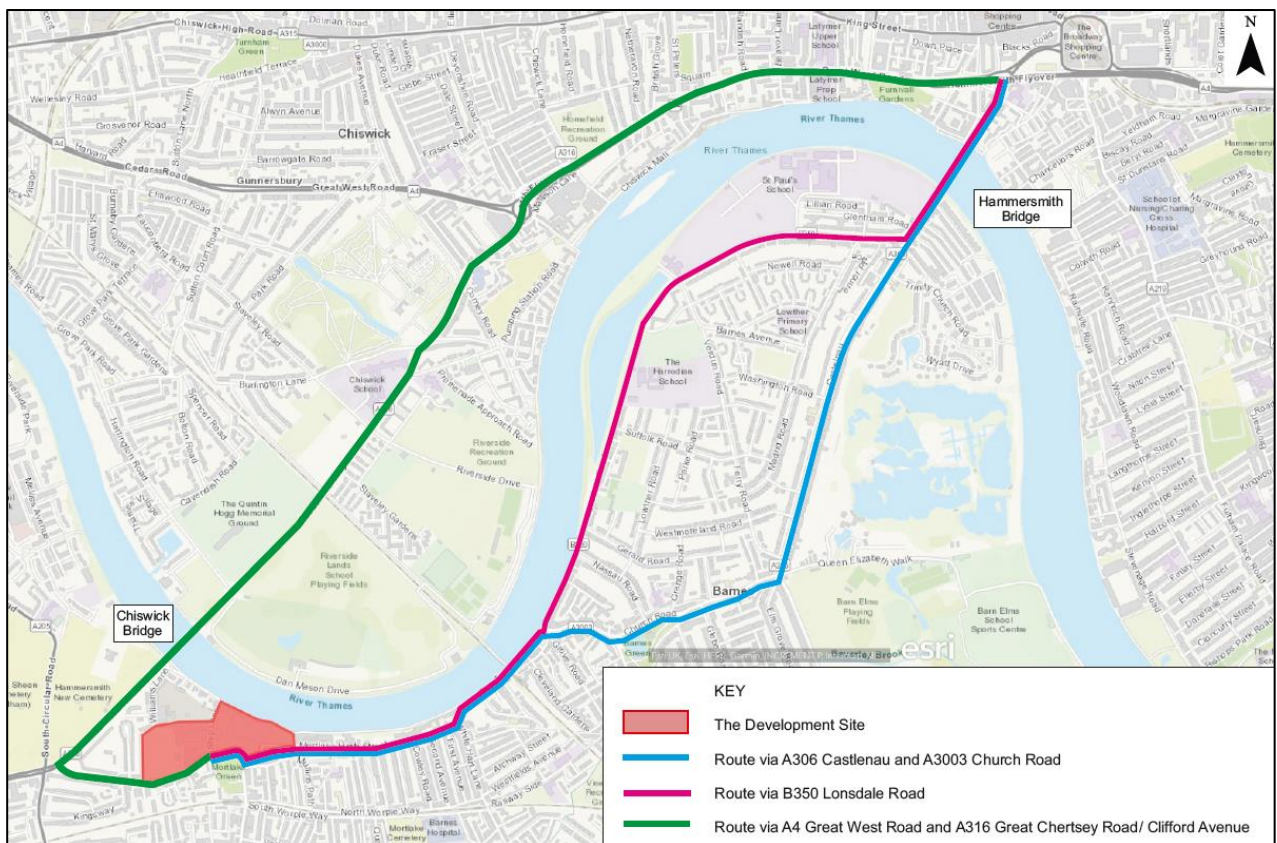


Figure 5.2 Vehicle Routes with Hammersmith Bridge Closed



1.6 Summary

- 1.6.1 This technical note has been prepared by Stantec to discuss the implications of the Hammersmith bridge Closure on the Stag Development during both the operational and construction phases. Several comments have been raised during the consultation process, requesting clarification of the implications of the development with the closure of Hammersmith Bridge.
- 1.6.2 A Task Force has been set up by Department for Transport (DfT), which includes members of Transport for London (TfL), Greater London Authority (GLA), LBHF and LBRuT for the reopening of the bridge. While no start dates have been confirmed, the Task Force were confident that they would be able to agree on a funding package and begin work shortly. Studies undertaken to date for the bridge re-opening have suggested that construction on the bridge would take 5 years and 4 months before it would be fully operational and open to all traffic.
- 1.6.3 The note has concluded the following points
- Total traffic increase through Chalkers Corner is low with an increase of 1.4% and 1.3% in the AM and PM peaks respectively following the bridge closure.
 - Development traffic predicted to use Hammersmith Bridge is minimal in both peak periods.
 - School Catchment suggests no school children would use Hammersmith Bridge.
 - Chalkers Corner proposals provide adequate mitigation for the fully constructed development.
 - Bridge likely to be open before the development is fully operational if funding is agreed before May 2022.
 - Phased opening will begin in 2023, however majority of trips not on network until 2027.
 - Phased development trips and construction trips will be less than total trips generated for fully operational development.
- 1.6.4 With the mitigation proposed at Chalkers Corner, highway improvements proposed along Lower Richmond Road, Mortlake High Street and Sheen Lane, the suggested limited number of vehicles that would use Hammersmith Bridge and small overall impact on traffic volume through Chalkers Corner, the implications of the bridge closure is considered to be no significant change to that presented in the TA and ES documents, which is based on a worse case full development traffic distribution.
- 1.6.5 Furthermore, should the bridge not be re-opened until after the development is fully operational, providing that the proposed mitigation is delivered, it is considered with the small overall change in baseline traffic that the development trips will be able to be accommodated on the highway network. This would require changes to the signal timings at Chalkers Corner which would be picked up by further traffic surveys and modelling work undertaken prior to the implementation of the proposed mitigations.
- 1.6.6 While the bridge is likely to be re-opened before the development is fully operational, this would not be case during the construction period. However, during the construction phase the routes available to the development show that a low number of construction vehicles will be impacted by the closure of Hammersmith Bridge. In addition, after the peak construction year (2023), the amount of development construction traffic will reduce and will be outside of peak hours. Based on the phasing and yearly accumulation of predicted development traffic, the traffic generated by the development once fully operational would not be greater than any time during construction when less of the development is operational. Therefore, the conclusions that the mitigation for Chalkers

Corner are adequate for the scheme once fully operational would also remain for the construction phases of the development.