8. Transport and Access

Introduction

8.1 Prepared by Stantec, this Chapter presents an assessment of the likely significant effects of the Development on the existing transport and access conditions within the area local to the Site and the wider surrounding area.

8.2 The Chapter provides a description of the methods used in the transport and access assessment, a description of the relevant baseline conditions of the Site and surrounding area, and an assessment of the likely significant environmental effects relating to transport and access of the Development during the demolition, alteration, refurbishment and construction works (the Works) and once the Development is completed and operational (the Completed Development).

8.3 Mitigation measures are identified, where appropriate, to avoid, reduce or offset any adverse effects. The Chapter concludes by examining the nature and significance of likely residual effects taking account of the mitigation measures.

8.4 A Transport Assessment (TA) has been submitted in support of the Planning Applications for the Development. This Chapter has been prepared on the basis of the detailed assessment within the TA, and refers to the TA and its supporting appendices where necessary. The TA can be found in **Appendix 8.1** to this ES.

Assessment Methodology and Significance Criteria

8.5 This Chapter has been prepared in accordance with the requirements set out in the 2017 EIA Regulations and has taken account of the guidance presented within the following:

- Guidelines for Environmental Impact Assessment (Institute of Environmental Management and Assessment (IEMA), 2004)[1];
- Guidelines for the Environmental Assessment of Road Traffic (Institute of Environmental Assessment (now IEMA), 1993[2]) (the 'IEMA Guidelines'); and
- Design Manual for Roads and Bridges (DMRB), '*LA 104 – Environmental assessment and monitoring'* (2020).

8.6 The IEMA Guidelines identify that the main transport effects that could arise from the construction and operation of new developments relate to the following:

- severance;
- driver delay;
- pedestrian delay;
- pedestrian and cycle amenity;
- fear and intimidation;
- accidents and road safety;
- dust and dirt; and
- hazardous loads.

8.7 The 'dust and dirt' criterion has not been considered within this assessment as this effect is covered within **Chapter 10: Air Quality**.

8.8 Hazardous Loads effects are also not considered in this assessment, as at this stage as it is deemed unlikely that the Development Works or operation of the Development will require the transportation of hazardous loads.

8.9 In accordance with IEMA guidance, this Chapter considers the likely effects of the Development in terms of changes in traffic flow volume and composition in relation to the above listed criteria.

8.10 In addition, although the IEMA guidance does not identify a requirement to assess the effect of public transport changes, due to the specific request from LBRuT, a public transport assessment has been included in this Chapter. Supporting information is included in the TA, as **Appendix 8.1**.

Assessment Methodology

Assessment of the Works

8.11 The assessment of the indicative peak daily construction two-way flows arising from the Development has been completed in advance of appointing a contractor. As a result of the range of construction activities and processes occurring on any one day, there will be some variation in the flows anticipated once a contractor is appointed. Nevertheless, a reasonable worst-case assessment of the likely extent of construction-related activities occurring at any one time has been undertaken for the purpose of assessing environmental effects.

8.12 The additional public transport assessment presented in this Chapter relating to the Works considers the morning (08:00-09:00) and evening (17:00-18:00) peak hours exclusively, as those times are considered the busiest throughout the day and thus any adverse effects identified during the peak hours would present a worst case. It should be noted that the number of construction staff expected to work on Site during the peak construction period is currently unknown. However, the socio-economics assessment presented in **Chapter 7: Socio-Economics**, estimates that an average of up to 1,367 full time equivalent jobs per annum over the period of the Works could be supported. The precise number of construction staff required for the Works would be confirmed post planning approval and once a construction contractor has been appointed, prior to any works commencing on Site.

8.13 Assessments have been carried out on the peak construction year, which is considered the be 2028, and the opening year of the operational Development, 2029.

8.14 It is forecast, from a construction perspective, that 138 one-way vehicle trips would access the Site per day, of which 110 one-way trips are likely to be undertaken by Heavy Goods Vehicles (HGVs) and 28 one-way trips by Light Goods Vehicles (LGVs) (a total of 276 two-way daily vehicle trips as reported in **Chapter 6**). This presents a reasonable worst-case assessment of the likely extent of construction-related activities occurring at any one time for the purpose of assessing environmental effects.

8.15 Regarding construction workers, the assessment assumes there would be no parking spaces available for construction workers (both on Site and in the surrounding areas) and they are anticipated to travel against the usual commuter flow outside the main peaks via public transport.

Completed and Operational Development Assessment

8.16 In order to identify the likely significant environmental effects relating to transport and access of the operational Development a trip generation assessment has been undertaken. The trip generation methodology, including trip rates, have been agreed with LBRuT and as part of the previous Planning Applications (refs: 18/0547/FUL and 18/0548/FUL).

Assessed Land Use Quanta

8.17 Within the detailed component of Application A, the ground level of a number of proposed buildings, particularly along the new 'high street' have been identified as flexible use in order to provide the necessary flexibility to respond to market demand. **Chapter 5: The Proposed Development** provides the maximum floorspace per land use within the overall flexible use space which should not be exceeded. For the purposes of this assessment, the following mix of flexible uses has been assumed, as set out in **Table 8.1**.

Table 8.1: Flexible Use Assumptions

Use	Floor Area sqm (GIA)	Comment
Retail – Local Shops	750	Based on likely minimum retail units. i.e. not all Restaurant use.
Office and Financial / Professional Services	2,000	Rounded Minimum area permitted
Cafes, Restaurants and Bars, Community	2,089	The remaining floor area from the set 4,839. Maximum Permitted is 2,400
Total	4,839	Highest vehicle generator during PM peak.

8.18 Based on the derived trip rates, the mix of flexible uses will provide a worst-case assessment of highway effects, with cafes / restaurants producing the largest number of daily trips. The other unit numbers/floor areas that are fixed are shown in **Table 8.2**.

Table 8.2: Non-Flexible floor areas/unit numbers

Land Use	Land Use Schedule units/floor areas	Units used for Trip Generation
Residential	1,085 units	1,085 units
Education	9,319 m^2	1,200 Students
Office	4,547 m^2	4,547 m^2
Cinema	1,606 m^2	370 seats
Hotel	1,765 m^2	15 Rooms

Trip Generation

8.19 A detailed multi-modal trip generation assessment for each proposed land use on the Site has been undertaken as part of the TA, contained within **Appendix 8.1**. These data are subsequently used within the EIA.

8.20 Generally, the person trip generation for each of the proposed land uses has been based upon data of comparable development sites derived from the Trip Rate Information Computer System (TRICS) database, with appropriate comparable sites selected for each proposed individual use in accordance with the TRICS guidance. The one exception to this has been for the cinema use where a first principles approach has been agreed with LBRuT and Transport for London (TfL) which relates to the number of seats and the likely arrival and departure patterns based on a three screen operation.

Vehicular Trip Distribution

8.21 The distribution of trips to / from the Site has been estimated using the TfL South London Highway Assignment Model (SoLHAM) forecast traffic distribution to / from three 'donor' zones in the SoLHAM model. The development trips have then been distributed accordingly based on these three zones. A more detailed description of the distribution is included in Technical Note 041 produced by Stantec in Appendix K of the TA in **Appendix 8.1**.

Public Transport Trip Distribution

8.22 The public transport trips, namely bus and rail trips, have been distributed using the census data for journeys to work. These trips were then distributed across the relevant services they related to dependent upon the destination. For example, if someone was recorded as taking the bus to Richmond they would be allocated onto the 419 as this is the most appropriate service for them to use.

8.23 **Table 8.3** and **Table 8.4** show the predicted distribution of public transport users onto the different bus services that can be accessed from the Site.

Table 8.3: Bus Distribution - Residential

Bus Route	Proportion by Route	Proportion by Direction	
		Bus Route Destination	Proportion
419	58%	Hammersmith	41%
		Richmond	17%
190	36%	West Brompton Station	36%
209	3%	Hammersmith	3%
R68	3%	Kew	2%
		Hampton Court	1%

Table 8.4: Bus Distribution – Non-Residential

Bus Route	Proportion by Route	Proportion by Direction	
		Bus Route Destination	Proportion
419	76%	Hammersmith	55%
		Richmond	21%
190	18%	West Brompton Station	18%
209	4%	Hammersmith	4%
R68	3%	Kew	3%

Peak Hour Assessments

8.24 The public transport assessment relating to the operational Development as well as the driver delay assessment relating to the Works and operational Development presented in this Chapter focus on the morning (08:00-09:00) and evening (17:00-18:00) peak hours to present a worst case scenario.

Establishment of Baseline Conditions

8.25 All baseline surveys used as part of this assessment are the same surveys that were conducted as part of the previous applications from 2017 as conditions are anticipated to be the same. In any

case updated surveys have not been possible due to the impact of COVID-19 on travel behaviour and patterns in London. It has therefore been agreed with LBRuT that the most sensible approach is to use data that is available pre-COVID-19.

8.26 A summary of the surveys that were undertaken in June 2016 is provided below:

- vehicle turning counts and queue length surveys at:
  - A31 Lower Richmond Road / Clifford Road / South Circular Road / A3003 Lower Richmond Road Staggered Signalised Junction;
  - Upper Richmond Road West (South Circular) / Sheen Lane Signalised Junction; and
  - A3003 Lower Richmond Road / Mortlake High Street / Sheen Lane Roundabout.
- Mortlake Station pedestrian counts at:
  - Mortlake Station at all four access points.
- level crossing timings and queues at:
  - Mortlake Station level crossing on Sheen Lane.
- 7-day automatic traffic counts (ATC) on:
  - Mortlake High Street, to the east of the Lower Richmond Road / Mortlake High Street / Sheen Lane roundabout.

8.27 Further surveys were undertaken in November 2016. These surveys comprised:

- on-street parking surveys extending:
  - To the east up to Ashleigh Road;
  - To the west up to Clifford Avenue;
  - To the south of the railway between Bexhill Road / Elm Road to the west; and
  - Alexandra Road to the east.
- turning counts at:
  - Vineyard Path / Mortlake High Street Junction.
- pedestrian and cycle counts as well as vehicle entry and exit counts at the following comparable residential developments:
  - Kew Riverside Park, Strand Drive;
  - Kew Riverside, Melliss Avenue; and
  - Kew Bridge, A315 Kew Bridge Road.

8.28 The following further surveys were undertaken in June 2017:

- video survey at:
  - Mortlake station at all four access points.
- 7 day ATCs at:
  - Sheen Lane to the south of South Circular Road;
  - South Circular Road to the west of Sheen Lane;
  - A3003 Lower Richmond Road adjacent to Watney's Sports Ground;
  - A3003 Lower Richmond Road adjacent to Mortlake Green;
  - Williams Lane;
  - Clifford Avenue to the south of Chiswick Bridge;

- The Terrace to the west of Barnes Bridge station; and
- White Hart Lane to the south of Mortlake High Street.

8.29 In addition to the above surveys, accident data have been obtained from TfL for a study area around the Site comprising Mortlake High Street, the A3003 Lower Richmond Road, Chalkers Corner including Clifford Avenue up to Chiswick Bridge, and the South Circular Road between Chalkers Corner, Upper Richmond Road W and White Hart Lane. The data covers a three-year period up to 31 August 2021. Detailed accident data records can be found in the TA, **Appendix 8.1**.

Extent of Assessment Area

8.30 The IEMA Guidelines suggest two broad rules to identify the appropriate extent of the highways assessment area, as follows:

- road links with all vehicle or Heavy Vehicles traffic flow increases in any assessment year of +30%; and
- road links with Medium or High sensitivity receptors with flow increases greater than 10%.

8.31 Based on these rules, the highway assessment area includes all links of the Site's surrounding local and strategic road network that are included in the SoLHAM used to assess the impact of the Development, and that are subject to any daily traffic flow changes as a result of the Development's construction or operation. Links that are forecast to be subject of traffic flow changes of less than 10% have also been included to present a robust assessment.

8.32 The study area is bound in the west by all arms of the Chalkers Corner junction, in the north by the River Thames, in the east by A3003 The Terrace and White Hart Lane and in the south by the A205 South Circular Road and Sheen Lane to the south of the A205 South Circular Road.

8.33 Hammersmith Bridge is located to the north-east of the Site and is temporarily closed to vehicle traffic due to maintenance issues. The bridge reopened to pedestrians and cyclists in 2021 but it is not yet known when it will be able to reopen to vehicle traffic. However, as the bridge is located outside the study area and its closure is only temporary, its impacts have been excluded from this assessment.

Assessment Scenarios

8.34 The assessment of environmental effects relating to transport and access have considered the following scenarios:

- 2019 Do Nothing (Baseline);
- 2028 Do Minimum (peak construction year);
- 2028 Do Something (peak construction year);
- 2029 Do Minimum (operational Development year);
- 2029 Do Something (operational Development year);
- 2044 Do Minimum (15 years' after operational Development); and
- 2044 Do Something (15 years' after operational Development).

8.35 The Do Minimum scenarios include background traffic growth only, which is added to the baseline traffic flows. In these scenarios, no account has been taken of trips associated with the Development. Development trips have been taken account of in the Do Something scenarios, which also take account of background traffic growth.

8.36 The Do Something (operational Development) scenarios constitute Do Minimum plus the completed and operational Development (i.e. Planning Applications A and B), taking account of the vehicular trip generation of the Stag Brewery component of the Development as well as the existing traffic re-assignment as a result of the re-configured junction layout which forms part of the Chalkers Corner component of the Development.

Significance Criteria

8.37 The significance of the environmental effect of the Development on the above listed IEMA criteria has been determined based on the magnitude of the effect, the sensitivity of the receptor, and whether the effect is beneficial or adverse, temporary or permanent.

Magnitude of Effect

8.38 For each of the considered assessment criteria, a scale of magnitude has been identified. The magnitude of effects has been assessed against a scale divided into negligible, small, medium and large magnitude.

8.39 The assessment criteria, as well as their scale of magnitude, are described as follows.

Severance

8.40 The IEMA Guidelines states that: "*severance is the perceived division that can occur within a community when it becomes separated by a major traffic artery.*" Further, "*Changes in traffic flow of 30%, 60% and 90% are regarded as producing 'slight', 'moderate' and 'substantial' changes in severance respectively*". However, the guidance acknowledges that the measurement and prediction of severance is extremely difficult. The assessment of severance pays full regard to specific local conditions, in particular the location of pedestrian routes to key local facilities and whether or not crossing facilities are provided.

8.41 The potential effects as set out later in this Chapter are based on an assessment which considers the IEMA's thresholds. **Table 8.5** summarises these thresholds.

Table 8.5: Severance Thresholds (based on IEMA Guidance)

Magnitude	Definition
Large	Over 90% change in AADT flows as a result of the Development.
Medium	Between 60 – 90% change in AADT flows as a result of the Development.
Small	Between 30 – 60% change in AADT flows as a result of the Development.
Negligible	Less than 30% change in AADT flows as a result of the Development.

Driver Delay

8.42 Delay to drivers can be predicted through capacity assessments at key points on the local and strategic highway network. The addition of new development generated traffic could result in an increase in the number of vehicles using key routes and junctions. This may lead to additional delays depending on the existing operation, levels of background traffic and development generated traffic.

8.43 Assessment of junction capacity and delay is undertaken through the use of standard practice analytical tools and junction analysis programs. Driver delay is only likely to be an issue requiring consideration of mitigation (improvements) where junctions are operating beyond capacity.

8.44 **Table 8.6** below shows the magnitude-scale applied to the category 'driver delay' along road corridors for the purpose of this assessment.

Table 8.6: Driver Delay – Magnitude of Effect

Magnitude	Definition
Large	Average vehicle delay changes of more than 180 seconds per mile as a result of the Development during the peak hour periods.
Medium	Average vehicle delay changes are between 120 to 180 seconds per mile as a result of the Development during the peak hour periods.
Small	Average vehicle delay changes are between 60 and 120 seconds per mile as a result of the Development during the peak hour periods.
Negligible	Average vehicle delay changes are less than 60 seconds per mile as a result of the Development during the peak hour periods.

Pedestrian Delay

8.45 Pedestrian delays for a particular walking journey can be increased by changes to traffic flows, and can affect the ability of pedestrians to cross roads. This, therefore, will affect an individual's desire to make a particular walking journey. Changes in the volume, speed or composition of traffic are most likely to affect pedestrian delay, with the level of severity dependent on the general level of pedestrian activity and the physical condition of crossing points.

8.46 The determination of what constitutes a material impact on pedestrian delay is generally left to the judgement of the assessor and knowledge of local factors and conditions. However, the IEMA Guidelines suggest: "*a lower threshold of 10 seconds delay and an upper threshold of 40 seconds delay, for a link with no crossing facilities*". It further advises that the lower threshold equates to a two-way flow of approximately 1,400 vehicles per hour.

8.47 **Table 8.7** below shows the magnitude-scale applied to links with insufficient or no pedestrian facilities at desired lines and links subject to significant volumes of pedestrian footfall.

Table 8.7: Pedestrian Delay – Magnitude of Effect

Magnitude	Definition
Large	Link subject to a two-way traffic flow of more than 5,600 vehicles per hour
Medium	Link subject to a two-way flow of 3,500-5,600 vehicles per hour
Small	Link subject to a two-way flow of 1,400-3,500 vehicles per hour
Negligible	Link subject to a two-way flow of less than 1,400 vehicles per hour

Pedestrian and Cycle Amenity

8.48 Pedestrian and cycle amenity is broadly defined as the relative pleasantness of a journey, which is affected by traffic flow, traffic composition and pavement width / separation from traffic. This potentially significant effect is considered to be a broad assessment category which also encompasses fear, intimidation and exposure to noise and air pollution.

8.49 A tentative threshold for judging the significance of changes in pedestrian and cyclist amenity is described by the IEMA guidance as instances "*where traffic flow (or its lorry component) is halved or doubled*".

Fear and Intimidation

8.50 A further effect of traffic flows on pedestrian and cycle movements is the issue of fear and intimidation individual travellers will experience with respect to vehicular movements. The impact of this factor is dependent on the volume of traffic, the HGV content, the width of footpath and closeness of the footpath to the carriageway edge. As is the case with pedestrian delay, there are no commonly agreed thresholds for the measurement of this impact, with appraisal based on the judgement of the assessor.

8.51 The IEMA Guidelines does nevertheless suggest some thresholds, based on previous research, which could be used and these are shown in **Table 8.8**.

Table 8.8: Suggested IEMA Threshold Guidelines for Pedestrian Fear and Intimidation

Degree of Hazard	Change in Average Traffic Flow over 18 Hours day (vehicles/hour)	Average 18 Hour HGV Flow	Change in Average Speed over 18 Hours (mph)
Extreme	1,800+	3,000+	20+
Moderate	1,200-1,800	2,000-3,000	15-20
Slight	600-1,200	1,000-2,000	10-15

8.52 Notwithstanding the thresholds set out above, the IEMA Guidelines suggests that they should be approached with a certain level of caution as the individual factors could be weighted by local circumstances to decide on the overall value of intimidation. For example, a road may show higher speeds but lower flows making crossing easier or high flows but congested and constant traffic, therefore reducing total fear of passing vehicles but increasing crossing difficulties.

8.53 **Table 8.9** shows the magnitude-scale applied to the category 'fear and intimidation' for the purpose of this assessment.

Table 8.9: Fear and Intimidation – Magnitude of Effect

Magnitude	Definition
Large	Change in average traffic flow over 18 hours of 1500 + vehicles/hr as a result of the Development; An average 18-hour HGV flow of 3000 +; or Change in average speed over 18 hours of 17 + mph as a result of the Development.
Medium	Change in average traffic flow over 18 hours of 1200-1500 vehicles /hr as a result of the Development; An average 18-hour HGV flow of 2000-3000; or Change in average speed over 18 hours of 15-17 mph as a result of the Development.
Small	Changes in average traffic flow over 18 hours of 600-1200 vehicles/hr as a result of the Development; An average 18-hour HGV flow of 1000-2000; or Changes in average speed over 18 hours of 10-15mph as a result of the Development.
Negligible	Increase in average traffic flow over 18 hours of less than 600 vehicles/hr as a result of the Development; An average 18-hour HGV flow of less than 1000; or Increase in average speed over 18 hours of less than 10mph as a result of the Development.

Accidents and Road Safety

8.54 The assessment of accident risk and highway safety is based upon existing accident rates and specific local circumstances to identify accident clusters. For example, should a particular link or junction be found to have a high existing accident rate, the addition of substantial traffic volumes generally would be expected to have a detrimental effect on highway safety due to further increased opportunities for conflict. Mitigation measures may therefore be required.

8.55 A further assessment of highway safety may also include the comparison of accident rates at those locations identified for highway improvements, which are related to capacity issues. An assessment of expected accident rates for a new junction design compared to the existing layout will identify any future accident risk related to development traffic movements.

8.56 The IEMA Guidelines suggests that: "*Professional judgement will be needed to assess the implications of local circumstances, or factors, which may elevate or lessen risks of accidents, e.g. junction conflicts*".

8.57 **Table 8.10** shows the magnitude scale applied to the category 'accidents and road safety' for the purpose of this assessment.

Table 8.10: Accident Risk and Road Safety – Magnitude of Effect

Magnitude	Definition
Large	Expected change in accident risk of 15 + % at the location of existing accident cluster as a result of the Development.
Medium	Expected change in accident risk of 10%-15% at the location of existing accident cluster as a result of the Development.
Small	Expected change in accident risk of 5%-10% at the location of existing accident cluster as a result of the Development.
Negligible	Expected change in accident risk of less than 5% at the location of existing accident cluster as a result of the Development.

Public Transport

8.58 As outlined above, the IEMA guidance does not identify a need to include a public transport assessment. Therefore, no magnitude of effects has been considered in this Chapter. An analysis of effects on public transport however has been carried out as part of the impact assessment within the TA in **Appendix 8.1**.

Receptors and Receptor Sensitivity

8.59 The IEMA Guidelines identify groups and special interests which should be considered in the assessment. Categories of receptor sensitivity have been defined from the principles set out in the IEMA Guidelines and these have been used to outline in broad terms the sensitivity of receptors to traffic for the categories of effect assessed in this Chapter, although in detail, each receptor assessed has a different sensitivity to each specific effect. The sensitive receptors and their sensitivity to traffic are shown in **Table 8.11**.

Table 8.11: Sensitive Receptors to Traffic

High Sensitivity Receptors	Medium Sensitivity Receptors	Low Sensitivity Receptors
Schools, colleges and other educational institutions (Nurseries	Hospitals, surgeries and clinics.	Open space.

High Sensitivity Receptors	Medium Sensitivity Receptors	Low Sensitivity Receptors
have been assumed to be included in this category).		
Retirement / care homes for the elderly or infirm.	Parks and recreation areas.	Tourist / visitor attractions.
Roads used by pedestrians with no footways.	Shopping areas.	Historical buildings.
Road safety black-spots.	Roads used by pedestrians with narrow footways.	Places of Worship.

8.60 Based on the sensitive receptors to traffic defined by the IEMA Guidelines,

8.61 **Table** 8.12 outlines the identified sensitivity receptors for this assessment together with their sensitivity rating and description.

8.62 It should be recognised that most of significant criteria apply to 'link' receptors, with the exception of driver delay, which is only relevant for 'junction' receptors. Therefore, 'link' receptors are assessed in terms of severance, pedestrian delay and amenity, and fear and intimidation; whilst 'junction' receptors are assessed against driver delay significance criteria. For accidents and road safety, both types of receptors are relevant since what matters is the existence of accident clusters.

Table 8.12: Transport and Access Sensitivity Receptors

Sensitivity	Receptor	Definition
Severance / Pedestrian Delay/ Pedestrian and Cycle Amenity / Fear and Intimidation / Driver Delay		
High	Sheen Lane (north of Level Crossing).	Link comprises pedestrian crossing, access to schools.
	Sheen Lane (south of Level Crossing).	Link comprises pedestrian crossing and public transport facilities, active frontage of shops, cafes and restaurants, health centre and library.
	Sheen Lane (to the south of the South Circular Road).	Link provides access to Richmond Park and Tower House School.
Medium	A3003 Lower Richmond Road.	Link currently provides access to park and recreational areas, would provide access to proposed school on Site. Link comprises bus stops and crossing facilities.
	White Hart Lane.	Link provides access to retail and dinning outlets, as well as hospital via South Worple Way.
	South Circular Road (to the west of Sheen Lane).	Link comprises pedestrian crossing and public transport facilities, active frontage of shops, cafes and restaurants.
Low	Mortlake High Street.	Link provides access to place of worship, post office, restaurants and shops, comprises pedestrian crossing and bus stops.
	A316 Lower Richmond Road.	Link provides access to Richmond, limited active frontage, comprises bus stops.
	A316 Clifford Avenue.	Link provides access across the River Thames, limited active frontage, comprises bus stops.
	South Circular Road (to the north of the A316).	Link provides access to Kew, Royal Botanic Gardens, comprises bus stops.

Sensitivity	Receptor	Definition
	South Circular Road (to the south of the A316).	Link provides an alternative route to Richmond and provides access to the A3 and A306, both of which form part of the TLRN.
	Williams Lane.	Link provides access to residential dwellings, partially adjoined by back gardens of residential dwellings.
	The Terrace.	Link provides access to residential dwellings and Barnes Bridge station, comprises bus stops.
Accidents and Road Safety		
Medium	Chalkers Corner Junction.	Key junction on strategic network and existing accident cluster location with 10% of accidents recorded as severe.

Evaluation of Significance

8.63 **Table 8.13** demonstrates how the proposed significance of potential effects is justified against the magnitude of effects and the sensitivity of the receptor.

Table 8.13: Transport and Access Significance Criteria

Sensitivity of Receptor	Magnitude of Effect			
	Large	Medium	Small	Negligible
High	Major	Major	Moderate	Insignificant
Medium	Major	Moderate	Minor	Insignificant
Low	Moderate	Minor	Insignificant	Insignificant

Baseline Conditions

Existing Highway Network and Traffic Flows

Road Network

8.64 There are four vehicular access points to the Main Stag Brewery Site, one of which takes access off the A3003 Lower Richmond Road, one off A3003 Mortlake High Street, one off Ship Lane and one off Williams Lane.

8.65 Vehicular access to the wider Mortlake area is limited to four points of access / egress due to the impact of the River Thames and the railway line. These access / egress points are:

- the traffic light controlled junction of the A3003 Lower Richmond Road onto the A316 Clifford Road within the Chalkers Corner component of the Site. This is part of a wider signal junction, which also includes the closely associated South Circular junction. This can be regarded as the main vehicular access route into and out of the area from the east. The junction provides for all movements;
- Sheen Lane across the Mortlake Station level crossing. This in turn accesses onto the A205 Upper Richmond Road (South Circular) by way of a signal controlled junction;
- White Hart Lane across the second level crossing. This again provides access / egress to the A205 South Circular via Priests Bridge, a one-way loop road with separate priority junctions for

traffic leaving and entering the South Circular. Together these junctions provide for all movements; and

- A3003 under Barnes Bridge.

8.66 The A3003 runs in an east-west direction, connecting to the A306 in Barnes in the east to the A316 in the west. It is subject to a 30 mph speed limit and is used by bus services operating through the Mortlake area.

8.67 The A306 has a north-south alignment and provides access to the South Circular Road at its junction with the A306 Roehampton Lane in the south.

8.68 The A316 and A205, to the west of the Site, form part of Transport for London Road Network (TLRN). Both are subject to a 30 mph speed limit, however the speed limit along the A316, over Chiswick Bridge, increases to 40 mph. The A316 has a north-east to south-west alignment providing access to the A4, which in turn provides access to the M4 motorway, in the north-east and to the M3 motorway via Richmond in the south-west.

Baseline Traffic Flows on Highway Network Surrounding the Site

8.69 **Table 8.14** shows the baseline traffic flows for 2019, presented as Annual Average Daily Traffic (AADT) flows and its HGV percentage, for links in proximity of the Site.

Table 8.14: 2019 Baseline Traffic Flows

Link	AADT Flow	HGV Percentage
A316 Clifford Ave	30,917	10.25%
A316 Lower Richmond Road	38,130	5.45%
South Circular (north of A316)	15,425	5.85%
South Circular (south of A316)	21,964	3.75%
A3003 Lower Richmond Road (Watney's Sports Ground)	17,581	8.73%
A3003 Lower Richmond Road (Mortlake Green)	17,745	9.77%
Williams Lane	632	7.07%
Mortlake High Street	18,731	10.94%
The Terrace (west of Barnes Bridge Station)	17,874	8.68%
White Hart Lane (south of Mortlake High Street)	5,007	7.90%
Sheen Lane (north of Level Crossing)	6,055	3.46%
Sheen Lane (south of Level Crossing)	5,769	2.48%
Sheen Lane (south of South Circular)	4,999	4.19%
South Circular Road (west of Sheen Lane)	18,736	8.42%

Road Safety

8.70 A detailed analysis of the personal injury collision data for the set study area surrounding the Site as outlined above, can be found in Chapter 4 of the TA (refer to **Appendix 8.1**), while the location plan and summary details of the collisions recorded during the period are appended to the TA.

8.71 In summary, no collisions that occurred in the study area were identified as having contributory factors linked to the road layout, which suggests that there are no integral highway safety issues within the study area.

8.72 The data, however, shows one location where clustering of collisions (concentration of more than 10 collisions) occurred during the three-year period. This accident cluster location, at Chalkers Corner Junction, is outlined in **Table 8.15**.

Table 8.15: Accident Cluster Locations

	Accidents over the Three-Year Period up to 31 August 2021			
Accident Cluster Location	**Total Number of Accidents**	**Percentage of Slight Accidents**	**Percentage of Severe Accidents**	**Percentage of Fatal Accidents**
Chalkers Corner junction	10	90%	10%	0%

8.73 The detailed assessment undertaken as part of the TA has shown that none of the accidents within the cluster locations are due to the highway layout. All of the accidents recorded in these locations are due to road user errors.

Pedestrian Facilities

8.74 Footways are provided on both sides of the carriageway for the majority of roads in the surrounding area of the Site, with the exception of Ship Lane, Thames Bank, Williams Lane, The Terrace and parts of Lower Richmond Road where a footway is only present on one side of the carriageway. The majority of footways within the area are over 2 m in width and are well lit and well maintained.

8.75 Additionally, there are several footpaths through Mortlake Green, to the south of the Site, which are approximately 2 m in width. These footpaths are well maintained and provide a connection between the A3003 Lower Richmond Road and Mortlake Station. Some lighting is provided within Mortlake Green although to a lesser standard than provided on footways adjacent to the carriageways.

8.76 The Thames path is located to the north of the Site, adjacent to the River Thames. This link provides an unlit path along the south bank of the River Thames leading towards Kew to the west and Barnes to the east. The path consists of a mixture of unpaved and cobbled surfaces.

8.77 Several pedestrian crossings are present in the area. Two zebra crossings are located on Sheen Lane, approximately 70-100 m either side of the railway level crossing, whilst another is located on Lower Richmond Road. A further one is located on Mortlake High Street, approximately 300 m to the east of Sheen Lane. A signalised crossing is located on Lower Richmond Road in proximity to the Ship Lane junction and the northern entrance to Mortlake Green. Additional signalised crossings are located at the Chalkers Corner junction as well as the Sheen Lane / South Circular Road junction.

8.78 The Hammersmith bridge closure has not had any impact on pedestrians or cyclists and still remains open for these two modes of travel. Once the bridge is fully operational, the date for this is currently unknown, it will remain a key route for pedestrians and cyclists crossing over the River Thames.

8.79 Overall, it is deemed that there is a good pedestrian environment currently surrounding the Site.

Cycle Facilities

8.80 Cycle facilities in the area can be found on the A316 corridor including both Lower Richmond Road (west of Chalkers Corner) and Clifford Avenue (east of Chalkers Corner). A two-way cycle

path runs intermittently on both sides of the carriageway over Chiswick Bridge towards Chalkers Corner and then further southwest along the Lower Richmond Road towards Richmond.

8.81 Other routes towards Richmond including on and off road routes are also signed and described by TfL's local cycling guide as along a mixture of quiet or busier roads. This includes a route via St Leonards Road, Lambert Avenue, Manor Grove, Townsend Terrance and Kings Road or using Tangier Road and the busier Sheen Road between Denehurst Gardens and Church Street.

8.82 A series of more local cycle routes are available to both the north and south of the Development. To the north there is an off road cycle path that forms part of the Thames Path that runs along both the northern and southern banks of the River Thames. On the southern bank of the River Thames this provides a link between Barnes Bridge to the east towards Kew Bridge to the west.

8.83 Ship Lane, which bisects the Site, forms part of a key north south route which connects the Thames Path (west of Chiswick Bridge) to the LCN Route 4. LCN Route 4 which is marked as either an off road path or along quiet or busier roads runs along the River Thames (to the north west of the site) then through the Development along Ship Lane and Mortlake Green. The route then divides via South Worpole Way towards the White Hart Lane Level Crossing or continues along Sheen Lane into Richmond Park. Connections beyond Barnes Station towards Hammersmith use the busier Lonsdale Road, although there is an option at the Gerard Road junction to connect to the Thames Path and a traffic free route towards Hammersmith Bridge and beyond.

Figures and photos showing these routes are included within the Transport Assessment (Appendix 8.1) and in Figure 8.1.

8.84 Although there is a reasonable amount of cycle infrastructure around Mortlake and the surrounding area, there are some notable barriers potentially reducing the number of people prepared to cycle. Key issues are considered to be:

- The lack of cycle infrastructure at the Chalkers Corner junction;
- The lack of cycle infrastructure along Lower Richmond Road and Mortlake High Street;
- Existing poor connections to the south of the Site; and
- The barrier created by the railway line.

8.85 Whilst there are existing cycle facilities on a number of the approaches to the Chalkers Corner junction including cycle lanes on Mortlake Road, an existing shared use cycle facility on either footway on the existing A316 Clifford Avenue approach, and a segregated cycle path on the south side of Lower Richmond Road, there is very poor provision at the junction itself.

8.86 There is currently no provision for cyclists along Lower Richmond Road, which is one of the main access routes to the Site and has been observed as a well-used cycle route.

8.87 Although there is an existing signalled cycle crossing on Lower Richmond Road, which is intended to provide linkage between Ship Lane and the cycle paths through Mortlake Green, this does not currently link well with either and has been observed to be largely ignored by cycles.

8.88 The railway does have a number of crossing points, including the level crossing at Ship Lane and a number of pedestrian bridges, but none of the bridges are specifically designed to accommodate cycles.

8.89 Cycle parking is plentiful around the area with short stay parking available within Mortlake Green, next to the station and on Sheen Lane / Upper Richmond Road adjacent to local facilities.

Existing Public Transport Network

Public Transport Accessibility Level

8.90 The Public Transport Accessibility Level (PTAL)[3] is a measure of the accessibility of a specified point to the public transport network in London used by TfL, considering walk access times and service availability surrounding a site. The method is essentially a way of measuring the density of the public transport network at a particular point. A PTAL can range from 1a to 6b, where a score of 1 indicates a “very poor” and score of 6 an “excellent” level of accessibility.

8.91 The Site at present has a PTAL rating of predominantly 2 with a PTAL rating of 1 at the western corner of the Site, which represents a ‘poor’ and ‘very poor’ level of accessibility to public transport services, respectively. However, PTAL does tend to underestimate the accessibility of the Site by public transport since the nearby Mortlake Rail Station provides access to the wider strategic public transport network serving London and the South East Region. It should be noted that TfL has acknowledged a PTAL rating of 2 for the Site.

National Rail

8.92 The closest National Rail station to the Site is Mortlake, which is situated approximately 400 m (5 minutes) to the south of the Site. The station is served by South West Trains services between London Waterloo and Twickenham, continuing either via Hounslow and Chiswick on the Hounslow Loop or Kingston and Wimbledon on the Kingston Loop, back to Waterloo.

8.93 **Table 8.16** shows the peak hour rail service frequencies of services departing Mortlake Rail Station. Notably the numbers shown below, and used in subsequent assessments are based on pre-COVID-19 conditions, due to SW trains currently reducing their services because of a lack of demand on the network. Once demand increases it is expected that train services will increase again back to the pre-COVID-19 service frequency, which is expected by the time the Development is fully operational in 2029.

Table 8.16: Rail Services Peak Hour Frequencies

	Service Frequency (Services per Hour)	
Direction (towards)	**AM Peak Hour**	**PM Peak Hour**
Waterloo (Fast)	4	4
Waterloo (via Hounslow)	2	2
Waterloo (via Kingston)	2	2
Total	**8**	**8**

8.94 **Table 8.17** shows the journey times from Mortlake Rail Station to selected destinations.

Table 8.17: Journey Times from Mortlake Rail Station

Direction	Destination	Journey Time (minutes)
Eastbound	Barnes	3
	Wandsworth Town	9
	Clapham Junction	11
	Vauxhall	18
	Waterloo	28

Direction	Destination	Journey Time (minutes)
Westbound	North Sheen	2
	Richmond	4
	St Margarets	7
	Twickenham	9
	Strawberry Hill	13
	Teddington	17
	Hampton Wick	22
	Kingston upon Thames	24
	Hounslow	21

8.95 Mortlake Rail Station is served by the South Western Railway franchise although it was previously run by South West Trains. As a result, the number of trains calling at Mortlake has not changed but the passenger capacity on the line has been increased through the provision of longer trains increasing from 8 to 10 cars. Further capacity increases have been realised through the provision of a new homogeneous fleet of rolling stock that will serve all stations on the Windsor Lines. The new rolling stock have increased loading capacity and has increased the current peak hour capacity of around 8,624 (3,304 seats) to around 11,800 (4,547 seats).

8.96 It is not foreseen that there will be any investment to increase line capacity via Richmond (as opposed to train or station capacities) until at least the 2030s. At this point there is potential that either Crossrail 2 or the Heathrow Southern Railway will be constructed, both of which will have different direct and indirect impacts on the Windsor Lines capacity.

London Underground and Overground

8.97 The closest London Underground station to the Site is Richmond, which lies approximately 2.6 km to the south-west of the Site and can be accessed via a 34-minute walk, 10-minute cycle ride, 12-minute bus ride on bus route 419, or 9-minute train ride from Mortlake Rail Station.

8.98 Richmond Rail Station provides access to District line services. A total of 7 District line services depart from Richmond in the morning peak hour and 6 in the evening peak hour.

8.99 **Table 8.18** shows journey times into Central London from Richmond via District Line services.

Table 8.18: District Line Journey Times by Selected Destinations

Destination	Time (minutes)
Hammersmith	00:17
Earl's Court	00:24
Paddington	00:35
Edgware Road	00:38
Victoria	00:34
Westminster	00:38
Embankment	00:40
Blackfriars	00:44

8.100 Richmond Rail Station, furthermore, provides access to London Overground services between Richmond and Stratford. A total of 4 services depart from Richmond in the morning and 4 in the evening peak hour.

Local Bus Services

8.101 The closest bus stops to the Site are situated to the south of the Site along Lower Richmond Road to the east (Stop Z) and west of Ship Lane (Stop N).

8.102 **Table 8.19** shows the bus routes available within an 850 m walking distance of the Site. It should be noted, however, that TfL recommends a maximum walking distance of 640 m to bus stops.

Table 8.19: Bus Routes and Peak Hour Frequencies

Bus Route No.	Route	Nearest Bus Stop to Site	Weekday Bus Wait Times (mins) (07:00 – 19:00)	Saturday Bus Wait Times (mins) (07:00 – 19:00)	Sunday Bus Wait Times (mins) (07:00 – 19:00)
419	Norley Vale - George Street	Sheen Lane/ Mortlake Station (A/B)	10-14	9-12	20-25
209	Castelnau/ Lonsdale Road – Mortlake Bus Station	Avondale Road (X) Mortlake Bus Station (P)	15	15	20
969	Whitton – Roehampton Vale	Sheen Lane/ Mortlake Station (A / B)	Tuesday and Friday only 1 service per day in each direction		
190	George Street – Empress State Bldg/ W Brompton Stn	Thames Bank (R / J)	15	15	20
533	Castelnau/ Lonsdale Road – Hammersmith Bus Station	Sheen Lane/ Mortlake Station (A / B)	10-13	15	15
378	Mortlake Bus Station – Putney Bridge Station/ Gonville Street	Avondale Road (X) Mortlake Bus Station (P)	7-11	11-12	9-15
R68	Kew Retail Park – Hampton Court Railway Station	Chalker's Corner (F)	15	15	15-20
33	Fulwell Station – Castelnau / Lonsdale Road	East Sheen (C / D)	4-9	7-11	15-20
337	Northcote Road - Richmond	East Sheen (C / D)	9-13	11-14	15-20

Bus Route No.	Route	Nearest Bus Stop to Site	Weekday Bus Wait Times (mins) (07:00 – 19:00)	Saturday Bus Wait Times (mins) (07:00 – 19:00)	Sunday Bus Wait Times (mins) (07:00 – 19:00)
493	St George's / University of London – Richmond/Manor Road	East Sheen (C / D)	10-14	10-14	20
N22	South Road / Fulwell – Margaret Street / Oxford Circus	Sheen Lane/ Mortlake Station (A/B)	2 services per hour every day (00:00-05:30)		

**route starts / finishes in Mortlake.*

Likely Significant Effects

The Works

Construction Trip Generation during Peak Construction Traffic Period

8.103 The vehicle trip generation assessment relating to the Works considers the busiest year of construction activities in terms of vehicle movements. Based on the current construction programme provided in the Framework Construction Management Statement (as set out in Chapter 6), prepared by AECOM, it is anticipated that the busiest year of construction vehicle movements will be 2028. During this period, it is forecast that 138 one-way vehicle trips would access the Site per day, of which 110 one-way trips are likely to be undertaken by Heavy Goods Vehicles (HGVs) and 28 one-way trips by Light Goods Vehicles (LGVs) (a total of 276 two-way daily vehicle trips as reported in **Chapter 6**).

8.104 It is currently proposed that no parking would be provided on Site, or in the surrounding area, for the construction workforce. It is anticipated that construction staff would access the Site via public transport. Therefore, construction staff would generate a negligible amount of vehicle trips along the local highway network.

Construction Site Access and Assumed Routes

8.105 During the peak construction period, access to the Site for construction vehicles would be via two access points off Lower Richmond Road via Ship Lane, and Mortlake High Street, adjacent to Bulls Alley.

8.106 The final construction vehicle routes will be agreed and confirmed as part of the final Construction Logistics Plan (CLP) once a contractor has been appointed following determination of the Planning Applications. For the purposes of this assessment, it has been assumed that all construction HGVs would access the Site from the west, via Chalkers Corner along Lower Richmond Road. As access from the east is constrained by 17 and 18 tonne weight restrictions along The Terrace, it has been assumed that only LGV trips would access the Site from the east.

8.107 **Table 8.20** shows the assumed distribution of construction vehicle trips by assumed vehicle type and **Table 8.21** shows the vehicle trips distributed along the highway network.

Table 8.20: Assumed Construction Traffic by Direction and Vehicle Type

Total One-Way Daily Construction Trips during Peak Construction Traffic Period (2028)	One-Way Trips by Assumed Vehicle Type		Assumed Construction Traffic Distribution by Direction and Vehicle Type		
			From the West		From the East
138	110	28	110	14	14

Table 8.21: Assumed Construction Traffic by Link

Link	Daily Two-Way Constriction Trips during Peak Construction Traffic Period (2028)
A316 Clifford Ave	88
A316 Lower Richmond Road	55
South Circular (north of A316)	22
South Circular (south of A316)	55
A3003 Lower Richmond Road (Watney's Sports Ground)	219
Mortlake High Street	57
The Terrace (west of Barnes Bridge Station)	57
South Circular Road (west of Sheen Lane)	55

8.108 Further, more detailed information regarding the construction of the Development can be found within **Chapter 6: Development Programme, Demolition, Alteration, Refurbishment and Construction** and within the Framework Construction Management Statement, submitted to support the Planning Applications.

8.109 Consideration was given by the Applicant, to the use of the River Thames for removal of demolition and excavation waste and the delivery of construction materials. However, this was discounted for the reasons outlined in **Chapter 4: Alternatives and Design Evolution.** Therefore, the assessment of the effects of the Works does not include the use of the River Thames, which from an ES transport assessment point of view represents a worst-case assessment, as no discount in vehicle trips has been taken account of.

Effects Assessment

Severance

8.110 **Table 8.22** shows the percentage increase in average daily traffic flows on links in proximity of the Site. It compares traffic flows of the 2022 future baseline plus the Works (Do Something) scenario with the 2022 future baseline (Do Minimum) scenario.

Table 8.22: Peak Construction of Development – Severance Assessment

Link	Increase in Daily Traffic Flows in 2022 as a result of Traffic associated with the Works
A316 Clifford Ave	0.26%
A316 Lower Richmond Road	0.13%
South Circular (north of A316)	0.13%
South Circular (south of A316)	0.23%

Link	Increase in Daily Traffic Flows in 2022 as a result of Traffic associated with the Works
A3003 Lower Richmond Road (Watney's Sports Ground)	1.15%
Mortlake High Street	0.28%
The Terrace (west of Barnes Bridge Station)	0.29%
South Circular Road (west of Sheen Lane)	0.27%

8.111 The assessment has shown that the largest increase in daily traffic flows as a result of the Works would occur along Lower Richmond Road. It is forecast that traffic along this link would temporarily increase by less than 2%, which falls well below the IEMA Guideline threshold of a 30% increase that would produce a slight change in severance. Therefore, the addition of construction traffic will result in an insignificant effect with regards severance at any link, in relation to pedestrians and cyclists.

Driver Delay

8.112 HGV movements associated with the Works would be spread over the working day and would generally be timed to avoid busy periods on the local and strategic highway network surrounding the Site. Therefore, it is no expected that the Works related vehicle movements would result in any significant increase in driver delay during peak hours. Thus, the Works would result in an **insignificant** effect in relation to driver delay on links in the proximity to the Site.

Pedestrian Delay

8.113 As outlined within the methodology section of this Chapter, pedestrian delay is related to traffic flows, which influence the ability of pedestrians to cross individual links. The assessment of pedestrian delay on links that form part of the assumed construction routes has shown that no assessed link would be subject to a significant increase in pedestrian delay as a result of the additional traffic movements associated with the Works.

8.114 Furthermore, it needs to be recognised that since all links that form part of the assumed construction routes, to and from the Site, provide pedestrian crossing facilities, pedestrians journey times would not be affected by a change in traffic volumes as these crossing facilities provide convenient opportunities for pedestrians to cross links.

8.115 As outlined in the Transport Assessment, an Active Travel Zone (ATZ) audit has been undertaken in the surrounding area of the Site. As part of the ATZ audit, pedestrian routes across the area were considered to be of a good standard, with none of the selected points for improvements referencing crossing points, with the exception of The Terrace. On The Terrace the crossing points were said not to meet the pedestrian desire line. Construction vehicles, however, are not anticipated to use this route, and are predominantly expected to arrive via Chalkers Corner. Therefore, it is considered that the Works would result in an **insignificant** effect on pedestrian delay, along links that form part of the assumed construction routes.

Pedestrian and Cycle Amenity

8.116 The additional traffic generated by the Works would not result in a doubling of traffic flows along any link assumed to be part of the construction routes. As a result, it is considered that the Works would result in an **insignificant** effect on pedestrian and cycle amenity.

Fear and Intimidation

8.117 The Works of the Development are forecast to generate approximately 220 two-way HGV trips per day in the peak construction period.

8.118 **Table 8.23** shows 18-hour two-way HGV flows for the 2028 Do Minimum and Do Something scenarios.

Table 8.23: Fear and Intimidation Assessment – 2028 Do Minimum and Do Something

Link on Assumed Construction HGV Route	18-Hour 2-Way HGV Flow			18-Hour 2-Way Traffic Flow per Hour		
	2028 Do Minimum	2028 Do Something	Change	2028 Do Minimum	2028 Do Something	Change
A316 Clifford Ave	3,711	3,799	88	2,052	2,057	5
A316 Lower Richmond Road	2,428	2,484	55	2,249	2,252	3
South Circular (north of A316)	1,054	1,076	22	910	911	1
South Circular (south of A316)	964	1,019	55	1,295	1,298	3
A3003 Lower Richmond Road (Watney's Sports Ground)	1,841	2,061	220	1,143	1,155	12
Mortlake High Street	2,358	2,358	0	1,215	1,219	3
The Terrace (west of Barnes Bridge Station)	1,878	1,878	0	1,167	1,170	3
South Circular Road (west of Sheen Lane)	1,985	2,040	55	1,276	1,279	3

8.119 As can be seen, the 18-hour HGV flow on Clifford Avenue in the 2022 future baseline without Development (Do Minimum) scenario is likely to be in excess of 3,000, so the existing condition can be described as having a moderate effect on pedestrian fear and intimidation. The 18-hour HGV flow on A316 Lower Richmond Road (leading to and from Chalkers Corner in the 2022 future baseline without Development (Do Minimum) scenario is likely to be more than 2,000, which would result in moderate adverse effect on pedestrian fear and intimidation whilst A3003 Lower Richmond Road (Watney's Sports Ground) has an 18-hour HGV flow of between 2,000 and 3,000 which would result in a moderate adverse effect on fear and intimidation. These effects are a result of the forecast future traffic growth within the area and are not a result of the additional traffic generated by the Works.

8.120 The additional HGV movements associated with the Works of the Development will have an insignificant effect with regard pedestrian fear and intimidation compared to the 2028 Do Minimum scenario.

8.121 Apart from a change in the proportion of HGVs, increased fear and intimidation can also be caused by an increase in average traffic flows over 18 hours per day of 600 and more vehicles per hour. The assessment of fear and intimidation considering all traffic over 18 hours has shown that no link that forms part of the assumed construction route would experience an increase in

traffic of more than 12 vehicles per hour (Lower Richmond Road) as a result of the Works associated with the Development.

8.122 As outlined above, pedestrian fear and intimidation can furthermore be influenced by vehicle speeds. However, due to the existing speed limits no increase in vehicle speed is predicted, therefore this is not considered further.

8.123 Given the above, it is considered that the Works would overall result in an **insignificant** effect on pedestrian fear and intimidation.

Accidents and Road Safety

8.124 The Works associated with the Development will result in an extremely slight increase in accident risk at the existing accident cluster locations. As can be seen in **Table 8.24**, the increase will be well below 1%.

Table 8.24: Increase in Accident Risk during Peak Works Phase

Junction / Link	Number of Accidents		Increase in Accident Risk DM – DS 2028
	2028 Do Minimum (DM)	2028 Do Something (DS)	
Chalkers Corner junction	10	10	0.2%

8.125 The Works associated with the Development are, therefore, considered to result in no significant increase in accident risk. Thus, it is considered that the Works would have an **insignificant** effect on accident risk at existing accident cluster locations.

Public Transport

8.126 There will be an increased number of contractors in the local area who will use the public transport network. However:

- construction workers generally start early and leave early resulting in the majority of the contractors travelling outside the morning and evening peak hour periods;
- public transport trips would be split between rail and bus services available in proximity of the Site; and
- arrivals in and departures from the local area around the Site would be counter-directional to the majority of existing residential public transport trips.

8.127 Furthermore, the use of the existing bus stops in the vicinity of the Site will be maintained at all times.

8.128 It is considered that the magnitude of effects on the capacity of existing bus and rail services during the peak hours would be negligible. Thus, it is considered that the Works would result in an **insignificant** effect on public transport services available in the local area of the Site during the peak hours.

Completed Development

Transport-Related Development Proposals - Stag Brewery

8.129 The strategy for movement across and through the Site revolves around reducing the number of vehicle trips required and to prioritise walking and cycling to, from and within the Development. Vehicular movement across the Site would mainly take place in the basement car parks. These

are accessible via ramps from Mortlake High Street and Ship Lane. By keeping vehicular movements below ground it increases the area available for pedestrians and cyclists and reduces potential conflicts between these modes and motorised traffic.

8.130 The number of car parking spaces proposed, aims to achieve a balance between over provision of spaces and, therefore, attracting more vehicles than necessary to the Development, with providing too few which could impact on existing parking conditions within the local area around the Site.

8.131 The only provision of parking at ground floor level is for 24 spaces for the proposed town houses on the north-western part of the Site, and 15 spaces for the proposed six-form entry secondary school. An agreement for a lower residential parking ratio of approximately 0.36 spaces per residential unit has been agreed with TfL officers during pre-application discussions, as an appropriate level of parking based on similar sites.

8.132 Regarding at grade parking, the Development would provide new car club spaces, with three potential spaces identified on Ship Lane. The amount of Electric Vehicle Charging Points on the Site, both active and passive, will be provided in accordance with London Plan standards.

8.133 The Development is envisaged to focus on pedestrian and cycle accessibility. The Development would comprise numerous access points for pedestrians and cyclists. Throughout the Development, particularly in the western section, there are shared spaces where pedestrians and cycles can move around without the presence of traffic. Cycle routes would connect the Site to the existing cycle network with the primary route through the Site formed by the Green Link, which would link Mortlake Green with the Thames Path.

8.134 Cycle parking for the Site would be provided in both of the underground car parks and at street level in accordance with the London Cycling Design Standards. The underground cycle storage facilities are to provide for long stay parking for residents of the Site, whilst more short stay spaces would be provided at street level to cater for employees and visitors using the non-residential facilities on Site. Provision is also made for non-standard bikes in accordance with the standards. The level of long stay and short stay cycle parking is to be provided in line with the London Plan.

Transport-Related Development Proposals – Chalkers Corner

5.1 The reconfiguration of the Chalkers Corner junction, as shown on detailed planning application drawing 38262-5514-021, would introduce a new left-hand turn from Lower Richmond Road onto the A316, resulting in three lanes on Lower Richmond Road. This would involve moving the road by 4.2m closer to properties 137-171 to the south of Lower Richmond Road (refer to planning drawing 38262-5514-021) and the following changes to the road layout:

- relocation of stop lines on A205 closer to the junction;
- introduction of advanced stop lanes on Mortlake Road and Clifford Avenue South; and
- widening of the area between junctions by relocating the stop line by 2m.

5.2 It will also involve the reconfiguration of the informal parking area used by residents at this location on Lower Richmond Road, resulting in the loss of approximately 6 undesignated parking spaces.

Trip Generation from the Completed and Operational Development

8.135 It is forecast that the operational Development will generate 2,049 two-way vehicle trips per day, of which 90 two-way trips are likely to be undertaken by HGVs. These HGV trips are associated with deliveries and servicing of the Development.

8.136 Appropriate transport modelling tools have been used to assess the transport implications of the Development, impacts associated with the trip generation of the Development, and the highway layout changes to be secured by S278 agreement. The following models have been utilised for the assessment:

- The SoLHAM has been utilised to assess the effects arising from the Development over a wide area, including all arms of Chalkers Corner and the South Circular Road up to its junction with White Hart Lane to the south east of the Site. SolHAM is TfL's strategic Saturn highway model covering the south east of London and provides a means for assessing the impacts arising from a development on traffic flows and journey times across the wider network covered by the model. It is, therefore, able to assess the likely changes in vehicle routing that may occur as a result of infrastructure improvements as well as the effects of new development traffic;
- Detailed junction capacity models using the appropriate software packages, LinSig junction models for traffic signals and ARCADY and PICADY (Junctions 8) models for uncontrolled junctions (roundabouts and priority junctions, respectively), have been developed to assess the Development effects on junctions of the local road network. The coverage of these local assessments has been agreed with both LBRuT and TfL, and comprises the following:
  - Chalkers Corner signalised junction;
  - Upper Richmond Road / South Circular Road signalised junction;
  - Upper Richmond Road / Sheen Lane signalised junction;
  - Sheen Lane / Mortlake High Street / Lower Richmond Road roundabout;
  - Lower Richmond Road / Site internal school access road junction;
  - Lower Richmond Road / Ship Lane junction; and
  - Mortlake High Street / Site internal car park access junction.

8.137 Further details of this local modelling are provided within the TA in **Appendix 8.1**.

Operational Traffic Flows on the Surrounding Highway Network

8.138 The existing traffic distribution along the strategic and local highway network in the surrounding area of the Site has been derived from the SoLHAM. This distribution has been used to distribute the Development trips around the highway network. The resultant vehicle trips by road are shown in the **Table 8.25**.

Table 8.25: Vehicular Development Traffic on Assessed Links

Link	Daily Two-Way Development Trips
A316 Clifford Ave	360
A316 Lower Richmond Road	425
South Circular (north of A316)	173
South Circular (south of A316)	69
A3003 Lower Richmond Road (Watney's Sports Ground)	1027
A3003 Lower Richmond Road (Mortlake Green)	1054

Link	Daily Two-Way Development Trips
Williams Lane	510
Mortlake High Street	727
The Terrace (west of Barnes Bridge Station)	626
White Hart Lane (south of Mortlake High Street)	101
Sheen Lane (north of Level Crossing)	328
Sheen Lane (south of Level Crossing)	328
Sheen Lane (south of South Circular)	199
South Circular Road (west of Sheen Lane)	0

Effects Assessment

Severance

8.139 **Table 8.26** shows the percentage increase in average daily traffic flows on links in proximity of the Site. It compares traffic flows of the 2029 and 2044 future baseline plus Development (Do Something) scenarios with the 2029 and 2044 future baseline (Do Minimum) scenarios.

Table 8.26: Operational Development – Severance Assessment

Link	Increase in Daily Traffic Flows in 2029 as a result of Development Traffic	Increase in Daily Traffic Flows in 2044 as a result of Development Traffic
A316 Clifford Ave	1.32%	1.20%
A316 Lower Richmond Road	1.27%	1.15%
South Circular (north of A316)	1.28%	1.16%
South Circular (south of A316)	0.36%	0.33%
A3003 Lower Richmond Road (Watney's Sports Ground)	6.65%	6.03%
A3003 Lower Richmond Road (Mortlake Green)	6.78%	6.14%
Williams Lane	92.06%	83.44%
Mortlake High Street	4.43%	4.01%
The Terrace (west of Barnes Bridge Station)	4.00%	3.62%
White Hart Lane (south of Mortlake High Street)	2.29%	2.08%
Sheen Lane (north of Level Crossing)	6.17%	5.59%
Sheen Lane (south of Level Crossing)	6.47%	5.87%
Sheen Lane (south of South Circular)	4.55%	4.12%

8.140 As can be seen, the largest increase in daily traffic flows as a result of the Development would occur along Williams Lane. It is forecast that traffic flows on Williams Lane would increase by 92.06% in 2029 and by 83.44% in 2044.

8.141 It should be noted that baseline traffic flows on Williams Lane are very low and thus even a small increase in vehicle trips on Williams Lane presents a large percentage change. In real terms, the traffic flow on Williams Lane is forecast to increase from 690 (future baseline) to 1,326 (future baseline plus Development traffic) vehicles per day in 2029 and from 761 (future baseline) to 1,397 (future baseline plus Development) vehicles per day in 2044. The traffic flows for the future baseline plus Development traffic scenario in 2029 and 2044 equates to less than 1 vehicle per minute and 1 vehicle per minute, respectively. This is considered to be a low volume of traffic when compared to all other assessed links and thus it is considered that the traffic flows on Williams Lane in 2029 and 20442 with the Development in place would not cause any significant severance effects on pedestrians.

8.142 The remaining assessed links are forecast to be subject to traffic flow increases of less than 7% in both 2029 and 2044 because of the Development when compared to the 2027 and 2042 future baseline scenarios. As shown in the methodology section above, an increase of less than 30% is considered a negligible magnitude, according to IEMA guidance. Therefore, the operational Development is deemed to have an **insignificant** effect on pedestrian severance in 2029 and 2044.

Driver Delay

8.143 Delay to drivers can be predicted through capacity assessments at key points on the local highway network. The TA (**Appendix 8.1**) includes detailed junction capacity assessments results for junctions along the local and strategic highway network surrounding the Site.

8.144 The local and strategic highway network surrounding the Site is subject to congestion at peak times, including the weekday mornings (08:00-09:00) and evenings (17:00-18:00). The TA has considered in detail driver delay and congestion during both the peak hour periods, since these are the periods when the combined effect of existing traffic and additional traffic generated by the Development has the greatest impacts.

8.145 The finding of capacity assessments, presented in detail within the TA, include the identification of changes to driver delays during the peak hours, expressed in terms of maximum delay in seconds per vehicle along key routes.

8.146 **Table 8.27** and **Table 8.28** show the change in driver delay times between Do Minimum and Do Something scenarios for the morning and evening peak hour, respectively.

Table 8.27: Operational Development – Driver Delay Assessment (AM Peak Hour)

Route Number	Route Description	Change in Driver Delay (Do Something – Do Minimum) (Seconds / vehicle mile)
1	Clifford Avenue South / Upper Richmond Road Junction – Chalkers Corner NB Approach	56
2	Chalkers Corner – Clifford Avenue South / Upper Richmond Road Junction	5
3	Chalkers Corner – Hartington Road Junction	0
4	Hartington Road Junction – Chalkers Corner	16
5	Mortlake Roundabout – Chalkers Corner	-25
6	Chalkers Corner – Mortlake Roundabout	77
7	A316 EB Entry – Chalkers Corner A316 EB Approach	34

Route Number	Route Description	Change in Driver Delay (Do Something – Do Minimum) (Seconds / vehicle mile)
8	Mortlake Road North Entry – Chalkers Corner Mortlake Road SB Approach	69
9	A316 Great Chertsey Road Entry – Chalkers Corner A316 WB Approach	1
10	Lower Richmond Road Entry – Mortlake Roundabout	87
11	Sheen Lane Entry – Mortlake Roundabout	37
12	Upper Richmond Road WB Entry – Upper Richmond Road / Clifford Avenue Junction	61
13	Upper Richmond Road EB Entry – Upper Richmond Road / Clifford Avenue Junction	101

Table 8.28: Operational Development – Driver Delay Assessment (PM Peak Hour)

Route Number	Route Description	Change in Driver Delay (Do Something – Do Minimum) (Seconds / vehicle mile)
1	Clifford Avenue South / Upper Richmond Road Junction – Chalkers Corner NB Approach	31
2	Chalkers Corner – Clifford Avenue South / Upper Richmond Road Junction	8
3	Chalkers Corner – Hartington Road Junction	0
4	Hartington Road Junction – Chalkers Corner	0
5	Mortlake Roundabout – Chalkers Corner	-79
6	Chalkers Corner – Mortlake Roundabout	60
7	A316 EB Entry – Chalkers Corner A316 EB Approach	3
8	Mortlake Road North Entry – Chalkers Corner Mortlake Road SB Approach	-1
9	A316 Great Chertsey Road Entry – Chalkers Corner A316 WB Approach	2
10	Lower Richmond Road Entry – Mortlake Roundabout	-48
11	Sheen Lane Entry – Mortlake Roundabout	21
12	Upper Richmond Road WB Entry – Upper Richmond Road / Clifford Avenue Junction	29
13	Upper Richmond Road EB Entry – Upper Richmond Road / Clifford Avenue Junction	29

8.147 **Table 8.27** shows that in the morning peak hour driver delay would decrease in the Do Something scenario compared to the Do Minimum scenario along Route 5. This decrease would result in a long-term, local, beneficial effect that would be **insignificant** on Route 5.

8.148 On routes 1, 2, 3, 4, 7, 8, 9 and 11 there are increase to the journey times that will result in an **insignificant** effect and on routes 6, 8, 10, 11, 12 and 13 there will be an increase which would result in a **long-term**, **local**, **adverse effect** of **minor** significance.

8.149 Table 8.28 shows that in the evening peak hour driver delay would decrease in the Do Something scenario compared to the Do Minimum scenario along Routes 5, 8 and 10. These decreases would result in a **long-term**, **local**, **beneficial effect** of **minor significance** on Route 5 and a long-term, local, beneficial effect that would be **insignificant** on Routes 8 and 10.

8.150 All remaining Routes presented in **Table 8.28** would be subject to an **insignificant** effect on driver delay during the evening peak hour, with the exception of route 6 which would experience a **long-term**, **local**, **adverse effect** of **minor significance**.

8.151 It should be recognised that the Chalkers Corner junction would work considerably better in the future with the Development in place compared to the existing and future scenarios with no Development (including no Chalkers Corner works).

Pedestrian Delay

8.152 Since all, but one, assessed links provide numerous pedestrian crossing facilities, pedestrians journey times would not be affected by a change in traffic volumes. It should be noted that on White Hart Lane, crossing facilities are only provided at either end of the link. Furthermore, Mortlake High Street and Lower Richmond Road have been identified as links that would benefit from additional crossing facilities, which are proposed as part of the S278 works included in the mitigation strategy for this Development. The mitigation measures are outlined in the mitigation measures section of this Chapter.

8.153 As a result, the crossing facilities in the area have been determined to provide convenient opportunities for pedestrians to cross links in proximity of the Site without being delayed by increases in traffic volumes. As such, the Development is deemed to have an **insignificant** effect on pedestrian delays in 2029 and 2044.

Pedestrian and Cycle Amenity

8.154 The only link that is likely to be subject to an approximate doubling in traffic flows as a result of the operational Development is Williams Lane. As outlined above, it should be noted that baseline traffic flows on Williams Lane are very low and thus even a small increase in vehicle trips on Williams Lane presents a large change. It is forecast that two-way daily traffic flows on Williams Lane are likely to be in the region of 1,300 - 1,400 once the Development is operational. This volume of traffic is considered to be low and within a safe cycling quantity. Although based on traffic flows, when strictly following the IEMA guidance, there would be a long-term, local, adverse effect of minor to moderate significance on cycle amenity along Williams Lane, it is considered that the operation of the Development would cause an **insignificant** effect cycle amenity along Williams Lane given the low traffic volumes existing and predicted along this link.

8.155 Williams Lane, which has been included in the ATZ audit undertaken for the Development, was not identified to have any issues for pedestrians or cyclists indicating a good provision. The current provision comprises a footway on the western side of the carriageway only. As part of the Development, a footway will be added to the eastern side of the carriageway. This footway is proposed to be 2m in width.

8.156 Given the above, it is considered that the increase in traffic flows on Williams Lane will have an **insignificant** effect on pedestrian amenity.

Fear and Intimidation

8.157 It is anticipated that the only HGV movements associated with the operation of the Development will be delivery and servicing trips. The number of servicing trips to and from the Site will be

considerably less (45 one-way trips per day) than the suggested threshold shown in **Table 8.8**. As a result, it is anticipated that the operational Development's HGV trip generation would result an **insignificant** effect on pedestrian fear and intimidation in 2029 and 2044 as a result of the traffic composition.

8.158 Apart from a change in the proportion of HGVs, increased fear and intimidation can also be caused by a rise in average speeds over 18 hours as per the Works this can be excluded due to no increase in speed limits.

8.159 Furthermore, an increase in average traffic flows over 18 hours per day of 600 and more vehicles per hour, as shown in **Table 8.8**, has the potential to raise fear and intimidation levels amongst pedestrians, according to IEMA guidelines. The assessment of fear and intimidation, considering all traffic over 18 hours, has shown that no link will experience an increase in traffic of more than 81 vehicles per hour (Lower Richmond Road adjacent to Mortlake Green) in both 2029 and 2044 as a result of the completed Development. Therefore, it is considered that the operational Development would result an **insignificant** effect on pedestrian fear and intimidation.

Accidents and Road Safety

8.160 The completed Development will result in a slight increase in accident risk at the accident cluster locations. However, as can be seen in **Table 8.29**, the increase will be just over 2%. In addition, the S278 works at Chalkers Corner will improve crossing facilities for both pedestrians and cycles and help to improve cycle access and safety through the junction.

Table 8.29: Increase in Accident Risk during Operational Phase

Junction / Link	Number of Accidents		Increase in Accident Risk DM – DS 2029	Number of Accidents		Increase in Accident Risk DM – DS 2044
	2029 Do Minimum (DM)	2029 Do Something (DS)		2044 Do Minimum	2044 Do Something	
Chalkers Corner junction	10	10	2.2%	10	10	1.9%

8.161 The completed Development is, therefore, considered to cause no significant increase in accident risk. Thus, it is considered that the operational Development would have an **insignificant** effect on accident risk at existing accident cluster locations.

Public Transport

8.162 As outlined above, a multi-modal trip generation assessment has been undertaken as part of the TA in **Appendix 8.1** as well as public transport impact assessments.

8.163 **Table 8.30** shows the forecast peak hour public transport trips of the operational Development.

Table 8.30: Operational Development – Public Transport Peak Hour Trips

Mode of Transport	AM Peak Hour			PM Peak Hour		
	Arr	Dep	2-Way	Arr	Dep	2-Way
Bus	531	132	663	105	155	260
Rail	155	102	257	147	192	339
Underground	21	70	92	45	30	76

Mode of Transport	AM Peak Hour			PM Peak Hour		
	Arr	Dep	2-Way	Arr	Dep	2-Way
Total	708	304	1,013	297	377	675

Public Transport - Rail

8.164 For the purpose of this assessment, it has been assumed that all underground trips would use rail services from Mortlake Rail Station to access underground services as a robust worst case. The combined rail and underground trips have then been distributed based on local Census 2011 origin – destination data.

8.165 **Table 8.31** shows the increase in rail usage at Mortlake Rail Station during the peak hours as a result of the operational Development.

Table 8.31: Operational Development – Peak Hour Rail Trip Distribution

	AM Peak Hour		PM Peak Hour	
	Arrival	Departure	Arrival	Departure
Forecast Development rail and underground trips	176	172	193	222
Number of rail services per peak hour in both directions	8	8	8	8
Increase in rail patronage per service	22	22	25	28
Estimated 10-car service capacity (seating and standing)	1,475	1,475	1,475	1,475
Increase in rail patronage per service as proportion of service capacity	1.5%	1.5%	1.6%	1.9%

8.166 As can be seen, the largest increase in rail trips as a result of the Development is forecast to occur in the evening peak hour. It is estimated that an additional 28 passengers would board a service stopping at Mortlake Station, which equates to an approximate increase in rail ridership of 1.9% of the service capacity.

8.167 This increase in rail ridership as a result of the Development is considered to fall within the daily fluctuation of peak hour rail ridership and thus is considered to cause an **insignificant** effect on rail services.

Public Transport – Bus Service Delay

8.168 The environmental effect on bus services travelling along Lower Richmond Road, Mortlake High Street, Sheen Lane, Clifford Avenue and A316 Lower Richmond Road are included within the assessment of driver delay, presented above.

Public Transport – Bus Service Capacity

8.169 As shown in **Table 8.30**, the Development is forecast to generate 667 two-way bus trips in the morning and 263 two-way bus trips in the evening peak hour. **Table 8.32** shows the likely peak hour bus trips of the Development by land use.

Table 8.32: Operational Development – Peak Hour Bus Trips by Land Use

Land Use	AM Peak Hour			PM Peak Hour		
	Arr	Dep	2-Way	Arr	Dep	2-Way
Residential	20	65	85	42	27	70
Non-Residential	43	25	68	51	74	125

Land Use	AM Peak Hour			PM Peak Hour		
	Arr	Dep	2-Way	Arr	Dep	2-Way
Sub-Total	*63*	*90*	*153*	*93*	*102*	*195*
Education (School Application)	468	42	510	11	53	65
Total	531	132	663	105	155	260

8.170 As shown in **Table 8.32**, the vast amount of likely morning peak hour bus trips of the Development would be generated by the proposed Secondary School on Site. Application B (the school) is forecast to generate 510 two-way bus trips in the morning peak hour while the remaining land uses on Site are likely to generate 153 two-way bus trips in the morning peak hour.

8.171 Discussions have been held with TfL regarding the most appropriate bus improvements that could be implemented to serve the Development. It is anticipated that the non-school demand generated by the Development would be largely absorbed within the existing bus services available in proximity of the Site. However, it is considered that, at most, two additional single decker bus services could be required to cover the non-school demand of the Development. The demand likely to be generated by the school is considered to be met by the take up of spare capacity on existing bus services or dedicated school bus services. The need for school bus services will be determined once the school's catchment is better understood.

8.172 The effects of a failure to provide buses have not been modelled because the scenario is unrealistic, and any bus subsidy required will be secured via planning conditions or a Section 106 Agreement once planning consent has been granted.

Mitigation Measures and Likely Residual Effects

The Works

8.173 No mitigation measures would be required during the Works, as the above assessment of effect relating to the Works has shown that the Works would result in insignificant effects on severance, driver delay, pedestrian delay and amenity, fear and intimidation as well as accidents and road safety. However, the following measures will be implemented for the Works in order to avoid adverse effects arising during the Works:

Framework Construction Management Statement

8.174 A Framework Construction Management Statement (FCMS), which includes a draft Construction Logistics Plan (CLP), has been submitted as part of a suite of documents for the Planning Applications of the Development.

8.175 The CLP aims to reduce the impact of construction vehicle trips to and from the Site. It sets out the following measures to reduce adverse effects generated by construction activities:

- construction vehicle routes to Site would be agreed with LBRuT and TfL and would seek to minimise impact on the local road network and community;
- commitment to use a Delivery Management System (DMS) to ensure contractors and suppliers forward plan and pre-book deliveries. This would enable site managers to control deliveries and vehicle flow to Site including avoiding peak network times where possible;
- investigate the use of construction consolidation centre to help maximise vehicle load efficiency and reduce vehicle trips;

- commitment to use contractors and suppliers that are members of best practice schemes such as Considerate Constructors Scheme (CCS);
- ensure a sufficiently robust CLP management, monitoring and compliance regime is in place so that the CLP is implemented correctly and remedial actions are taken when necessary; and
- Encourage workers to use public transport to arrive at the Site by not providing car parking and highlighting that CPZ restrictions prevent them parking on many of the surrounding streets.

Construction Environmental Management Plan

8.176 It is proposed that a detailed Construction Environmental Management Plan (CEMP) would be prepared for the Development and secured through planning condition attached to the planning permission, based on the FCMS provided with the planning application. The CEMP would include details of relevant environmental management controls necessary for environmental protection during the Works, as detailed in **Chapter 6: Development Programme, Demolition, Alteration, Refurbishment and Construction**, and would be implemented by the construction contractor for the Development.

8.177 The CEMP is likely to include a detailed CLP to be prepared when a main contractor has been appointed in the post planning consent phase. In addition to measures outlined in the draft CLP, the detailed CLP would include a full management, monitoring and compliance regime.

8.178 Likely residual effects associated with the Works would remain **insignificant**.

Completed Development

Mitigation Measures

8.179 The mitigation measures (including inherent mitigation), proposed to avoid or minimise adverse effects on cycle amenity and driver delay as a result of the Development, are described in full detail within the TA, **Appendix 8.1**. The following summarises the measures:

Delivery and Servicing Plan

8.180 A Delivery and Servicing Plan (DSP) has been prepared and is appended to the TA in **Appendix 8.1**. The DSP will be introduced for the Development's operational stage. The DSP will set out how all types of freight vehicle movements to and from the Development will be managed.

Electric Vehicle Charging (inherent mitigation)

8.181 20% of all parking spaces are to be provided with Electric Charging Infrastructure in line with the London Plan. This will help to reduce the number of diesel/petrol fuelled vehicle trips generated by the Development.

Travel Plans

8.182 A Framework, School as well as Residential Travel Plans (TPs) have been prepared for the Development. These TPs, which are appended to the TA in **Appendix 8.1**, set out how all Site users can access the Development by sustainable forms of transport. The TPs would address, amongst others, the following:

- staff, visitor and residential cycle parking provision;
- health benefits of active travel;
- incentives for using sustainable modes of transport;

- targets to achieve modal shift from private car to more sustainable modes, in particular walking and cycling; and
- Action Plan to achieve the desired modal shift and a monitoring and review process.

Public Transport Enhancements

8.183 Discussions have been held with TfL to enhance bus services that would serve the completed Development in the future. TfL are unable to commit to a preferred strategy at this time since they envisage that these would form part of a wider re-planning of bus services in the area following the repair works to Hammersmith Bridge. Based on the current service pattern, an increased frequency for the 419 service would be the preferred solution together with provision of special buses to meet the peak demands associated with the school.

8.184 Adverse impacts on the bus service capacity in the area caused by the demand of the school could not be identified at the time of writing this Chapter due to the uncertainties relating to the schools' catchment area. Thus, as stated above, any adverse effects on bus service capacity in the area that might arise from the school will be mitigated to prevent residual adverse effects. The commitment to mitigate adverse effects on bus service capacity in the area will be secured by planning conditions / S106 obligations.

Highway Improvements

8.185 A full description of the highway mitigation works associated with this development are included within the TA (**Appendix 8.1**) and shown on drawing 38262-5520-001-002. This includes the details and discussion on the merits of the number of options presented to improve Chalkers Corner with the preferred option being Option 2 (refer to **Chapter 4: Alternatives and Design Evolution** on the different highways options that were considered). A summary of the mitigation works is provided below.

8.186 The Highway Mitigation Proposals include a package of measures along Lower Richmond Road, Mortlake High Street and Sheen Lane, together with various options for Chalkers Corner. As part of the detailed VMAP modelling exercise undertaken, Chalkers Corner 'light' was tested. Both options provide an overall benefit at Chalkers Corner with regards to general traffic journey times and network performance in comparison with the proposed development scenario, which includes the package of highway measures without any proposals at Chalkers Corner. In comparison with the future base with no development the greatest benefits to journey times for general traffic and buses are shown to be along Lower Richmond Road between Mortlake Roundabout and Chalkers Corner junction in the PM peak.

8.187 It has been possible to reallocate green time (the length of time for which a traffic signal displays a green light) to other movements through Chalkers Corner junction and provide better overall junction balance in terms of journey times for all Highway Mitigation proposals. However, a slight increase in journey times is noted on other approach arms to Chalkers Corner junction with the introduction of the Development.

8.188 The bus journey time results indicate that the introduction of the Development is alleviated through the highway mitigation proposals. However, due to the previously agreed bus contribution, additional bus services could be added to Route 419 in each direction, which would reduce dwell times further at bus stops along the route. The figures generated in the modelling work are therefore considered a robust worst case for the assessment and were acceptable to TfL.

8.189 Furthermore, it is noted that with the closure of Hammersmith Bridge, bus route 533 has been re-routed to travel along Mortlake High Street, Lower Richmond Road, through Chalkers Corner and across Chiswick Bridge. While this has not formed part of the modelling work, the Chalkers Corner improvements with / without the implementation of the bus lane will, therefore, provide added benefits to both Routes 419 and 533 in the westbound direction along Lower Richmond Road.

8.190 Based on the assessment undertaken, it is considered that the proposed highway package together with the Chalkers Corner proposals sufficiently alleviate the impact of the Development.

8.191 These highway improvements have been agreed in principle with LBRuT and will form part of the S278 works for the D

8.192 A summary of the mitigation measures (including inherent mitigation measures is provided in **Table 8.33**.

Table 8.33: Summary of mitigation measures (including inherent mitigation)

	Mitigation Measures
1.Demolition and Construction Phase	• Environmental management controls developed and set out in the FCMS and subsequent CEMPs this would include dust suppression, hoarding, monitoring etc. • Avoidance, or limited use, of traffic routes in proximity to sensitive routes (i.e. residential roads etc.). All construction traffic logistics would be agreed with LBRuT. • Avoidance, or limited use, of roads during peak hours, where practicable. • Provision of a Construction Worker Travel Plan and a Construction Transport Management Plan.
2. Inherent – Measures included in the design of the Development	• Low Parking Ratio (0.36 car parking spaces per residential unit). • Preparation and implementation of a DSP that will set out how all types of freight vehicle movements to and from the Development will be managed. • Framework, School and Residential TP setting out how all Site users can access the Development by sustainable forms of transport. • Provision of new car club spaces as part of the Residential TP. • Provision of cycle spaces in accordance with London Plan requirements. • Provision of new pedestrian and cycle paths aimed to promote walking, cycling and the use of public transport. • Provision of Electric Vehicle Charging Points at least in accordance with London Plan standards. • Reconfiguration to the Chalkers Corner junction to alleviate the transport and traffic implications associated with the operation of the Development.
3.Additional future measures that could be included / to be secured through S106 / s278 agreement.	• Other highways works, secured by S278 works: – Improvements to Ship Lane, which would continue as a public highway but would be enhanced as a pedestrian route through the provision of a wider footway on the west side and a new footway (3 m) on the east side; – A new pelican crossing at the southern end of the Green Link along Lower Richmond Road directly north of Mortlake Green. The existing signalised crossing point adjacent to Ship Lane would be relocated to align better with the Green Link; – A new crossing provided just to the west of the new access road to the school to improve access for pupils needing to cross Lower Richmond Road. This is currently shown as a zebra crossing but could potentially be upgraded to a pelican crossing; and – Provision of a new zebra crossing to serve a desire line to the eastern portion of the Development. • Enhancement of existing bus services. Based on the current service pattern, an increased frequency for the 419 service would be the preferred solution together

	Mitigation Measures
	with provision of special buses to meet the peak demands associated with the school. • Safeguarding of land at the corner of Lower Richmond Road/Williams Lane to allow TfL to provide in the future bus stands, driver facilities and a bus turn facility. • Safeguarding of land close to the Green Link to allow the future provision of a cycle hire facility. • A New 20mph speed limit enforced between Williams Lane and Bulls Alley including Sheen Lane, between the Mortlake High Street / Lower Richmond Road junction and the Sheen Lane level crossing. A number of physical measures are proposed to help manage speeds including junction entry treatments, carriageway narrowing and provision of a textured tarmac resin to differentiate the area of speed restraint. Potentially, table tops to comply with TfL requirements for buses could be installed at pedestrian crossing points by the school and on the Green Link. • Potential funding for a new controlled parking zone and/or modifications to existing parking zones to help manage potential overspill parking associated with the proposed development onto surrounding roads.

Likely Residual Effects

8.193 The residual effects for severance, pedestrian delay, pedestrian and cycle amenity, fear and intimidation, and accident and road safety are considered to be **insignificant**.

8.194 The assessment of driver delay has shown that the completed Development would result in both adverse and beneficial effects of minor significance on driver delay times. Strategic traffic modelling has been undertaken for the Do Something with highway improvements scenario to demonstrate the effect of the proposed traffic calming measures.

8.195 It needs to be recognised that the traffic calming measures along Lower Richmond Road and Mortlake High Street represent a direct conflict between traffic speeds/driver delay and pedestrian and cycle safety along these links. The traffic calming measures have been introduced in favour of pedestrian and cycle safety, with the aim of managing traffic speeds which consequently results in increased journey times for vehicle drivers. By proposing the highway improvement measures in addition to the S278 works at Chalkers Corner, it is sought to strike a balance between the needs of all highway users.

8.196 It should be recognised that these measures will have a beneficial effect on severance, pedestrian delay and especially fear and intimidation and accidents and road safety. However, they consequently would have an adverse effect on driver delay times.

8.197 The S278 works at Chalkers Corner is proposed with the aim to create additional capacity at this junction to accommodate the additional vehicle trips generated by the Development, including the proposed secondary school. Within the TA (**Appendix 8.1**) detailed junction capacity assessments have been undertaken to show the impact of the Development with and without the S278 works at Chalkers Corner. These assessments show that the S278 works at Chalkers Corner improves journey times in the surrounding area compared to the Development without the Chalkers Corner S278 works scenario.

Summary

8.198 **Table 8.34** summarises the likely significant effects, mitigation measures, and likely residual effects identified within this Chapter.

Table 8.34: Summary of Likely Significant Effects, Mitigation Measures and Likely Residual Effects

Description of Effect	Likely Significant Effect	Mitigation Measures	Likely Residual Effect
The Works			
Severance	**Insignificant**	Not required	**Insignificant**
Driver Delay	**Insignificant**	Not required	**Insignificant**
Pedestrian Delay	**Insignificant**	Not required	**Insignificant**
Pedestrian and Cycle Amenity	**Insignificant**	Not required	**Insignificant**
Fear and Intimidation	**Insignificant**	Not required	**Insignificant**
Accidents and Road Safety	**Insignificant**	Not required	**Insignificant**
Completed Development			
Severance	**Insignificant**	Not required	**Insignificant**
Driver Delay	AM Peak Hour: Route 5: **Insignificant** (Beneficial) Routes 1, 2, 3, 4, 7, 8, 9, 11: **Insignificant** Routes 6, 10, 11, 12, 13: **Minor Adverse Significance** PM Peak Hour: Routes 8, 10: **Insignificant** Route 5: **Minor Beneficial** Routes 1, 2, 3, 4, 7, 9, 11, 12, 13: **Insignificant** Route 6: **Minor Adverse Significance**	Traffic calming measures along Lower Richmond Road and Mortlake High Street to improve conditions for pedestrians and cyclists at the cost of driver delay effects. However, signal timings at the Chalkers Corner junction could be adjusted post Development implementation to ease driver delay especially along the Lower Richmond Road arm.	**Minor Adverse Residual Effects** (caused by the traffic calming measures implemented by the Development to aid other criteria)
Pedestrian Delay	**Insignificant**	Not required	**Insignificant**
Pedestrian Amenity	**Insignificant**	Not required	**Insignificant**
Cycle Amenity	**Insignificant**	Not required	**Insignificant**
Fear and Intimidation	**Insignificant**	Not required	**Insignificant**
Accidents and Road Safety	**Insignificant**	Not required	**Insignificant**

8.199 As outlined above, it should be recognised that the residual adverse driver delay effects, presented in **Table 8.34**, are the results of the proposed traffic calming measures rather than an increase in traffic volumes resulting from the operational Development.

8.200 Regarding the public transport assessment included within this Chapter, during the Works it is not anticipated that the increased number of contractors in the local area who will use the public

transport services would cause an adverse effect on existing public transport network, as those trips tend to occur outside of the peak hours, are split between bus and rail modes and would be largely counter-directional to resident trips in the local area.

8.201 Once the Development is operational, bus services would be subject to driver delay times as outlined in the above assessment of driver delay times. The effects of a failure to provide buses have not been modelled because the scenario is unrealistic and any bus subsidy required will be secured via planning conditions once planning consent has been granted.

References

1 Institute of Environmental Management and Assessment (2004); 'Guidelines for Environmental Impact Assessment'.

2 Institute of Environmental Assessment (1993); 'Guidelines for the Environmental Assessment of Road Traffic'.

3 Transport for London (on-line); 'WebCAT planning tool', https://tfl.gov.uk/info-for/urban-planning-and-construction/planning-with-webcat/webcat