Ham Close Regeneration

Planning Application:

Healthy Streets Transport Assessment

Author: Velocity Transport Planning

April 2022

HAM CLOSE, RICHMOND

HEALTHY STREETS TRANSPORT ASSESSMENT

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1 INTRODUCTION

1.1 APPOINTMENT

1.1.1 Velocity Transport Planning (VTP) has been appointed by Hill Residential (the Applicant) to prepare this Healthy Streets Transport Assessment (TA) in support of the redevelopment proposals at Ham Close, Ham, Richmond Upon Thames, TW10 7PG.

1.1.2 The site is situated within the administrative boundary of the London Borough of Richmond upon Thames (LBRuT).

1.2 SITE LOCATION

1.2.1 **Figure 1-1** indicates the location of the site. It is bound by Ashburnham Road to the south, a primary school to the west, Woodville Road to the north, Wiggins Lane to the north east and a mixed use block to the south east.

Figure 1-1: Site Location and Local Context

1.3 EXISTING SITE USE

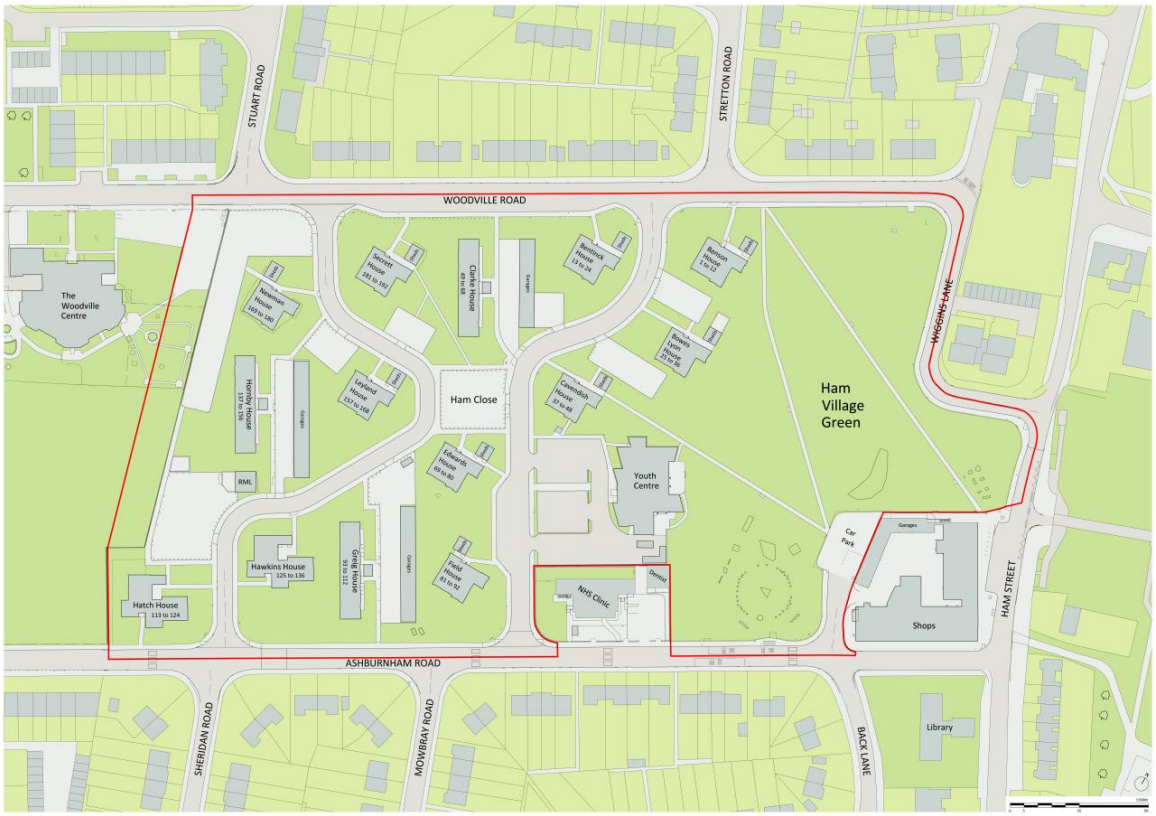
1.3.1 The application site currently houses 192 homes, a community centre and a Maker Labs use as part of the existing Ham Close Estate. Access is provided from Ham Close which forms two parallel minor roads that generally run north west to south east, connecting to Ashburnham Road in the south and Woodville Road in the north.

1.3.2 At present, there are approximately 228 car parking spaces provided on-site, as well as 47 garages.

1.3.3 There are no parking controls across the site and none of the spaces are formally delineated or marked out on the ground. The estimation of car parking spaces is therefore based on a standard parking bay size (2.4m x 4.8m). In reality, residents are able to park with more space between them due to the bays not being marked.

1.3.4 An overview of the existing site layout is provided below in **Figure 1-2**.

Figure 1-2: Existing Site Layout



1.4 PROPOSED DEVELOPMENT

1.4.1 The proposed development description is as follows:

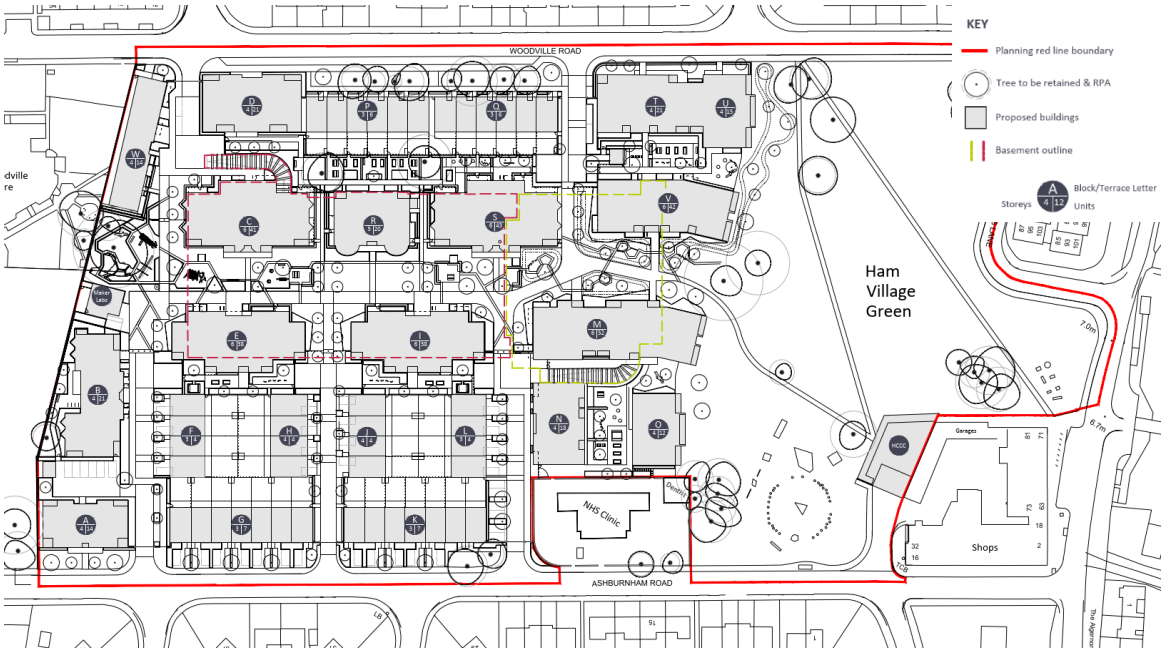
> *"Demolition of existing buildings on-site and phased mixed-use development comprising 452 residential homes (Class C3) up to six storeys; a Community/Leisure Facility (Class F2) of up to 3 storeys in height, a "Maker Labs" (sui generis) of up to 2 storeys together with basement car parking and site wide landscaping."*

1.4.2 **Table 1-1** provides a breakdown of the land uses proposed for the residential-led development and **Figure 1-1** shows the proposed layout plan. All proposed floor plans are included in **APPENDIX A.**

Table 1-1: Proposed Development (Per Land Use)

USE CLASS	QUANTUM
Residential	452 homes
Community Centre	716 sqm (GIA)
Maker Labs	130 sqm (GIA)

Figure 1-3: Proposed Layout



RESIDENTIAL USE

1.4.3 The proposed development seeks to redevelop the site to provide 452 residential homes, with the accommodation schedule for the proposed residential homes shown in **Table 1-2**.

Table 1-2: Proposed Residential Accommodation Schedule

HOME TYPE	AFFORDABLE RENT REPROVISION	AFFORDABLE RENT ADDITIONAL	LONDON LIVING RENT	SHARED OWNERSHIP	LEASEHOLDER	MARKET	TOTAL
Studio	0	0	0	0	2	2	**4**
1-bed	93	8	7	22	7	83	**220**
2-bed	37	10	3	24	17	74	**165**
3-bed	13	3	0	1	4	0	**21**
4-bed	0	0	0	0	0	34	**34**
5-bed	0	0	0	0	0	8	**8**
Total	**143**	**21**	**10**	**47**	**30**	**201**	**452**

1.4.4 The residential component of the proposed development will provide a total of 274 residential car parking spaces (including blue badge spaces).

1.4.5 A total of 14 blue badge spaces (3%) will be provided from the outset, in accordance with the London Plan (2021). All parking spaces will be fitted with Electric Vehicle Charging Point (EVCP) provision in accordance with the London Plan.

1.4.6 An additional 8 spaces will be provided across the site for visitors and two spaces will be dedicated as car club spaces.

1.4.7 Vehicle access would be provided via two access roads on the northern side of the street from Woodville Road, with one of these leading to the basement. From the south, there are three access roads with one of

those also joining through to the basement. There will be no through route from Woodville Road to Ashburnham Road for general motorised vehicles, with the exception of refuse and emergency access.

1.4.8 The proposed provision of cycle parking will be compliant with the minimum London Plan requirements.

COMMUNITY USE AND MAKER LABS SPACE

1.4.9 The proposals also include the redevelopment of the community centre on the site, along with the reprovision of the Maker Labs use. Two blue badge spaces will be provided for the Community Use, with the existing informal parking spaces removed. One blue badge space will be provided for the Maker Labs in accordance with the London Plan.

1.4.1 The transport strategy for the proposed non-residential space has been developed following the Healthy Streets approach by prioritising walking and cycling and minimising trips by motorised vehicles.

1.4.2 The car parking provision across the whole site is summarised as follows:

Residential - 274 spaces

- Residential standard spaces - 230
- On-plot spaces - 30
- Basement Blue Badge spaces - 13
- Ground level Blue Badge spaces - 1

Non-residential - 3 spaces

- Blue Badge spaces - 3

Car Club - 2 spaces

Visitor - 8 spaces

Total - 287

1.5 CONSULTATION

1.5.1 Prior to submission of the application, a consultation response on the scope of the TA and supporting assessments was provided by LBRuT within the Environmental Impact Assessment (EIA) Scoping Opinion, dated 6th January 2022.

1.5.2 The scope and timing of the parking and traffic surveys that have been undertaken to support the application were also agreed with LBRuT prior to the commencement of any survey work.

1.5.3 In addition, a pre-application meeting was held with the Greater London Authority (GLA), with TfL in attendance, which took place on 19th October 2021 and with a formal pre-application response received on 2nd December 2021. An additional meeting with the GLA was held on 9th March 2022, and a meeting was held with LBRuT highways on 17th March 2022.

1.5.4 Where appropriate throughout this TA, the consultation comments received will be presented in order to demonstrate compliance with the relevant request; or where this approach has not been followed, a suitable justification why this decision was made.

1.6 TRANSPORT DESIGN AND PLANNING PROCESS

1.6.1 This TA has been prepared in support of a planning application for the redevelopment of the existing site to provide 452 residential homes, 130 sqm (GIA) of Maker Labs and 716 sqm (GIA) of community space, improved public realm and associated cycle and car parking.

1.6.2 The design development of the proposals has evolved through the collaboration with architects and landscape architects, ensuring safe access for pedestrians and cyclists, high-quality cycle parking provisions and new active frontages to facilitate access into the site.

1.6.3 This TA has been prepared in accordance with the requirements of National Planning Practice Guidance and TfL's Healthy Streets Transport Assessment Guidance (2019), as well as the consultation comments received from both LBRuT and TfL.

1.6.4 The TA is supported by a Framework Residential Travel Plan (TP), an Outline Delivery and Servicing Plan (DSP), an Outline Parking Management Plan (PMP) and an Outline Construction Logistics Plan (CLP).

1.6.5 An Active Travel Zone (ATZ) assessment has been undertaken in line with the TfL Healthy Streets TA requirements. The assessment identifies key journeys within the ATZ surrounding the site for pedestrians and cyclists, then assesses each route against eight of the ten Healthy Street criteria.

DOCUMENT STRUCTURE

1.6.6 Following this Introduction, this Healthy Streets TA is structured as follows:

- **Section 2: Policy Context** – assesses the proposed development's compliance with relevant National, Regional and Local transport planning policy;
- **Section 3: Transport Planning for People** – considers the users of the development, their common methods of travel and common travel purpose;
- **Section 4: Site and Surroundings** – outlines the baseline connectivity of the site to the local network;
- **Section 5: Active Travel Zone Assessment** – summarises the outcome of the Active Travel Zone assessment;
- **Section 6: Proposed Development** – outlines the development proposals;
- **Section 7: Trip Generation** – outlines the trip generation methodology;
- **Section 8: Servicing** – sets out the servicing trip generation methodology;
- **Section 9: Network Impact** – sets out the anticipated network impact of the proposals by mode of travel;
- **Section 10: Traffic Impact Assessment –** summarises the methodology for the proposed traffic impact assessment;
- **Section 11: Junction Impact Assessments –** provides details on the junction capacity assessments undertaken;
- **Section 12: Management Plans** – provides an overview of the supporting management plans;
- **Section 13: Outline Construction Logistics** – provides an outline of the Construction Logistics strategy; and
- **Section 14: Summary and Conclusions** – provides a summary and the conclusions to this Healthy Streets TA.

2 POLICY CONTEXT

POLICY OVERVIEW

2.1.1 This section reviews the development proposals for compliance with National, Regional and Local transport policy. The following policy documents have been considered:

- National Planning Policy Framework (2021);
- The Mayor's Transport Strategy (2018);
- London Plan (2021);
- London Borough of Richmond Local Plan (2018); and
- Ham and Petersham Neighbourhood Plan 2018 to 2033 (2019).

NATIONAL PLANNING POLICY FRAMEWORK (2021)

2.1.2 The National Planning Policy Framework (NPPF) was revised in July 2021 and sets out the Government's planning policies for England, providing a framework within which locally prepared plans for housing, and other development can be produced. At its heart, the NPPF sets out a presumption in favour of sustainable development (Paragraph 11).

2.1.3 The NPPF promotes sustainable transport and notes that transport issues should be considered at the earliest stages of development proposals.

2.1.4 Chapter 9 of the NPPF sets out the requirements for promoting sustainable transport, advising that significant development should be focused on locations that are or can be made sustainable through limiting the need to travel and offering a genuine choice of transport modes. The NPPF advises that planning policies should support an appropriate mix of uses across an area and within larger-scale sites, to minimise the number and length of journeys needed for employment, shopping, leisure, education and other activities.

2.1.5 In Paragraph 108, the NPPF sets out that maximum parking standards should only be set when there is clear justification that they are necessary to manage the local road network or optimise the density of development in urban areas that are well served by the public transport services. The London Plan sets out maximum parking standards for London, which will be discussed later within this section.

2.1.6 Paragraph 110 states that when considering development proposals, it should be ensured that:

a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location

b) safe and suitable access to the site can be achieved for all users;

c) the design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code; and

d) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree

2.1.7 Paragraph 111 states that *"Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe."*

2.1.8 Paragraph 112 states that applications for developments should:

a) give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;

b) address the needs of people with disabilities and reduced mobility in relation to all modes of transport;

c) create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;

d) allow for the efficient delivery of goods, and access by service and emergency vehicles; and

e) be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations.

2.1.9 Paragraph 113 of the NPPF requires all developments that will generate significant amounts of movement to provide a travel plan and be supported by a TA so that the likely impacts of the proposal can be assessed.

MAYOR'S TRANSPORT STRATEGY (2018)

2.1.10 The Mayor's Transport Strategy (MTS) was published in March 2018 and sets out the Mayor's policies and proposals to reshape transport in London over the next 25 years. The central aim of the MTS is for 80% of all trips in London to be made on foot, by cycle or using public transport by 2041.

2.1.11 Three key themes are at the heart of the strategy – how the development would encourage and deliver these themes are described below. The three key themes are as follows:

1. Healthy streets and healthy people;
2. A good public transport experience; and
3. New homes and jobs.

2.1.12 The MTS sets out Good Growth principles for the delivery of new homes and jobs that use transport to:

- Create high-density, mixed-use places; and
- Unlock growth potential in underdeveloped parts of the city.

2.1.13 The proposed development would deliver transport principles of 'Good Growth' through:

- High-density, mixed-use development;
- Encouraging and providing the facilities for people to easily choose to walk and cycle;
- Provision of a reduced parking development to promote sustainable travel ahead of private car use, reinforced by the Travel Plan;
- Inclusive and accessible design to allow access for all users to the development;

- Electric vehicle charging provision to encourage carbon-free travel; and
- Promoting efficient freight through the Delivery and Servicing Management Plan.

VISION ZERO

2.1.14 The ambition of Vision Zero is to eradicate all deaths and serious injuries from London's transport network by 2041, with an emphasis on targeting injuries associated with motorised vehicles.

2.1.15 The proposed development will contribute towards a mode shift away from private vehicle usage due to the reduction in car parking, as well as generous provision of cycle facilities within the site. Furthermore, a set of public realm improvements are proposed along the frontage of the development, which will help to reduce motor traffic dominance, encourage walking and cycling, and in turn improve road safety for vulnerable road users.

2.1.16 The ATZ assessment includes analysis of Killed or Serious Injury (KSI) collisions along routes to key active travel destinations in accordance with the Vision Zero approach.

LONDON PLAN (2021)

2.1.17 The London Plan was published in March 2021. The London Plan is part of the statutory development plan and aims to ensure that London's transport is easy, safe, and convenient for everyone and actively encourages more walking and cycling.

2.1.18 The proposed development has been reviewed against the policies of the London Plan, which is set out within **Table 2-1.**

Table 2-1: London Plan Policy Review

POLICY	REQUIREMENTS	DEVELOPMENT CONTEXT
T1	Development proposals should target 80% of all trips in London to be made by foot, cycle, or public transport by 2041. Development should make the most effective use of land, reflecting its connectivity and accessibility by existing and future public transport, walking, and cycling routes, and ensure that any impacts on London's transport networks and supporting infrastructure are mitigated.	The development has been designed with the Healthy Streets principles in mind and to promote walking, cycling and the use of public transport.
T2	Policy T2 relates to 'Healthy Streets' and seeks development that delivers patterns of land use that facilitate residents making shorter, regular trips by walking or cycling. The Healthy Streets Approach recognises the importance of promoting and facilitating active modes of travel by making developments permeable and highly connected by foot and cycle, with reduced vehicle dominance.	The site is well located in respect of the local and strategic cycle network and it is expected that the routes will be used daily by commuting cyclists. A network of local cycle lanes provide access to the Thames Path, enabling residents to cycle to Teddington or Kingston.
T3	Policy T3 states that development proposals should provide adequate protection for transport schemes, not remove vital transport functions or limit their necessary expansion without suitable alternative provisions. Proposals should also support capacity, connectivity and other improvements to the bus network, ensuring it can operate efficiently.	The proposed development does not impact safeguarded transport schemes and is not expected to significantly impact the bus network.

POLICY	REQUIREMENTS	DEVELOPMENT CONTEXT
T4	Policy T4 identifies that development proposals should reflect and be integrated with current and planned transport access, capacity and connectivity. Transport Assessments are required to support development proposals assessing any impacts on the capacity of the transport network and should focus on embedding the Healthy Streets approach within, and the in the vicinity of new development.	This Transport Assessment has been prepared in accordance with TfL's Healthy Streets TA Guidance.
T5	Policy T5 sets out that development should encourage cycling and provides new cycle parking standards. Cycle parking should allow easy access and provide facilities for disabled cyclists. In places of employment, supporting facilities are recommended.	Secure cycle parking is proposed with dedicated spaces and facilities for larger cycle spaces. Cycle parking complies with London Plan (2021) requirements and the guidance set out within the London Cycle Design Standards (LCDS).
T6	Car-free development should be the starting point for all development proposals in places that are (or are planned to be) well-connected by public transport. In addition, an absence of local on-street parking controls should not be a barrier to new development, and boroughs should look to implement these controls wherever necessary to allow existing residents to maintain safe and efficient use of their streets.	Given the site's location in Outer London, and in an area of reduced access to public transport, the provision of car parking on site is considered appropriate. Car parking would be provided in line with London Plan and LBRuT policy. A car parking ratio of 0.6 spaces per home is proposed, which falls within the maximum allowances of the London Plan. A Parking Management Plan will be produced to accompany this application.
T7	Development proposals should facilitate sustainable deliveries and servicing, including through the provision of adequate space for servicing, storage, and deliveries off-street. Construction Logistics Plans and Delivery and Servicing Plans will be required and should be developed in accordance with Transport for London guidance and in a way which reflects the scale and complexities of developments. Developments should be designed and managed so that deliveries can be received outside of peak hours and in the evening or night-time. Appropriate facilities are required to minimise additional freight trips arising from missed deliveries and thus facilitate efficient online retailing.	Delivery and Servicing will be accommodated on site, with full details set out in the subsequent sections of this report. The planning application is supported by a Delivery & Servicing Plan, which sets out the proposed delivery and servicing strategy. This TA includes a section that provides the Construction Logistics Plan (Section 13).

RICHMOND LOCAL PLAN (2018)

2.1.19 The LBRuT Local Plan was adopted in July 2018 and sets out the adopted development plan for the proposed development - being a material consideration in the determination of the application.

2.1.20 It is noted that consultation on an emerging Pre-Publication Local Plan (Regulation 18) finished consultation on 31st January 2022. Therefore the policies within this emerging document are still draft at this stage.

2.1.21 The proposed development has been reviewed against the relevant policies set out within the adopted Local Plan (2018) which is presented in **Table 2-2**.

Table 2-2: LBRuT Policy Review

POLICY	REQUIREMENTS	DEVELOPMENT CONTEXT
Strategic Vision	The plan states that the borough's main centres will have accommodated the majority of higher density and larger scale developments, thus enabling people to walk to shops and services or use public transport. Further stating that development opportunities outside of the main centres will have been realised and well integrated within existing communities, the environment and infrastructure. The plan mentions Ham Close, stating that: local communities and residents will have access to a choice of new and improved homes in Ham Close.	The development proposal relates to the redevelopment of existing homes, in an area well integrated with the wider community. These proposals are also mentioned within the policy as an area in which new and improved homes will be provided.
LP27	Policy LP27 states that the council seeks to protect local shops and services by preventing the change of use from the former A1-A5 use classes unless specific circumstances are met. Furthermore, the policy states that new shops may be required to serve new housing developments when existing facilities are not located within 400 metres.	The proposals do not include any proposals to change the use of existing A1-A5 units. Furthermore, existing shops and facilities are located on the corner of Ashburnham Road and Ham Street and the corner of Ashburnham Road and Croft Way, both of which are within 400m of the site.
LP44	Policy LP44 sets out the approach toward sustainable travel choices stating that the Council will work in partnership to promote safe, sustainable and accessible transport solutions, which minimise the impacts of development including in relation to congestion, air pollution and carbon dioxide emissions, and maximise opportunities including for health benefits and providing access to services, facilities and employment.	The site has been designed with the Healthy Streets Approach in mind and to prioritise pedestrians and cyclists.
LP44	Paragraph 11.1.4 states that developments should encourage the use of modes other than the car by making it as easy as possible through provision of good pedestrian facilities, clear layout and signage, provision of cycling facilities and improving access to public transport interchanges. Civic spaces and public realm should be accessible and inclusive	As above, the development has been designed to prioritise pedestrians and cyclists, in accordance with the Healthy Streets principles.
LP44	Paragraph 11.1.5 states that new development should include all the facilities needed to encourage a safe walking and cycling environment from first occupation. The minimum cycle parking standards are set out in policy LP 45 in 11.2 'Parking Standards and Servicing'.	Cycle parking will be provided in accordance with London Plan and LBRuT minimum standards. Furthermore, cycle parking will be laid out in accordance with London Cycle Design Standards Guidance.
LP44	Paragraph 11.1.7 focuses on the promotion of cycle facilities in the area, stating that the Council promotes the creation of a safe network for pedestrians and cyclists. Management of other users including speed restrictions, sufficient widths, segregation where appropriate and well designed and positioned crossing facilities can reduce conflict between users. Well designed paths, natural	Public realm within the site has been designed to prioritise pedestrians and cyclists and has a number of car free paths. The public realm has passive

POLICY	REQUIREMENTS	DEVELOPMENT CONTEXT
	surveillance, appropriate levels of lighting and other security measures and good levels of maintenance can improve actual and perceived security.	surveillance from properties and will be well lit to ensure safety.
LP45	Policy 45 Parking Standards and Servicing Parking standards states that the Council will require new development to make provision for the accommodation of vehicles to provide for the needs of the development, while minimising the impact of car based travel including on the operation of the road network and local environment and ensuring making the best use of land.	Given the sites location in Outer London, and in an area of reduced access to public transport, the provision of car parking on site is considered appropriate. Car parking would be provided in line with London Plan and LBRuT policy. A car parking ratio of 0.6 spaces per home is proposed. A Parking Management Plan will be produced to accompany this application.

2.1.22 It is acknowledged that the since the submission of the Local Plan, LBRuT have adopted the Transport Supplementary Planning Document dated 2nd June 2020, which within paragraph 11 specifies that LBRuT have adopted the London Plan car parking standards.

HAM AND PETERSHAM NEIGHBOURHOOD PLAN 2018 TO 2033

2.1.23 The Ham and Petersham Neighbourhood Plan 2018 to 2033 (HPNP) was adopted in January 2019, with Section 4 of the HPNP covering 'Travel and Streets'.

2.1.24 Specifically Policy T1 - Assessment of Transport Impact states:

> *"Housing developments of more than 10 units will be required to demonstrate how the proposals will mitigate the transport impacts of the development to take account of the generally low PTAL values in the area, including where necessary a Travel Plan. Any Transport Assessment and Travel Plan should be produced in accordance with TfL best practice. The proposed measures must be implemented prior to occupation of the development or within an agreed timeframe."*

2.1.25 In accordance with Policy T1 of the HPNP, this TA has been produced in accordance with the latest TfL guidance to assess the transport impacts of the proposed development. In addition, the TA is accompanied by a Travel Plan to assist in delivering a mode shift away from private car use.

2.1.26 In further support of the proposed development and Healthy Streets approach, paragraph 4.3.3 of the HPNP states:

> *"Major development should not contribute to further congestion on the limited road network and should support a modal shift to sustainable transport. This policy builds on policy LP 44 of the Richmond Local Plan."*

2.1.27 In response to this, the proposed development seeks to reduce congestion on the network by providing a reduction in car parking and supporting mode shift through additional sustainable transport incentives, which are to be delivered as part of the Travel Plan.

2.1.28 The proposed development is therefore considered to be in accordance with the policies and ambitions of the HPNP.

3 TRANSPORT PLANNING FOR PEOPLE

3.1 INTRODUCTION

3.1.1 This section summarises who the development will be for when they will travel and why. This section of the TA utilises TfL's Transport Classification of Londoners (TCoL) data to identify the type of people the development is for.

3.1.2 Census data and TfL's TCoL demographic segments are presented below.

3.2 WHO IS THE DEVELOPMENT FOR?

3.2.1 The proposed development will primarily be for existing and new residents. There will also be some visitors to the site, primarily to the Community Centre and Maker Labs.

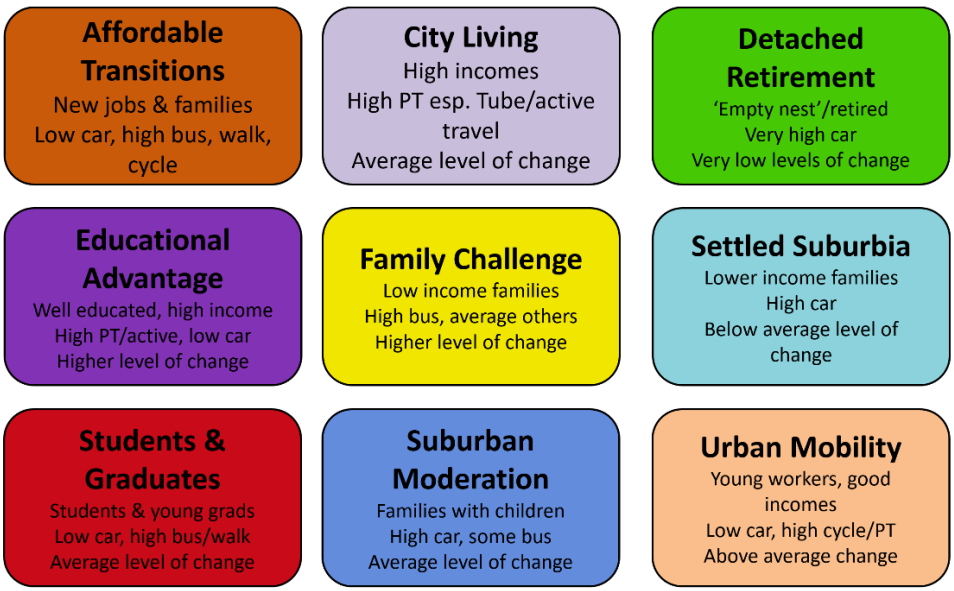
TRANSPORT CLASSIFICATION OF LONDONERS

3.2.2 TCoL is a multi-modal demographic segmentation tool developed by TfL that has been designed to categorise Londoners based on the travel choices they make and their motivations for making those decisions.

3.2.3 The desire to understand these behaviours and motivations comes from a need to plan effectively for London both now and in the future. Understanding who will use the proposed development and their expected travel behaviours based on the TCoL's demographic segments has been used to inform the design of the proposed development.

3.2.4 TcoL provides information about the existing demographic segment proportions at the borough level with **Figure 3-1** presenting the TCoL's identified nine high-level tier demographic segments.

Figure 3-1: TcoL Demographic Segments



3.2.5 The existing demographics at the borough level are shown in **Table 3-1**.

Table 3-1: Existing Demographic Classifications – LB Richmond upon Thames

AFFORDABLE TRANSITIONS	CITY LIVING	DETACHED RETIREMENT	EDUCATIONAL ADVANTAGE	FAMILY CHALLENGE	SETTLED SUBURBIA	STUDENTS & GRADUATES	SUBURBAN MODERATION	URBAN MOBILITY
0%	15%	66%	1%	1%	7%	2%	6%	2%

3.2.6 Further spatial analysis of local demographics is shown within **Figure 3-2**. The site is situated within an area that is categorised as 'Detached Retirement', 'City Living', 'Settled Suburbia' and 'Suburban Moderation'.

Figure 3-2: Local TcoL Classifications

3.2.7 The proposed development will provide a large proportion of affordable properties. **Table 3-2** sets out the demographic segments for the most likely future residents at the development based on the existing local profiles, and their propensity to change travel behaviour.

Table 3-2: Anticipated Resident Classification at the Proposed development

SEGMENT	PEOPLE	AT THE PROPOSED DEVELOPMENT	CURRENT MODE	PROPENSITY TO CHANGE	PROPENSITY TO CHANGE BY MODE
Detached Retirement	Retired people	Not expected to be as heavily represented in the proposed development as it is in the surrounding area	High car use, low use of active travel and public transport modes	Below average	• Reduce car – below average • Increase walk – well below average • Increase cycling – well below average
City Living	High income city dwellers	Market housing	Below average car use, above average use of cycling and bus/rail. Well above	Average	• Reduce car - below average • Increase walking – below above • Increase cycling - average

SEGMENT	PEOPLE	AT THE PROPOSED DEVELOPMENT	CURRENT MODE	PROPENSITY TO CHANGE	PROPENSITY TO CHANGE BY MODE
			average use of walking and tube.		
Settled Suburbia	Lower income families	Most likely to occupy the 2 and 3 bed homes	High car use, active transport use is particularly low. Use of bus and rail well below average	Below average	• Reduce car- below average • Increase walking – well below average • Increase cycling – well below average
Suburban Moderation	Families with children	Most likely to occupy the 2 and 3 bed homes	High car use, below average use of all other modes	Average	• Reduce car - average • Increase walking – below average • Increase cycling – well above average

3.2.8 Most of these socio-economic segments have a below average to average propensity to change travel behaviour, coupled with high car use and low public transport and active travel usage. The transport strategy will therefore focus on promoting the use of active travel and public transport modes as much as possible.

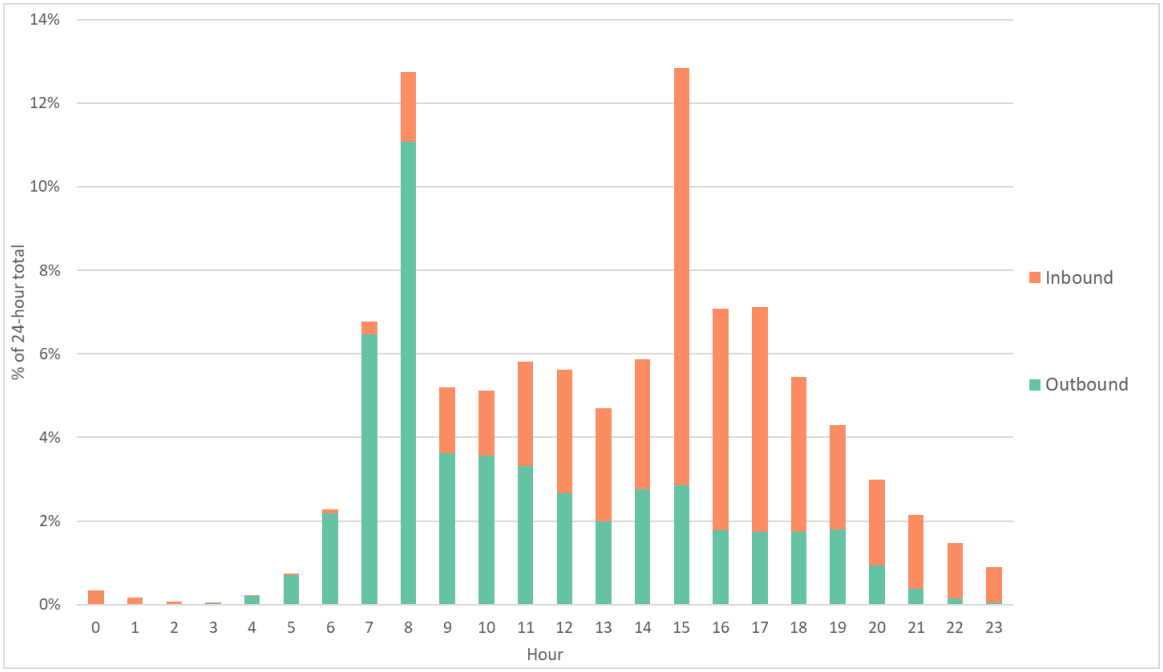
3.3 WHEN WILL PEOPLE TRAVEL AND WHY?

3.3.1 Data from the 'London Travel Demand Survey' (LTDS) has been analysed to indicate when and why future residents and employees may travel. Surveyed journeys to and from Outer London boroughs have been reviewed to determine the origins, destinations and travel patterns of people visiting the proposed development.

RESIDENTS

3.3.2 It is expected that the proposed development will have similar travel patterns throughout a typical day. **Figure 3-3** shows the inbound and outbound trips for Outer London residents. Most outbound trips occur in the morning hours and most inbound trips occur after 15:00pm. The busiest times are from 08:00am to 09:00am and 15:00pm to 16:00pm. It is expected that the proposed development will have similar travel patterns through a typical day.

Figure 3-3: Outer London Residential Trips by Start Time (Weekday) Residents



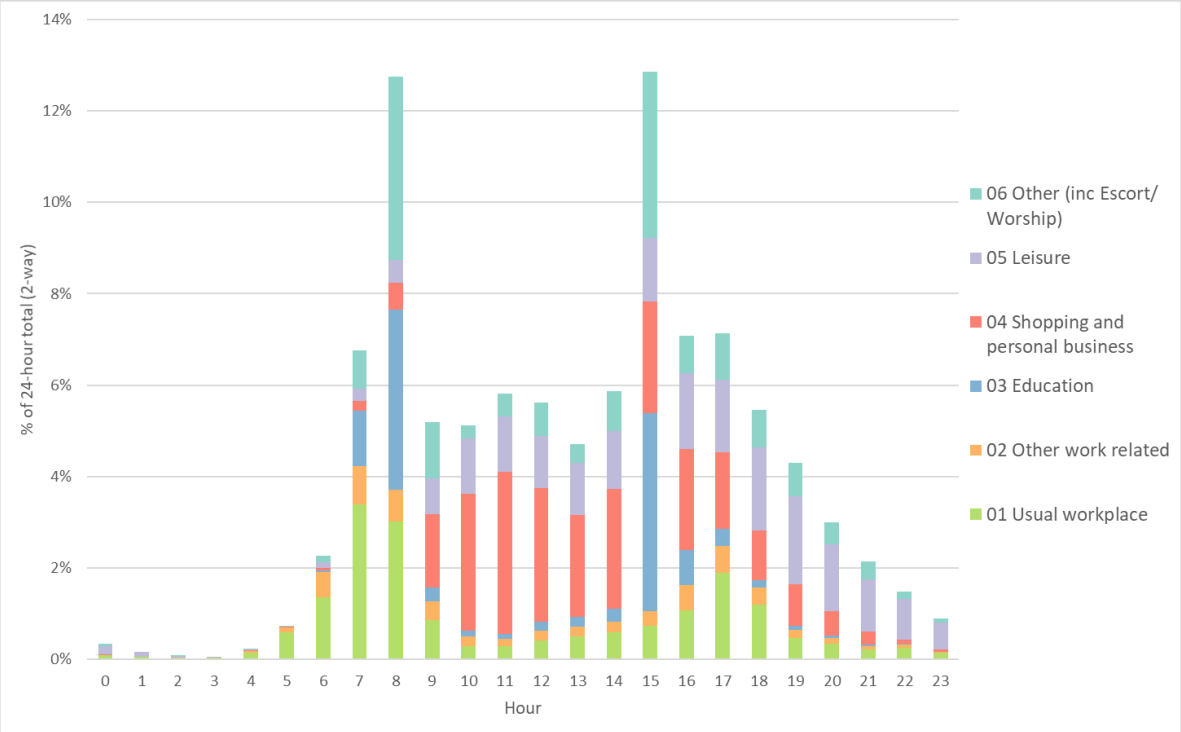
3.4 WHY WILL PEOPLE TRAVEL?

3.4.1 LTDS data for the following trip purposes were used to determine the distribution of journeys in an average 24- hour period based on trips from home to:

- usual workplace;
- other work-related;
- shopping and personal business;
- leisure, and
- other (incl. place of worship).

3.4.2 The LTDS data in **Figure 3-4** shows that the majority of trips generated by residents in the morning highway and public transport network peak hour are associated with other (including escort/worship -likely to be local trips), travel to work and for education purposes. During the afternoon network peak hour, the majority of trips are associated with leisure, travel from work, and shopping and personal business.

Figure 3-4: Outer London Residential Trips by Time and Journey Purpose (Weekday)



3.4.3 More person trips are made during the 15:00pm to 16:00pm peak hour due to trips from school and associated parent escort trips. It should be noted that these journeys are on average much shorter than journeys made for the purpose of work, so generally have less impact on the highway and public transport network.

3.5 SUMMARY

3.5.1 TCoL data for LBRuT suggests that most of the socio-economic segments within the area have a below average to average propensity to change travel behaviour. The transport strategy will therefore focus on promoting the use of active travel and public transport modes as much as possible, whilst trying to reduce private car use.

3.5.2 With the dedication of car club spaces, a Travel Plan and supporting Parking Management Plan, it is reasonable to assume that use of private car trips across the site would continue to reduce further in the future.

4 SITE AND SURROUNDINGS

4.1 OVRVIEW

4.1.1 This section sets out the baseline transport conditions in the context of the site and its immediate surroundings.

4.2 WALKING

4.2.1 The National Travel Survey identifies that walking is the most frequent travel mode used for short distance trips (within 1 mile or 1.6 km).

4.2.2 The local street network has an established network of footways typical of an urban environment that provide access to the site, nearby facilities and amenities, including local bus stops and the local rail stations.

4.2.3 The area surrounding the site provides a network of footways which are generally in good condition and measure approximately 1.5m to 2m through and surrounding the site. Furthermore, the site is located within close proximity to the Thames Path, which provides an off-street link to Twickenham and Kingston to the south and Richmond to the north.

LOCAL AMENITIES

4.2.4 The distances and journey times to various local amenities surrounding the site have also been reviewed as part of this TA. The walk times to the nearby relevant amenities are shown in **Table 4-1**.

Table 4-1: Local Amenities

AMENITY	DISTANCE (METRES)	WALK TIME (MINUTES)
St. Richards' Primary School	310	4
Grey Court School	310	4
Tesco Express	390	5
Ham Lands Local Nature Reserve	600	7
Meadlands Primary School	650	8
Cassel Hospital	1,000	12
Sainsburys Local Upper Ham Road	1,200	15

4.3 CYCLING

4.3.1 A network of local cycle lanes in the area immediately surrounding the site provide access to the Thames Path, which provides an off-street cycle route linking the site to Twickenham and Kingston to the south and Richmond to the north.

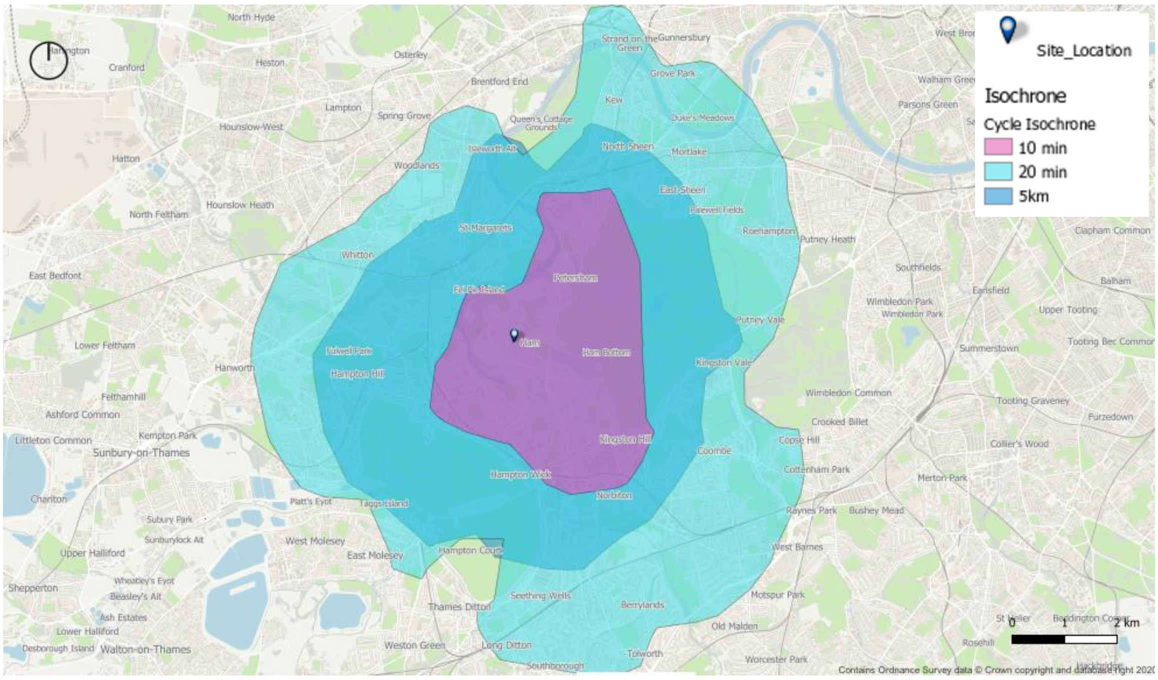
CYCLE JOURNEY TIME

4.3.2 Cycling is growing in popularity in London and has the potential to replace short car trips, particularly those under 5 km, and to form part of a longer journey by public transport. At an average speed of 17 km/h, this relates to a journey time of approximately 20 minutes.

4.3.3 Time Mapping is a tool developed by TfL within their WebCAT suite of tools to assess connectivity in terms of journey times, taking cycle routes into consideration. Time Mapping for the site, travelling by bicycle during the AM peak, is presented within **Figure 4-1.**

4.3.4 **Figure 4-1** shows the areas accessible within varying time bands from the site, showing that much of Ham is accessible within five minutes of the site, whilst Teddington is accessible within a 10 minute cycle of the site and Kingston, Twickenham and Richmond being accessible within a 20 minute cycle of the site.

Figure 4-1: Time Mapping by Cycle

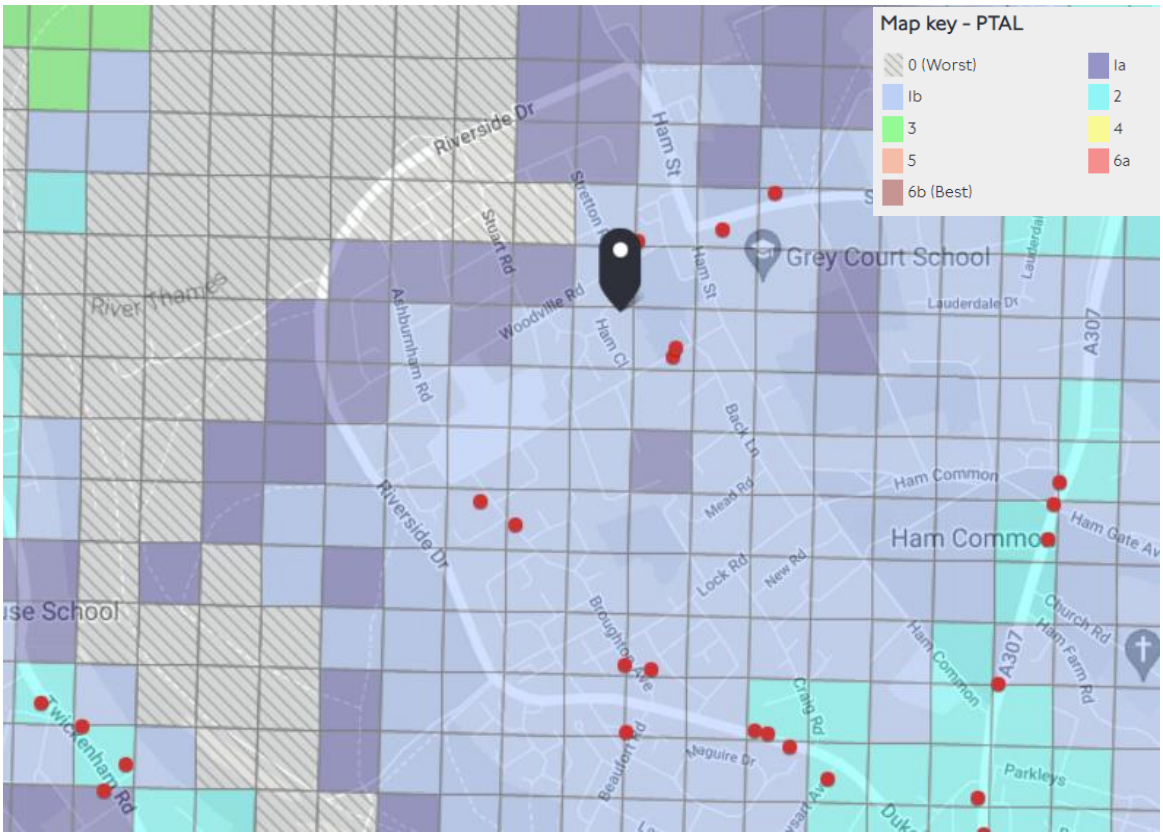


4.4 PUBLIC TRANSPORT ACCESSIBILITY LEVEL

4.4.1 Public Transport Access Level (PTAL) for the site is used to demonstrate the site's existing connectivity to the public transport network, accounting for access (i.e. walk) time and frequency of services. It considers rail and underground stations within a 12-minute walk (i.e. 960m) of the site and bus stops within an eight-minute walk (640m) and is undertaken using the AM peak hour operating patterns of public transport services. An Access Index (AI) score is calculated that is used to define a PTAL score.

4.4.2 TfL's online WebCAT tool shows the site has an AI score of 3.4, equating to a score of PTAL 1b. The WebCAT PTAL output is summarised in **Figure 4-2**.

Figure 4-2: PTAL Map



BUS NETWORK

4.4.3 Ham Close is served by the 371 bus route from Ashburnham Road which falls within the PTAL radius and provides a frequent service to Kingston and Richmond. Full details of this service and other nearby services are shown below in **Table 4-2.**

Table 4-2: Local Bus Services

MODE	CLOSEST STOP	ROUTE	FREQUENCY	ROUTE	DIST. (KM)	WALK TIME (MINS)
Bus	Ashburnham Road	371	7	Kingston – Norbiton – Ham – Petersham – Richmond Hill – Richmond	0.15	2
Bus	Dysart Avenue	K5	2	Ham – Canbury – Kingston – New Malden – Motspur Park – Raynes Park – Morden	1.1	13
Bus	Sandy Lane	65	12	Kingston – Ham – Petersham – Richmond – Kew – Brentford – Ealing	1.2	15

MODE	CLOSEST STOP	ROUTE	FREQUENCY	ROUTE	DIST. (KM)	WALK TIME (MINS)
Bus	Teddington Library	33	9	Fulwell – Teddington – Twickenham – Richmond – East Sheen – Barnes Common – Hammersmith	2.2	28
Bus	Teddington Lock	R68	4	Hampton Court – Hampton – Teddington – Strawberry Vale – Twickenham – Richmond – Kew Retail Park	1.4	18

4.4.4 **Figure 4-3** below provides an overview of the bus services which operate in the wider area.

Figure 4-3: Local Bus Routes Plan

RAIL

4.4.5 Although no railway stations fall within the PTAL assessment range of this site, a number are located reasonably close to the site and within either cycling distance or a linked bus trip. Nearby railway Stations include;

- Teddington National Rail Station is located approximately 1.8km to the south west of the site and can be accessed using a 10 minute cycle or 25 minutes on public transport;
- Richmond National Rail Station (with TFL overground and District Line underground) is located approximately 2.9km north of the site and can be accessed within a 15 minute cycle or 23 minutes on public transport;
- Kingston National Rail Station is located approximately 3.3km to the south of the site and can be accessed using a 12 minute cycle or 25 minutes on public transport; and
- Twickenham National Rail Station is located approximately 1.6km to the north of the site and can be accessed using a 17 minute cycle or 32 minutes on public transport.

4.4.6 All of the above stations are operated by Southwestern Railways and operate frequent services into Central London, with a minimum of approximately 6 train services per hour during the morning and evening peak hours.

4.5 LOCAL HIGHWAY NETWORK

4.5.1 LBRuT are the Highway Authority for the majority of the roads within the local area.

4.5.2 The nearest section of the Transport for London Road Network (TLRN) is the A316 Chertsey Road which is located approximately 2.5km to the north of the site and the A3 approximately 3.2km to the south east, with TfL acting as Highway Authority.

4.5.3 The site and surrounding areas do not fall within a controlled parking zone (CPZ), with no nearby CPZ within reasonable walking distance (200m).

HAM CLOSE

4.5.4 Ham Close is a small residential road running in two parallel sections in a north west to south east direction across the site. Ham Close allows for two-way traffic movement, with no road markings or restrictions present throughout. There are footways on both sides of Ham Close.

WOODVILLE ROAD

4.5.5 Woodville Road runs in a general east to west direction and forms the northern boundary of the site. Woodville Road is a two-directional, single carriageway road. Pedestrian footways are present on both sides of Woodville Road, however there are no parking or loading restrictions present, with the exception of double yellow line (no waiting at any time) restrictions at the mouth of the junctions.

ASHBURNHAM ROAD

4.5.6 The western section of Ashburnham Road runs in a general north to south direction whilst the eastern half runs in a general east to west direction, forming the southern boundary of the site. Ashburnham Road is a two-directional, single carriageway road. On-street parking is allowed and unrestricted, with the exception of the south-western corners where double yellow lines are present. Immediately outside St Richard's CE Primary School, to the west of the site there are single yellow lines and 'School Keep Clear' yellow zig-zag markings are present.

HAM STREET

4.5.7 Ham Street is a two-directional single carriageway road running in a general north to south direction. Ham Street connects Woodville Road and Ashburnham Road with the wider Ham area. Parking is allowed on-street for the majority of Ham Street, however there are some restricted areas, with double yellow lines present due to the restricted width along some sections of Ham Street.

4.6 BASELINE SURVEYS

4.6.1 In order to further inform the baseline transport conditions within the local area, a series of surveys have been undertaken in agreement with LBRuT.

4.6.2 A series of manual count traffic surveys were undertaken in February 2022 to inform the traffic flows at the local junctions, as well as picking up the local distribution of traffic flows on the network. Further details on the scope of the manual count traffic surveys is provided within Section 10.

4.6.3 In addition to the manual count surveys, a series of on-street overnight parking stress surveys were undertaken to determine the current parking stress in the local area. The survey extent and scope was agreed with LBRuT, with the survey having been carried out in accordance with the LBRuT Supplementary Planning Document (SPD) Parking Survey Methodology (2020).

4.6.4 In line with Richmond SPD methodology, overnight surveys have been undertaken on two weekdays and one Sunday. The survey area covers a 200m or two minute walking distance around the site.

4.6.5 The agreed survey scope included the following surveys:

- 1 x overnight beat 12/12/2021 (Sunday);
- 1 x overnight beat 11/01/2022 (Tuesday); and
- 1 x overnight beat 12/01/2022 (Wednesday).

4.6.6 A copy of the parking beat survey for is included in **APPENDIX B**.

4.6.7 **Figure 4-4** shows the Parking inventory of the survey area. **Figure 4-5** shows the parking beat data for Sunday.

4.6.8 Overall, the surveys show that within 200m of the site there are 733 unrestricted parking spaces, including the parking spaces within the site on Ham Close and within the existing parking areas. The survey shows that the parking stress recorded on Sunday was 53%, with 47% spare parking capacity or the equivalent to 348 spaces.

4.6.9 A review of the displacement parking, which accounts for the proposed development and removal of parking on Ham Close is provided within Section 6.6.

Figure 4-4: Parking Inventory

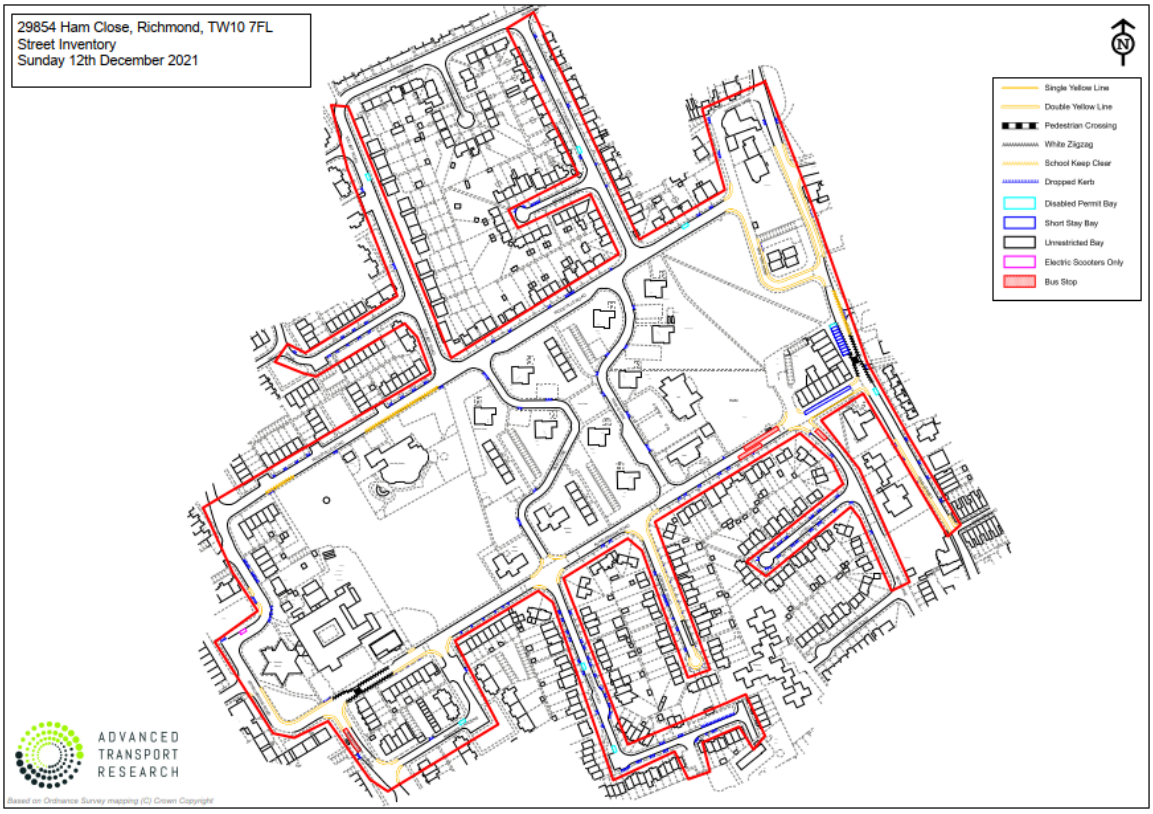


Figure 4-5: Parking Beat Data – Sunday

					Unrestricted Kerb Space				Disabled Permit Bay				Short Stay Bay				Unrestricted Bay				Double Yellow Line			
	Street	Total Length of Available Kerb Space	Length of Junctions	Length of Bus stop/other	Length (m)	Calculated Spaces	Cars Parked	Stress	Length (m)	Calculated Spaces	Cars Parked	Stress	Length (m)	Calculated Spaces	Cars Parked	Stress	Length (m)	Calculated Spaces	Cars Parked	Stress	Length (m)	Calculated Spaces	Cars Parked	Stress
0100 Sunday 12th December 2021	Wiggins Lane	195	30	14	58	11	6	55%													93	18	0	0%
	Stretton Road	376	45	28	298	49	33	67%	5	1	1	100%												
	Neville Road	61	7.5	9	44.5	7	8	114%																
	Stuart Road	373	45	8	315	55	52	95%	5	1	1	100%												
	Willow Bank	118	15	24	79	15	14	93%																
	Woodville Road	821	90	178	548	98	65	66%	5	1	0	0%												
	Ham Close	401	30	38	333	53	9	17%																
	Ham Close Car Parks	570			570	228	63	28%																
	Ashburnham Road	641	90	145	325	65	35	54%					40	8	0	0%					41	8	0	0%
	Broughton Avenue	70	7.5	5	48.5	9	5	56%													9	1	0	0%
	Mariner Gardens	161	15	4	137	32	30	94%	5	1	1	100%												
	Sheridan Road	310	7.5	76	216.5	39	25	64%	10	2	1	50%												
	Mowbray Road	158	7.5	32	80.5	14	8	57%									20	4	0	0%	18	3	2	67%
	Back Lane	140	15	14	111	18	8	44%																
	Lovell Road	158	15	74	69	13	15	115%																
	Ham Street	366	30	101	136	27	9	33%	7.5	2	0	0%	22.5	9	1	11%					69	13	0	0%
	Total per Beat by restriction					733	385	53%		8	4	50%		17	1	6%		4	0	0%		43	2	5%
	Total per Beat					762	392	51%																

4.6.10 **Figure 4-6** shows the parking beat data for Tuesday. On the Tuesday survey it shows that the parking stress recorded was 56%, with 44% spare parking capacity or the equivalent to 324 spaces.

Figure 4-6: Parking Beat Data – Tuesday

0100 Tuesday 11th January 2022					Unrestricted Kerb Space				Disabled Permit Bay				Short Stay Bay				Unrestricted Bay				Double Yellow Line			
	Street	Total Length of Available Kerb Space	Length of Junctions	Length of Bay Stops/other	Length (m)	Calculated Spaces	Cars Parked	Stress	Length (m)	Calculated Spaces	Cars Parked	Stress	Length (m)	Calculated Spaces	Cars Parked	Stress	Length (m)	Calculated Spaces	Cars Parked	Stress	Length (m)	Calculated Spaces	Cars Parked	Stress
	Wiggins Lane	195	30	14	58	11	6	55%													93	18	0	0%
	Stretton Road	376	45	28	298	49	40	82%	5	1	1	100%												
	Neville Road	61	7.5	9	44.5	7	8	114%																
	Stuart Road	373	45	8	315	55	55	100%	5	1	1	100%												
	Willow Bank	118	15	24	79	15	15	100%																
	Woodville Road	821	90	178	548	98	56	57%	5	1	1	100%												
	Ham Close	401	30	38	333	53	12	23%																
	Ham Close Car Parks	570			570	228	73	32%																
	Ashburnham Road	641	90	145	325	65	36	55%					40	8	0	0%					41	8	0	0%
	Broughton Avenue	70	7.5	5	48.5	9	4	44%													9	1	0	0%
	Mariner Gardens	161	15	4	137	32	30	94%	5	1	0	0%												
	Sheridan Road	310	7.5	76	217	39	25	64%	10	2	0	0%												
	Mowbray Road	158	7.5	32	80.5	14	9	64%									20	4	0	0%	18	3	0	0%
	Back Lane	140	15	14	111	18	11	61%																
	Lovell Road	158	15	74	69	13	11	85%																
	Ham Street	366	30	101	136	27	18	67%	7.5	2	1	50%	22.5	9	1	11%					69	13	0	0%
	Total per Beat by restriction					733	409	56%		8	4	50%		17	1	6%		4	0	0%		43	0	0%
	Total per Beat					762	414	54%																

4.6.11 **Figure 4-7** shows the parking beat data for the Wednesday survey. On Wednesday, the survey data shows that the level of parking stress recorded was 53%, with 47% spare parking capacity or the equivalent to 342 spaces.

Figure 4-7: Parking Beat Data – Wednesday

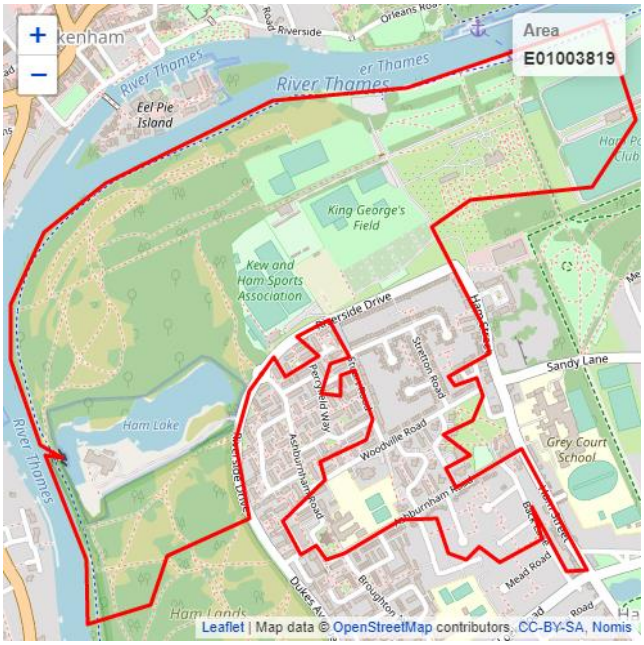
0100 Wednesday 12th January 2022					Unrestricted Kerb Space				Disabled Permit Bay				Short Stay Bay				Unrestricted Bay				Double Yellow Line			
	Street	Total Length of Available Kerb Space	Length of Junctions	Length of Bay Stops/other	Length (m)	Calculated Spaces	Cars Parked	Stress	Length (m)	Calculated Spaces	Cars Parked	Stress	Length (m)	Calculated Spaces	Cars Parked	Stress	Length (m)	Calculated Spaces	Cars Parked	Stress	Length (m)	Calculated Spaces	Cars Parked	Stress
	Wiggins Lane	195	30	14	58	11	5	45%													93	18	0	0%
	Stretton Road	376	45	28	298	49	45	92%	5	1	1	100%												
	Neville Road	61	7.5	9	44.5	7	9	129%																
	Stuart Road	373	45	8	315	55	55	100%	5	1	1	100%												
	Willow Bank	118	15	24	79	15	15	100%																
	Woodville Road	821	90	178	548	98	52	53%	5	1	1	100%												
	Ham Close	401	30	38	333	53	14	26%																
	Ham Close Car Parks	570			570	228	62	27%																
	Ashburnham Road	641	90	145	325	65	33	51%					40	8	0	0%					41	8	0	0%
	Broughton Avenue	70	7.5	5	48.5	9	6	67%													9	1	0	0%
	Mariner Gardens	161	15	4	137	32	25	78%	5	1	0	0%												
	Sheridan Road	310	7.5	76	217	39	29	74%	10	2	1	50%												
	Mowbray Road	158	7.5	32	80.5	14	10	71%									20	4	0	0%	18	3	0	0%
	Back Lane	140	15	14	111	18	11	61%																
	Lovell Road	158	15	74	69	13	9	69%																
	Ham Street	366	30	101	136	27	11	41%	7.5	2	0	0%	22.5	9	1	11%					69	13	0	0%
	Total per Beat by restriction					733	391	53%		8	4	50%		17	1	6%		4	0	0%		43	0	0%
	Total per Beat					762	396	52%																

4.6.12 The results of the on-street parking survey and implications with respect to the proposed development are discussed further within Section 6. In summary, an assessment has been undertaken finding that with the loss of the on-street spaces to accommodate the proposed development - average on-street capacity will reach 79%, with further spare capacity for 24 spaces within 200m before the 85% threshold is reached.

4.7 CAR OWNERSHIP

4.7.1 In order to inform local car ownership trends, 2011 census data has been reviewed for the lower super output area (LSOA) Richmond upon Thames 017B within which the site resides. For completeness, the extent of LSOA Richmond upon Thames 017B is provided below in **Figure 4-8**.

Figure 4-8: LSOA Richmond upon Thames 017B

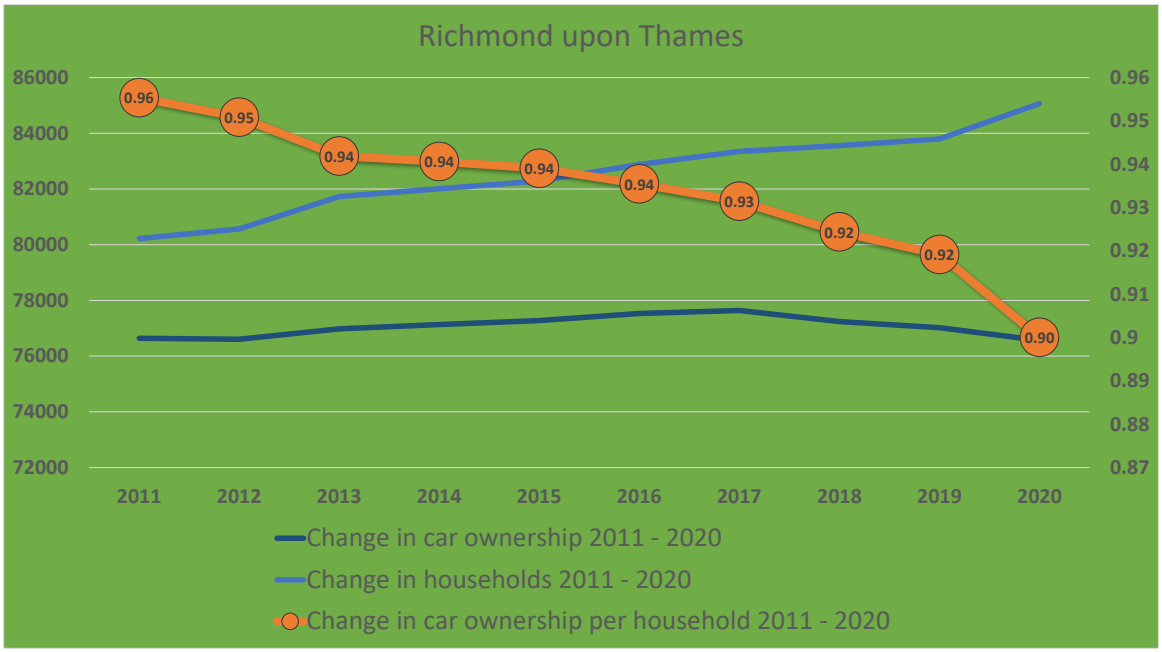


4.7.2 At the time of the census data in 2011, average car ownership in the local area was 0.88 cars per household and 0.37 cars per bedroom. The average bedrooms per household in the LSOA is 2.41, compared to the average bedrooms per household for the proposed development being 1.75.

4.7.3 Given the difference between the two bedroom per household ratios, it is likely that the number of spaces per bedroom will be a more accurate measure of the likely parking demand for the proposed development.

4.7.4 Taking car ownership data from the DfT Vehicle Licensing Statistics (Table VEH105) and household data from the government's council tax base statistics, it can be seen that car ownership has declined 6% in LBRuT between 2011 and 2020, as shown in **Figure 4-9**.

Figure 4-9: Richmond upon Thames Changes in Car Ownership per Household



4.7.5 Applying this reduction to the typical car ownership levels from the 2011 Census would result in 0.83 spaces per household and 0.34 spaces per bedroom.

4.8 SITE AND SURROUNDINGS SUMMARY AND KEY POINTS

- The site is located within an area of PTAL 1b, suggesting a low level of accessibility to public transport. Within a short walk of the site, there is access to the bus stops on Ashburnham Road giving access to the 371 service, which benefits from a service frequency of up to seven buses per hour in both directions.
- Through the nearby bus services, there is access to both National Rail and London Underground services within 30 minutes, as well as access to the local hubs of Richmond, Teddington, Twickenham and Kingston.
- The site is located within an existing residential area, meaning it is in an established location for the proposed end use.
- Overall, the site is considered to be accessible in transport terms and ideally located to promote sustainable travel amongst the proposed land uses. This will then be reinforced and supplemented by the proposed development through the additional supporting measures which form the transport strategy, including the dedication of car club spaces, a Travel Plan and supporting Parking Management Plan, discussed within Section 6.

5 ACTIVE TRAVEL ZONE ASSESSMENT

5.1 ACTIVE TRAVEL ZONE ASSESSMENT

5.1.1 An Active Travel Zone (ATZ) assessment has been undertaken in line with TfL guidance and aims to show how the proposed development supports the Vision Zero and Healthy Streets approach.

5.1.2 The key aim of the ATZ is to determine how people of all abilities can make key journeys that support car free travel behaviour. The ATZ is defined by TfL as the 20-minute cycle catchment which surrounds the site.

5.1.3 In accordance with the TfL Guidance on ATZ Assessments, the neighbourhood photo survey site visit was carried out in October 2021 between 10:00am to 13:00pm. The maps used to generate the scope of the ATZ assessment are included at **APPENDIX C**.

5.1.4 Throughout the site visit, consideration was given to how pedestrians, cyclists and vulnerable road users may feel about travelling via the key routes during evening hours when daylight is significantly reduced.

5.1.5 In terms of travel to key destinations, the priority applied to each destination is provided below in **Table 5-1**.

Table 5-1: ATZ Destination Priority

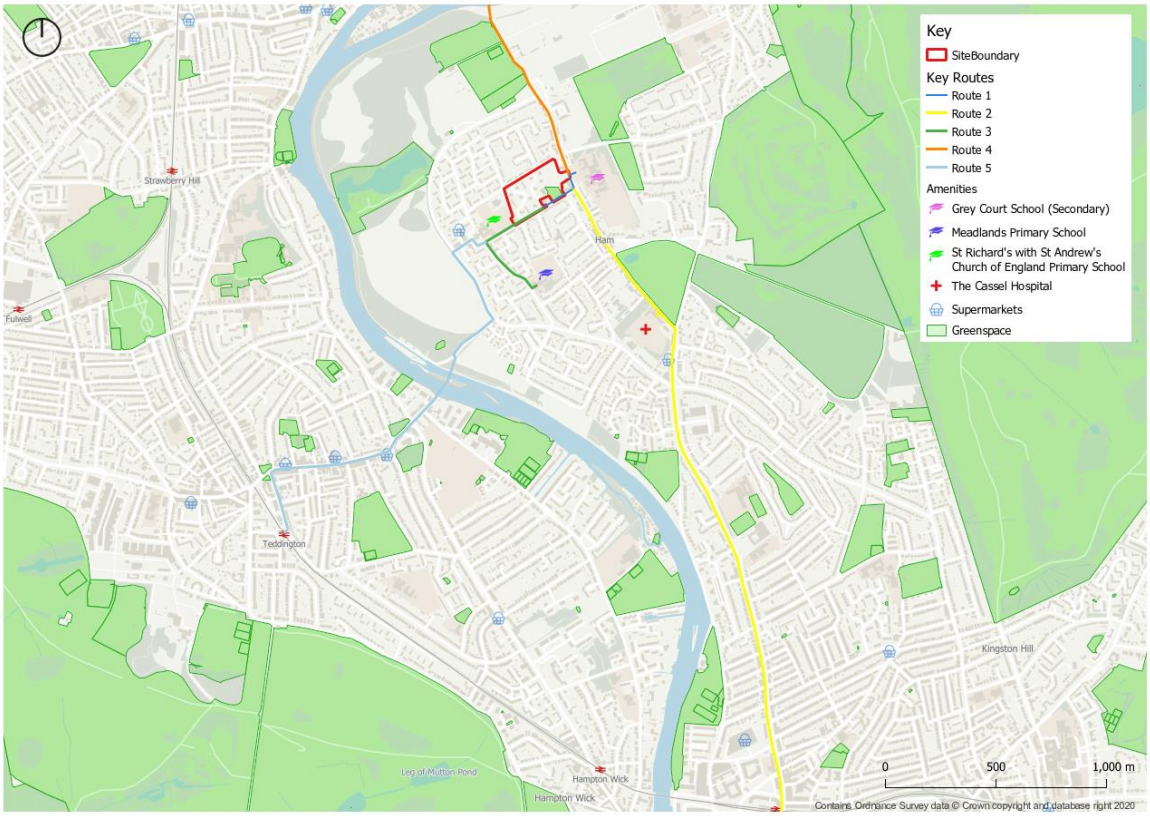
KEY DESTINATION	TYPE	PRIORITY	JUSTIFICATION
London Underground (LU) / National Rail Stations/ DLR/ Overground	Public Transport	High	In order to support the car parking ratio proposed, the proposed development will look to encourage a high public transport mode share
Bus stops	Public Transport	High	
Strategic Cycle Network	Active Travel	High	The strategic cycle network is easily accessible from the site and the routes are expected to be used daily by commuting cyclists.
Green space / recreation space	Leisure	Medium	Green and recreational space are important leisure spaces, particularly in the promotion of exercise, active travel and Healthy Streets.
Schools	Education	Medium	Some of the future residents of the proposed development are expected to travel to the schools in the local area.

5.1.6 Following the prioritisation of the routes to the key destinations, the 'key routes' identified are as follows:

- **Key Route 1:** Grey Court School;
- **Key Route 2:** Kingston Station via Ham street and the Cassel Hospital;
- **Key Route 3:** Meadlands Primary School, via St Richards Church and St Richards CofE Primary School;
- **Key Route 4**: Thames Path; and
- **Key Route 5**: Teddington Railway Station via Tesco Express.

5.1.7 An overview of the key routes is provided within **Figure 5-1**.

Figure 5-1: ATZ Key Route Overview



5.2 VISION ZERO ANALYSIS

5.2.1 In accordance with TfL's guidance on Vision Zero, an analysis has been undertaken of the collision data obtained from the TfL database for the most recent recorded three-year period, which covers the extent of the ATZ.

5.2.2 Where more than one collision resulting in a Killed or a Serious Injury (KSI) occurs in the same location along a key route, a KSI cluster is identified, and recommendations should be made for safety improvements.

5.2.3 The Vision Zero analysis of the ATZ shows no fatalities or KSI clusters; however, eight serious collisions resulted in 11 injury casualties. Of all the vehicles involved: nine were car occupants, one was a bus occupant, two were motorcyclists, two were pedestrians and three were pedal cyclists.

5.2.4 The five serious collisions along **Key Route 2** are summarised as follows:

- On 12th February 2018, a collision involving a bus occurred at the A307 Richmond Road / Duke Avenue traffic signal junction, with a bus occupant injured.
- On 17th November 2018, a collision involving two cars occurred at the A307 Richmond Road / Duke Avenue traffic signal junction, with an adult car occupant seriously injured plus two children and an adult being slightly injured.
- On 21st April 2018, a collision involving a car and a cyclist occurred at the A307 Richmond Road / Kings Road junction, with the cyclist injured.
- On 19th September 2020, a collision involving a car and a motorcycle occurred on the A307 Richmond Road approximately 20m south of East Road, with a motorcyclist injured.

- On 14th May 2018, a collision involving a light goods vehicle and a cyclist occurred at the A307 Richmond Road / A308 traffic signal junction, with the cyclist injured.

5.2.5 The three serious collisions along **Key Route 5** are summarised as follows:

- On 8th March 2018, a collision occurred involving a motorcycle and a pedestrian at the A313 / Langham Road junction close to Teddington Station. The pedestrian was seriously injured.
- On 25th October 2018, a collision involving a car and a pedal cyclist occurred at the A313 Manor Road / Ferry Road traffic signal junction west of the site across the River Thames, with the pedal cyclist injured.
- On the 4th February 2019, a collision involving a car and a pedestrian occurred at the A313 Manor Road / Ferry Road traffic signal junction, with the pedestrian injured.

5.2.6 In terms of measures that could reduce the propensity for collisions to occur, the collisions recorded likely occurred due to either driver error or failing to look properly along with the majority of routes.

5.2.7 It is worth acknowledging that although any collision is unfortunate, the number of serious collisions recorded is regarded as low, with no collisions occurring within the immediate vicinity of the site and no clear evidence of any KSI clusters emerging.

5.2.8 In summary, it is considered that the development will not have a detrimental impact on the safety and well-being of residents associated with the proposed development or those already within the local area, in accordance with the Vision Zero approach.

5.3 ATZ KEY ROUTE ASSESSMENT

5.3.1 In line with the TfL ATZ methodology, the worst point of the journey is reviewed against the Healthy Streets Indicators to identify potential improvements. 'Worst' is a relative term and is generally defined as the most unpleasant or potentially unsafe part of a route for pedestrians and/or cyclists.

5.3.2 Each route has been reviewed and assessed against eight of the 10 Healthy Streets Criteria, in line with TfL's ATZ and Healthy Streets TA Guidance, as follows

- **Easy to cross** - Making streets easier to cross is important to encourage more walking and to connect communities;
- **People feel safe** - Making streets easier to cross is important to encourage more walking and to connect communities;
- **Things to see and do** - People are more likely to use our streets when their journey is interesting and stimulating, with attractive views, buildings, planting and street art;
- **Places to stop and rest** - A lack of resting places can limit mobility for certain groups of people;
- **People feel relaxed** - More people will walk or cycle if our streets are not dominated by motor traffic, and if pavements and cycle paths are not overcrowded, dirty or in disrepair;
- **Not too noisy** - Reducing the noise impacts of traffic will directly benefit health and improve the ambience of our streets;
- **Clean air** - Improving air quality delivers benefits for everyone and reduces unfair health inequalities, and
- **Shade and shelter** - Providing shade and shelter enable everybody to use our streets, whatever the weather.

5.4 KEY ROUTE ASSESSMENT NOTE

5.4.1 The purpose of the ATZ is to identify opportunities for improvements to routes within the local area. It should be noted, as set out in TfL's guidance on the ATZ assessment process, that it is not necessarily expected that the Applicant will need to contribute to or implement improvements that are identified within the ATZ assessment.

5.4.2 Improvements identified in this assessment should be reviewed by LBRuT, and appropriate funding streams or mechanisms for implementation should be identified, where appropriate, as part of wider LBRuT led improvements.

5.4.3 Suitable channels include local, regional, or national government funding, such as Community Infrastructure Levy or Section 106 contributions (subject to the standard legal tests as to whether they are necessary, relevant, enforceable, precise, and reasonable).

5.5 KEY JOURNEY 1: GREY COURT SCHOOL

5.5.1 Key Journey 1 is a short route along Ashburnham Road to the east of the site, being approximately 300m in length and the equivalent to a five minute walk. The worst section of the route is the existing junction with the unnamed access road that provides access to the rear parking area of the shops on Ham Street.

5.5.2 The junction is a wide crossing with dropped kerbs but no tactile parking. There is parking in this area that may obstruct access for pedestrians or vulnerable road users.

HEALTHY STREETS INDICATORS	INDICATOR MET	DESCRIPTION	IMPROVEMENT
Easy to cross	No	The mouth of the junction is wide and does not prioritise pedestrians, with no tactile paving.	Provide tactile paving and align dropped kerbs to provide improved crossing facilities. Explore the possibility to reduce the size of the kerb radii to prioritise pedestrians and reduce the distance pedestrians need to travel.
People feel safe	Yes	The route benefits from natural surveillance from residential properties.	No area for improvement.
Things to see and do	Yes	This route has street trees along Ashburnham Road and passes a number of shops on Ham Street.	No area for improvement.
Places to stop and rest	No	At present, there are no opportunities to stop and rest along the route.	Places to stop and rest could be incorporated into the southern boundary of the site.

HEALTHY STREETS INDICATORS	INDICATOR MET	DESCRIPTION	IMPROVEMENT
People feel relaxed	Yes	The route is generally well maintained and has natural surveillance, creating a relaxed environment.	No area for improvement.
Not too noisy	Yes	The area experiences low volumes of traffic and does not experience high levels of noise.	No area for improvement.
Clean air	Yes	According to the London Air Quality Network, this section of the carriageway passes the annual mean objective for NO2 air pollution.	No area for improvement.
Shade and shelter	Yes	Shade and shelter is provided in the surrounding area, in the form of trees on Ham Village Green and the bus shelter on Ashburnham Road.	No area for improvement.

5.6 KEY JOURNEY 2: KINGSTON STATION VIA CASSEL HOSPITAL / A307 HIGH STREET

5.6.1 Key Journey 2 followed a southern route from site to the Cassel Hospital, and then onto the parade of Shops on the A307 Richmond Road. The worst point identified on this route were the crossovers and points of potential conflict with vehicles along Ham Street and Ham Common.

HEALTHY STREETS INDICATORS	INDICATOR MET	DESCRIPTION	IMPROVEMENT
Easy to cross	No	The footway surface is uneven and in some areas requires maintenance, which may make the surface difficult to walk on for vulnerable road users.	Resurfacing this section of the footway.
People feel safe	Yes	The route benefits from natural surveillance from residential properties.	No area for improvement.
Things to see and do	Yes	The route passes along a quiet residential road, with street trees.	No area for improvement.
Places to stop and rest	No	At present, there are no opportunities to stop and rest in this area, although there is little scope to implement any new places to stop due to the narrow footway width.	Explore the potential to provide a kerb buildout onto the footway to provide low-level planting or benches along this route.
People feel relaxed	Yes	The area is residential in nature and is a relaxing environment.	No area for improvement.
Not too noisy	Yes	The area has low volumes of traffic and is not noisy.	No area for improvement.

HEALTHY STREETS INDICATORS	INDICATOR MET	DESCRIPTION	IMPROVEMENT
Clean air	Yes	According to the London Air Quality Network, this section of the carriageway passes the annual mean objective for NO2 air pollution.	No area for improvement.
Shade and shelter	No	There is a lack of shade and shelter along this route.	Explore the potential to provide street trees in the surrounding area, replacing some on-street parking with street trees to improve the pedestrian environment.

5.7 KEY JOURNEY 3: MEADLANDS PRIMARY SCHOOL

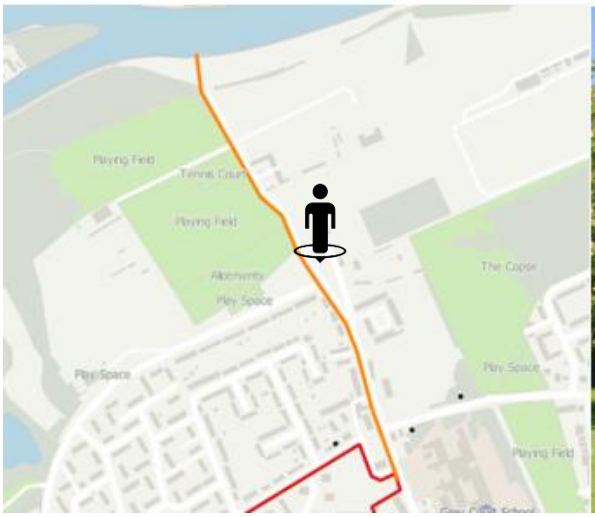
5.7.1 The worst section of Key Journey 3 to Meadlands Primary School is due to the sections of footway on Ashburnham Road which have been raised by tree roots, as well as being narrowed by poor street tree placement. This may make the route difficult for those with reduced mobility or pushing prams.

HEALTHY STREETS INDICATORS	INDICATOR MET	DESCRIPTION	IMPROVEMENT
Easy to cross	Yes	Dropped kerbs with tactile paving are provided intermittently along Ashburnham Road to enable easy crossing.	No area for improvement.
People feel safe	Yes	The street is overlooked by the school and business park, and street lit at night.	The proposed development will add further passive surveillance to the street, increasing the feeling of safety.
Things to see and do	Yes	The route passes the village green, providing things to see and do in the area, including play facilities.	No area for improvement.
Places to stop and rest	No	At present, there are no opportunities to stop and rest along the route.	Stopping and meeting points could be provided near to the school, by removing on street parking or within the area of planting in front of the school.
People feel relaxed	Yes	The route is generally well maintained and overlooked creating a relaxed environment.	No area for improvement.
Not too noisy	Yes	The road is lightly trafficked and not too noisy.	No area for improvement.

HEALTHY STREETS INDICATORS	INDICATOR MET	DESCRIPTION	IMPROVEMENT
Clean air	Yes	According to the London Air Quality Network, this section of the carriageway meets the annual mean objective for NO2 air pollution.	No area for improvement.
Shade and shelter	Yes	There are trees lining the northern side of Ashburnham Road providing shade for the street.	No area for improvement.

5.8 KEY JOURNEY 4: THAMES PATH

5.8.1 The worst point of Key Journey 4 is due to the lack of pavement along the northern end of Ham Street, leading onto the Thames Path. The footway ends at the junction of Ham Street with Riverside Drive, where the footway is replaced by a grass verge.



HEALTHY STREETS INDICATORS	INDICATOR MET	DESCRIPTION	IMPROVEMENT
Easy to cross	No	No pavements, dropped kerbs or crossing facilities are provided along this stretch of the route.	A pavement and dropped kerbs could be provided along this stretch of the route, linking to the existing provision on Ham Street.
People feel safe	Yes	The street is overlooked by neighbouring residential properties. However, the route is not street lit.	Street lighting could be added to the unlit section of the route.
Things to see and do	Yes	The neighbouring park provides things to see and do.	No area for improvement.
Places to stop and rest	No	At present, there are no opportunities to stop and rest along the route.	Benches or seating could be provided along the route.
People feel relaxed	Yes	The adjacent park helps to create a relaxing space.	No area for improvement.
Not too noisy	Yes	This route appears lightly trafficked and is therefore not noisy.	No area for improvement.
Clean air	Yes	According to the London Air Quality Network, this section of the carriageway meets the annual mean objective for NO2 air pollution.	No area for improvement.

HEALTHY STREETS INDICATORS	INDICATOR MET	DESCRIPTION	IMPROVEMENT
Shade and shelter	Yes	There is shade and shelter provided along the route by the street trees along the route.	No area for improvement.

5.9 KEY JOURNEY 5: TEDDINGTON RAILWAY STATION

5.9.1 Key journey 5 provides a route from the site to Teddington Railway Station. The worst point on this route is located on the Teddington Lock footbridge. The arrangement on the bridge may be difficult for any vulnerable road users to navigate, particularly those in a wheelchair or pram.

HEALTHY STREETS INDICATORS	INDICATOR MET	DESCRIPTION	IMPROVEMENT
Easy to cross	N/A	The bridge is very narrow and has barriers at either end which make taking a bike, wheelchair or pram over the bridge difficult.	Security barriers could be removed.
People feel safe	No	The route is not overlooked and isolated away from the road and residential properties. The route is not street lit at night.	Street lighting could be provided along the route to increase the feeling of security. Furthermore, trees could be trimmed to increase the levels of surveillance from the street.
Things to see and do	Yes	The site passes through the Ham Lands Nature Reserve which provides opportunities to stop for things to see and do.	No area for improvement.
Places to stop and rest	Yes	A number of benches are provided within the Nature Reserve, along the river.	No area for improvement.
People feel relaxed	No	The area has a relaxing atmosphere during the day, given its position within a forest and along the Thames. As the location is isolated from roads or other buildings, the area may not feel relaxing after dark.	Improvements could be provided as stated in 'people feel safe' section.
Not too noisy	Yes	The area is quiet given its location in a nature reserve and by the Thames.	No area for improvement.

HEALTHY STREETS INDICATORS	INDICATOR MET	DESCRIPTION	IMPROVEMENT
Clean air	Yes	According to the London Air Quality Network, this area meets the annual mean objective for NO2 air pollution.	No area for improvement.
Shade and shelter	Yes	Given the sites location within the Ham Lands Nature Reserve, plenty of shade and shelter is provided.	No area for improvement.

5.10 ATZ SUMMARY AND KEY POINTS

- An ATZ assessment has been undertaken in accordance with the TfL guidance, with the full ATZ maps contained at **APPENDIX C.**
- A total of eight KSIs were recorded along the key routes within the latest three-year collision data that has been obtained, with five on Key Route 2 and three on Key Route 5. Whilst there is a low number of KSIs recorded, these likely occurred due to either driver error or failing to look properly. The KSI review suggests there are no existing highway safety concerns present that could be exacerbated by the proposals.
- The ATZ assessment identified that the local routes are suitable in their current state; however, a number of minor maintenance measures and improvements have been identified which could be implemented by LBRuT as part of wider borough-led improvements to improve the routes.

6 PROPOSED DEVELOPMENT

6.1 PLANNING DESCRIPTION

6.1.1 The proposed development description is as follows:

> *"Demolition of existing buildings on-site and phased mixed-use development comprising 452 residential homes (Class C3) up to six storeys; a Community/Leisure Facility (Class F2) of up to 3 storeys in height, a "Maker Labs" (sui generis) of up to 2 storeys together with basement car parking and site wide landscaping."*

6.1.2 A copy of the proposed development plans are included at **APPENDIX A**.

6.2 ACCESS ARRANGEMENT

BEFORE

6.2.1 Existing pedestrian and cycle access to the site can be made via multiple access points along the northern and southern boundaries. A network of footpaths within the eastern extent side of the site provide access from Ham Street, through Ham Village Green, to Ham Close.

6.2.2 Vehicle access to the site is via the north to south arms of Ham Close which run parallel to one another and which access the wider highway network via Ashburnham Road in the south and Woodville Road in the north.

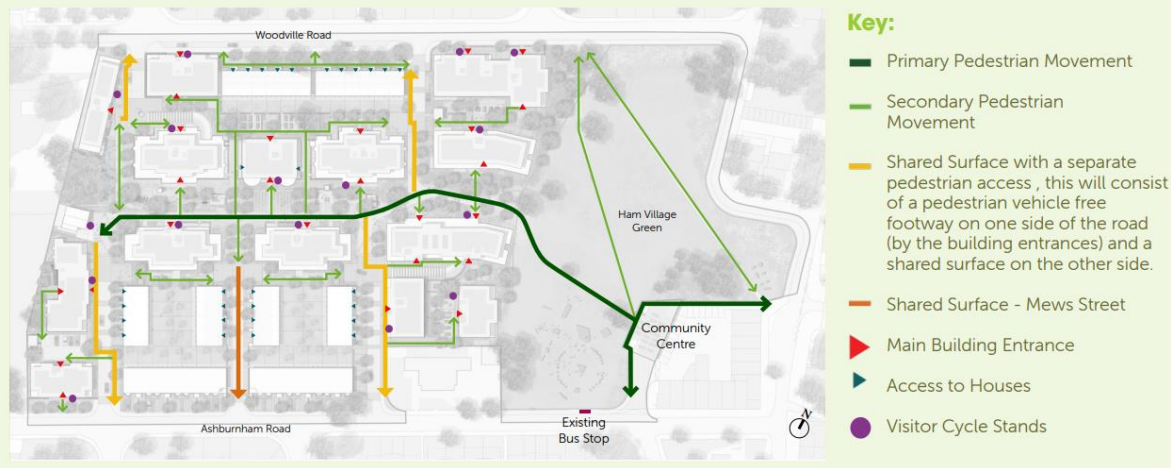
6.2.3 **Figure 6-1** shows the existing access points for the site.

Figure 6-1: Existing Site Access

AFTER

6.2.4 The proposed development will provide new pedestrian and cyclist routes through the site with an east to west link, connecting the development to Ham Village Green and improving permeability within the local area. **Figure 6-2** presents the pedestrian and cyclist routes through the site.

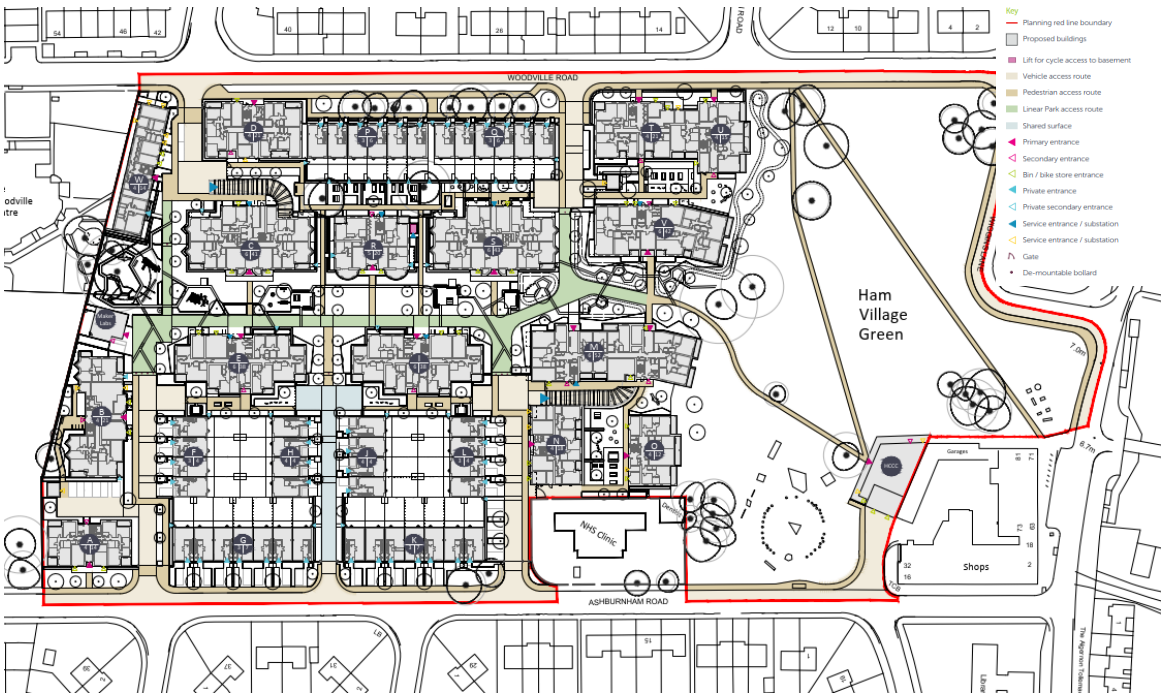
Figure 6-2: Proposed Pedestrian and Cycle Access Strategy



6.2.5 Vehicle access would be provided via two access roads on the northern side of the street from Woodville Road, with one of these leading to the basement. From the south, there are three access roads with one of those also joining through to the basement. There will be no through route from Woodville Road to Ashburnham Road for general motorised vehicles, with the exception of refuse and emergency access.

6.2.6 Vehicle access to the underground car par is provided from Ashburnham Road and Woodville Road, as shown on **Figure 6-3**.

Figure 6-3: Proposed Access Strategy



6.2.7 It is noted that as part of the proposals, part of the existing Ham Close highway will need to be Stopped Up under Section 247 of the Town and Country Planning Act (1990). It is considered that this Stopping Up application will be submitted and processed in parallel to the forthcoming planning application.

6.3 PUBLIC REALM

BEFORE

6.3.1 The existing residential blocks are provided within a large area of green space, which provides a link to Ham Village Green to the east of the site. Footways are provided along the internal roads (Ham Close) and are approximately 1.5m wide. Much of the pavement is cracked and uneven through the site, with similar pavements on the site boundary cracked or broken by tree roots.

6.3.2 Shade and shelter is provided throughout the site by several mature trees spaced throughout the site, and a large volume of green space is provided on site to the east.

AFTER

6.3.3 The site's public realm has been designed in accordance with the Healthy Streets approach, and to prioritise walking and cycling. Pedestrian and cycle only routes will be provided from Ashburnham Road and Woodville Road, with a pedestrian and cycle link also provided in an east to west direction across the site to provide a link to Ham Village Green.

6.3.4 Shade and shelter and seating would be provided within the site, along with informal play areas. Further play facilities are provided within the adjacent Ham Village Green.

6.4 DELIVERY AND SERVICING STRATEGY

BEFORE

6.4.1 At present, servicing takes place on-street within the estate. The internal roads have no loading or parking restrictions.

6.4.2 Woodville Road also has no stopping or loading restrictions and has a long stretch of inset bays along the northern edge of the site, however this is not subject to any controls or parking restrictions.

6.4.3 Ashburnham Road has no loading or stopping restrictions outside the site and may also provide space for servicing vehicles to stop on street.

AFTER

6.4.4 It is proposed for all delivery and servicing activity to primarily take place within the site boundary on Ham Close. There is suitable space within the extents of the site and internal layout for servicing vehicles to enter the site, turn within the designated turning head areas at the end of the access road, before exiting the site in a forward gear.

6.4.5 Refuse and emergency vehicles will be able to drive throughout the full extents of the site, with access managed via a fire brigade style lock and bollards, preventing unwanted access for other vehicles but still allowing access for the appropriate vehicles as required.

6.4.6 For completeness, a copy of the swept path analysis showing access for servicing vehicles is included at **APPENDIX D**.

6.4.7 It is considered that servicing for the non-residential uses, namely the Maker Labs and Community Centre would operate with a similar arrangement, however deliveries to these spaces are likely to be on an ad hoc basis and when events are running.

6.4.8 As per the servicing trip generation assessment presented later within Section 8, it is noted that there will be a negligible uplift in daily servicing activity from the existing activity.

6.4.9 In summary, it is considered that servicing of the site will be in accordance with the Healthy Streets principles and Vision Zero, by allowing for turning heads within the site and not requiring vehicles to reverse out onto the highway.

6.5 CYCLE PARKING

BEFORE

6.5.1 On Ham Close and within the estate, there is a single external cycle shelter with space for approximately 12 cycles.

AFTER

6.5.2 In relation to the appropriate cycle parking policy requirements, it is considered that the relevant standards are the requirement set out within Policy T5 of the London Plan.

6.5.3 Based on the proposed development quantum, the minimum required cycle parking provision for long stay and short stay in accordance with the London Plan requirements is set out in **Table 6-1**.

Table 6-1: Minimum Residential Cycle Parking

LAND USE	STANDARD USED	DWELLINGS	LONG STAY SPACES	SHORT STAY SPACES
Residential - studio or 1 person 1 bedroom (Use Class C3)	1 space per dwelling	4	4	13
Residential - 2 person 1 bedroom (Use Class C3)	1.5 spaces per dwelling	220	330	
Residential - 2 bed+ (Use Class C3)	2 spaces per dwelling	228	456	
Total		**452**	**790**	**13**

6.5.4 The proposed development will provide in excess of the minimum London Plan requirements, with a total of 796 long stay spaces provided in either the core of the flat blocks, situated within a larger cycle store controlled by a fob key, or within a cycle store for the individual houses.

6.5.5 In accordance with the London Cycle Design Standards (LCDS), accessible enlarged Sheffield stands will be provided within the basement, with the equivalent to 40 spaces or 5% of the total provision.

6.5.6 Short stay cycle parking spaces would be provided in accordance with the London Plan standards and integrated into the public realm.

6.5.7 Access to the basement will be provided within a lift that complies with the LCDS requirements. In the event of lift breakdown, cyclists could also utilise the basement car park access ramps.

6.5.8 A plan showing the cycle parking strategy is provided at **APPENDIX E**.

6.5.9 In summary, the proposed development will comply with the London Plan cycle parking requirements.

6.6 CAR PARKING

BEFORE

6.6.1 Currently there are approximately 281 car parking spaces provided on-site, in the form of 228 informal car parking spaces and 53 on-street spaces, which excludes the 47 garages. This provides an effective car parking ratio of 1.4 spaces per home based on existing 192 homes (excluding the garages and noting 44 spaces parking are shared with the youth centre). It is also noted that a maximum of 85 cars were observed parking within Ham Close and the Ham Close parking area during the parking surveys undertaken.

6.6.2 There are no parking controls on-site and none of these spaces are marked out on the ground, so this is an estimation based on a standard parking bay size. In reality, residents can/do park more informally due to unmarked bays meaning this could overestimate the number of cars parked.

6.6.3 There are approximately 44 car parking spaces located in the car park adjacent to the Ham and Petersham Youth Club, although none of the spaces are allocated to a particular premises or use.

AFTER

Policy and Demand

6.6.4 In relation to car parking, the adopted Richmond Local Plan (2018) states that in areas of PTAL 0-3, developments should provide one parking space per unit for one or two bedroom properties and two parking spaces per unit for three bedroom properties. Based on the accommodation schedule, this would require a provision of 515 car parking spaces.

6.6.5 However, it is noted that within paragraph 11 of the LBRuT Transport SPD dated 2nd June 2020 that LBRuT have adopted the London Plan car parking standards.

6.6.6 The London Plan allows car parking of up to 1.5 spaces per home in areas where the existing or predicted PTAL is 1 or below. Based on the proposed accommodation schedule, the maximum level of car parking across the site would equate to 678 car parking spaces.

6.6.7 In order to ensure that the proposed parking provision reflects the predicted demand of the site, reference is made to Section 4 of this TA. On the basis of the 0.34 spaces per bedroom, it is expected that the proposed development would generate the demand for 270 parking spaces.

Proposed Provision

6.6.8 It is proposed to provide car parking as follows:

Residential - 274 spaces

- Residential standard spaces - 230
- On-plot spaces - 30
- Basement Blue Badge spaces - 13

- Ground level Blue Badge spaces - 1

Non-residential - 3 spaces

- Blue Badge spaces - 3

Car Club - 2 spaces

Visitor - 8 spaces

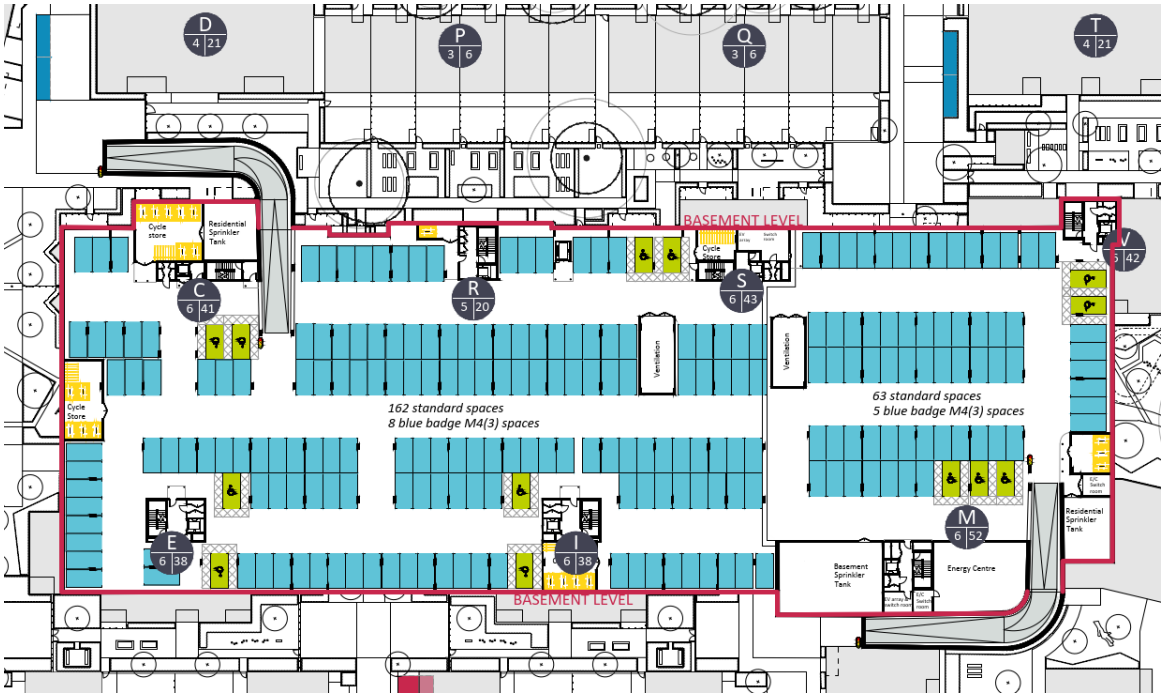
Total - 287

6.6.9 Of the 287 spaces provided across the site, a total of 238 car parking spaces will be provided within the basement. The basement parking area will be accessed via two signal-controlled ramps, allowing alternate way working to and from Ashburnham Road and Woodville Road. The circulation and layout of the basement has been developed to consider the proposed phasing of the proposed development.

6.6.10 All car parking spaces will be provided with electric vehicle charging in accordance with the London Plan (2021) requirements.

6.6.11 **Figure 6-4** shows the proposed parking at basement level.

Figure 6-4 - Proposed Basement Car Parking Layout



6.6.12 The proposed development will provide parking for the calculated residential demand. With the dedication of car club spaces, a Travel Plan and supporting Parking Management Plan, it is reasonable to assume that the parking demand across the site could continue to reduce further in the future.

Car Parking Space Allocation

6.6.13 Within the basement, parking bays will be allocated to the homes that are eligible for a space.

6.6.14 Parking permit allocation will be prioritised for family sized units, with larger units taking priority over smaller ones. Existing permit holders will retain priority over new applicants except in the case where there is a shortage of blue badge parking.

6.6.15 There will also be priority for the existing residents that are being rehoused to obtain a permit, where appropriate.

6.6.16 The details of the parking allocation will be outlined within the supporting Parking Management Plan (PMP).

Blue Badge Parking

6.6.17 A total of 14 blue badge spaces (3%) will be provided from the outset, in accordance with the London Plan (2021).

6.6.18 It is recognised that the London Plan requires the applicant to provide an additional 7% blue badge parking either at the outset or to demonstrate how such provision could be made in the future to respond to demand.

6.6.19 To understand the current demand for blue badges parking spaces within the borough, an analysis of valid blue badges permits was assessed against the population which showed that 2.5% of the population have permits within the LBRuT.

6.6.20 As such, the proposed blue badge parking provision of 3% is expected to be adequate for the proposed development. Nonetheless, should additional demand arise, standard parking spaces could be converted to blue badge spaces in order to meet demand up to the maximum 46 blue badge spaces requirement.

Non-residential

6.6.21 The Community Centre will be provided as car-free, with the exception of two blue badge spaces.

6.6.22 One blue badge space will be provided for the Maker Labs use, which will otherwise be car-free.

Car Club

6.6.23 To further support the reduced car parking provision, a total of two car club bays will be implemented on-street, with one space being regarded as being able to remove approximately 23.5[1] privately owned cars off the road within the London, as members often sell or do not replace a car once they join.

6.6.24 The two car club vehicles are thus equivalent to an additional 45 on-site parking spaces (23.5 x 2, subtract 2 occupied spaces) taking the total equivalent on-site residential parking provision to 319 spaces (274 + 45, equivalent to 0.71 spaces per unit).

6.6.25 A copy of a proposal from a car club operator, Zipcar, is included at **APPENDIX F**. Zipcar recommends installing up to two vehicles at the development. As a potential operator of the car club spaces, Zipcar would provide a fully managed service, which includes the following:

- Procuring and maintaining the vehicles for the duration of the contract;
- Offering three years' membership to all 452 homes;

[1] https://como.org.uk/wp-content/uploads/2021/06/CoMoUK-London-Car-Club-Summary-Report-2020.pdf

- Designing all marketing collateral for the development communications team;
- Managing the sign-up process (including licence and insurance eligibility processes); and
- Monitoring resident and development queries and providing reports (if required as part of Section 106 requirements) post launch.

6.6.26 The provision of these services on site would be funded by a contribution by the Applicant. However, Zipcar would commit to a contractual obligation to run the car club operation at the development for a minimum of three years. Each resident that signs up during the three years will receive three years' free membership and Zipcar will offer £50+VAT driving credit per home at no further cost to the developer.

6.6.27 Zipcar would provide a year's free business account (usually £119) for any commercial entity operating from or in conjunction with the site at no further cost to the developer.

Visitor Parking

6.6.28 Visitor car parking of one space per 40 units (12 spaces) can largely be accommodated within the site, with a total of eight visitor spaces provided. The four residual spaces could be accommodated within the available spare on-street parking adjacent to the site on Ashburnham Road and Woodville Road.

Controlled Parking Zone

6.6.29 As the predicted car parking demand can be accommodated within the site it is not expected that a Controlled Parking Zone would need to be introduced in the surrounding area.

On-Street Parking Stress Assessment

6.6.30 An assessment of the on-street capacity based on the parking stress surveys and changes associated with the development proposals is provided below:

- The existing 47 garages across the site are not considered as being appropriate for use as a parking space due to their poor condition, as well as the size not being suitable for modern day cars. On this basis, it is assumed no cars are displaced from removal of the garages.
- In order to determine the on-street parking capacity, the existing on-site spaces at Ham Close and Ham Close Car Parking Area recorded within the surveys are excluded from the assessment, which removes 281 spaces, leaving 452 car parking spaces remaining within 200m of the site.
- It is assumed that the cars associated with these on-site spaces are linked to the existing site at Ham Close. The existing homes at Ham Close were 90% occupied at the time of the surveys. The cars recorded parking on-site will be removed from the assessment to determine the true on-street capacity.
- The existing on-street capacity is amended further due to the proposals along Ashburnham Road that include dropped kerbs to access on-plot parking. This equates to a loss of 16 spaces from the total capacity, leaving 436 spaces remaining.
- The revised parking stress for the area equates to a worst-case of 74% (324 vehicles parked) utilising the data from the Tuesday survey, which recorded the highest levels of on-street parking pressure. There is therefore spare capacity for 46 vehicles (11%) of spaces before the threshold of 85% parking stress is reached.
- The proposed development will provide a total of 274 residential parking spaces and two car club bays, providing an equivalent of 319 on-site spaces ((274 + (23.5 x 2), subtract 2 spaces for the car club spaces) which exceeds the projected census demand of 270 spaces.

- Nevertheless, it is likely that occupants of the 12 townhouses on Woodville Road may choose to park on street along the Woodville Road frontage outside their homes.
- The predicted on-street visitor parking demand of four spaces may also need to be accommodated on-street within the local area.
- The addition of sixteen vehicles parking on street would increase the residual parking stress to 78%.
- In addition, it is noted that the provision of the Community Centre will see the removal of the parking area to the rear of the Ashburnham Road shops (which is not included within the number of spaces available and current supply). Within the surveys, a maximum of six vehicles were recorded as parking here overnight within the Tuesday 11th January 2022 survey.

6.6.31 A summary table of the on-street car parking assessment is provided in **Table 6-2.**

Table 6-2: On-street Car Parking Assessment

SCENARIO	TOTAL SPACES	CARS PARKED	SPACES AVAILABLE	ON-STREET OCCUPANCY
Scenario 1: Observed 2021	733	409	324	**56%**
Scenario 2: Observed 2021, with Ham Close / Ham Close Car Parking Area removed	452	324	128	**72%**
Scenario 3: Scenario 2, with Ashburnham Road on-street changes (-16 spaces)	436	324	112	**74%**
Scenario 4: Scenario 3, with 12 x houses on Woodville Road parking on-street and 4 x visitor parking demand	436	340	96	**78%**
Scenario 5: Scenario 4, with displacement of Community Centre parking, with 6 x cars added onto on-street demand	436	346	90	**79%**

6.6.32 In summary, the proposed on-site parking provision is adequate to accommodate all of the parking demand created by the proposed development. Nevertheless, an allowance has been made for some on-street parking around the site, where this will be more convenient for residents than the on-site provision.

6.6.33 There is sufficient spare on-street parking capacity within the immediate local area to accommodate the allowed for on-street parking, with parking stress increasing from 74% to 79%, 24 spaces below the threshold of 85% beyond which controlled parking zone measures would typically need to be considered.

6.6.34 The proposed car parking provision is therefore considered appropriate to meet the predicted parking demands and is compliant with the London Plan.

6.6.35 In addition, it is noted that there is a forthcoming application at the adjacent Woodville Centre, which involves the relocation of the existing gated access and minor amendments to the off-street parking area. However, due to the primary parking demand and use of this scheme being during the day, it is not considered to result in any cumulative parking impacts when considered with any potential parking impacts associated with the proposed development. This is due to the primary demand from the proposed development being overnight, which is contrary to the demand for the Woodville Centre.

6.7 PROPOSED DEVELOPMENT SUMMARY AND KEY POINTS

- Access to the proposed development is to be retained and improved from the existing situation, with a new east to west pedestrian link provided through the site.
- Servicing will take place within the internal street network, with appropriate turning heads provided to ensure vehicles can access and egress from the site in a forward gear, without providing a through route between Ashburnham Road and Woodville Road.
- The proposed development will provide cycle parking in accordance with the London Plan requirements.
- The proposed development will provide car parking compliant with the maximum allowances of the London Plan. The proposed parking provision of 274 residential parking spaces and two car club bays provides an equivalent of 319 on-site parking spaces for residents to meet the projected census demand of 270 spaces.
- Eight visitor parking spaces are proposed on-site.
- The car parking provision will accord with the London Plan 2021 requirements for Blue Badge parking and Electric Vehicle charging infrastructure.
- An assessment of on-street car parking stress has been undertaken, finding that with the on-street spaces lost to accommodate the proposed development - average on-street capacity will reach 79%, with further spare capacity for 24 spaces within 200m of the site before the 85% threshold is reached. Therefore, even if there was further demand from the proposed development, there is still spare capacity within the area.

7 TRIP GENERATION

7.1 OVERVIEW

7.1.1 This section describes the multi modal trip generation assessment, providing information on the use of the transport network, including how people are expected to travel and their anticipated mode choice/travel behaviours.

7.2 EXISTING TRIP GENERATION

METHODOLOGY

7.2.1 To assess the existing residential travel demand, the latest version of the TRICS database was interrogated to derive the total person trips associated with full occupation existing residential site. Survey sites were selected based on the following criteria:

- Land use category: 03 - Residential
- Sub- Land use category: D - Affordable/Local Authority Flats
- Area: Greater London
- PTAL: 1 to 3

7.2.2 Following feedback from LBRuT, per dwelling trip rates have been utilised for the assessment.

7.2.3 The TRICS category '03/D - Residential/Affordable Flats' was selected to reflect the existing site tenure, whereby approximately 75% of the existing flats are affordable. This approach is in accordance with the TRICS User Guide 'Land Use Definitions'.

7.2.4 It is noted that there are a limited number of surveys within the TRICS database that fall under this land use, making applying further parameters and filters to the datasets difficult whilst still retaining enough surveys to generate trip generation values. However, filtering by PTAL in this instance is considered to be sufficient as it helps to capture the low level of accessibility to public transport that is reflective of the existing site.

7.2.5 The TRICS parameters selected are therefore considered as representative of the existing land use and location.

7.2.6 Using the parameters set out above, only two sites were identified within the TRICS database, as summarised in **Table 7-1.**

Table 7-1: TRICS Review - Residential/Affordable Flats

REFERENCE	LOCATION	SURVEY YEAR	DWELLINGS	PTAL	PARKING RATIO
BT-03-D-01	Dollis Hill	26/06/2014	160	2 Poor	1.01
HA-03-D-01	Kingsbury	17/07/2014	88	3 Moderate	1.25

7.2.7 It is noted that both surveys are of sites with a parking ratio that exceeds one space per dwelling, which is considered to be reflective of the existing site.

7.2.8 A copy of the TRICS output files is provided at **APPENDIX G**.

EXISTING TRIP GENERATION

7.2.9 The TRICS sites were used to estimate trip generation for the existing 192 residential homes.

7.2.10 The total person trip rates per dwelling and total person trips generated are shown in **Table 7-2**. The peak hours have been assumed as the typical network peaks, with the AM peak as 08:00am to 09:00am, evening peak as 17:00pm to 18:00pm and daily as 07:00am to 19:00pm. Due to inconsistencies within the TRICS data and the selected TRICS category only including data between 07:00am-19:00pm, it is proposed to utilise this assessment window for all daily trip generation to ensure a consistent assessment.

Table 7-2: Existing Development Total Person Trip Generation (192 Homes)

TRIPS	AM PEAK			PM PEAK			DAILY		
	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL
Total person trips per dwelling	0.145	1.194	1.339	0.435	0.258	0.693	3.226	3.880	7.114
Total person trips	**28**	**229**	**257**	**84**	**50**	**133**	**619**	**745**	**1,366**

7.2.11 **Table 7-2** shows that the existing site could generate a total of 257 two-way total person trips in the AM peak, 133 two-way total person trips in the PM peak, and a total of 1,366 trips across the day.

7.2.12 LBRuT requested within page 14, paragraph 4.1 of the LBRuT Environmental Impact Assessment (EIA) Scoping Opinion, dated 6th January 2022 that mode share should be calculated utilising the 2011 Census 'method of travel to work' census data.

7.2.13 The National Travel Survey (NTS) undertaken in 2019 recognises that commuting trips to work generally comprise around 15% of all trips (prior to the NTS 2020 and Covid-19 pandemic), meaning the method of travel to work does not accurately reflect the mode share for 85% of all trip purposes, including leisure, shopping and education. In addition the 2011 Census mode share data takes no account of the time of travel during the day, aggregating all information into a single daily mode share. The TRICS database on the other hand provides accurate mode shares specific to the time of day and the likely activities taking place throughout the day.

7.2.14 Therefore, in order to determine the mode share for existing residents of the site during each specific time period and accounting for all journey purposes, the mode share has been extracted from the TRICS database. For the reasons set out above, this is more representative of the likely mode shares for the existing site than utilising the 'method of travel to work' census data.

7.2.15 For completeness, the derived TRICS mode share is presented in **Table 7-3**. No adjustments have been made to the existing TRICS mode share.

Table 7-3: Existing Site - Calculated TRICS Mode Share

MODE	AM PEAK HOUR	PM PEAK HOUR	DAILY
Pedestrians	16%	29%	22%
Cyclists	1%	3%	2%
Bus	14%	13%	12%
Underground / DLR	8%	8%	8%
Rail	10%	9%	9%
Vehicle drivers	23%	22%	30%

MODE	AM PEAK HOUR	PM PEAK HOUR	DAILY
Vehicle passengers	28%	16%	17%
Total	**100%**	**100%**	**100%**

7.2.16 The mode share has then been applied to the total person trips generated by the existing trip generation assessment, with the resultant multi modal trip profile presented in **Table 7-4**. No adjustments have been made to the existing TRICS mode share.

Table 7-4: Existing Site Development - Forecast Travel Demand (192 Homes)*

MODE	AM PEAK HOUR			PM PEAK HOUR			DAILY		
	In	Out	Total	In	Out	Total	In	Out	Total
Pedestrians	4	37	41	24	14	39	136	164	300
Cyclists	0	2	3	3	1	4	12	15	27
Bus	4	32	36	11	6	17	74	89	164
Underground	2	18	21	7	4	11	50	60	109
Rail	3	23	26	8	4	12	56	67	123
Vehicle drivers	6	53	59	18	11	29	186	223	410
Vehicle pass.	8	64	72	13	8	21	105	127	232
Total	**28**	**229**	**257**	**84**	**50**	**133**	**619**	**745**	**1,366**

*Note: possibility of rounding errors

7.2.17 The existing trip generation assessment suggests that the majority of trips by existing residents are made by car, with 59 two-way car trips in the AM peak, 29 two-way car trips in the PM peak and approximately 410 two-way car trips across the duration of the day.

7.3 SENSITIVITY TEST - EXISTING SITE

7.3.1 In order to determine whether the trip generation assessment for the existing site is appropriate, a sensitivity test has been undertaken using a different TRICS category to ensure that the selected trip rates and trip generation values used are robust.

7.3.2 The trip generation for the existing site presented within this TA utilised the TRICS category '03 / D - Affordable/Local Authority Flats', which is arguably the most representative land use based on the tenure of the existing site. However, as previously stated, there are a limited number of surveys within the TRICS database for this category which makes applying different selection parameters and filters difficult.

7.3.3 As a result, the TRICS category '03 / M - Mixed Private/Affordable Housing' will be used for the purpose of this sensitivity test as it is possible to apply more parameters to the filtering process.

7.3.4 The selected TRICS parameters for the sensitivity test for the existing site are presented below.

- Land use category: 03 - Residential
- Sub- Land use category: M - Mixed Private/Affordable Housing
- Area: Greater London
- PTAL: 1 to 3
- Public Transport Provision: 1 to 100 services available Monday to Friday 07:00 to 10:00
- Car Parking Spaces per Dwelling: 1.0 to 1.5

7.3.5 The TRICS data has been filtered to capture sites with a weekday public transport provision of less than 100 services available Monday to Friday between 07:00am to 10:00am. This is to reflect and account for the low frequency of public transport services in close proximity to the site, which is identified as being served by less than 45 services on a typical weekday between 07:00am to 10:00am - making public transport provision a representative parameter to apply.

7.3.6 The number of car parking spaces per dwelling has been filtered to identify sites with a ratio between 1.0 to 1.5, to reflect the existing car parking provision across the site.

7.3.7 Using the parameters set out above, only three sites were identified within the TRICS database, as summarised in **Table 7-5.**

Table 7-5: TRICS Review - Sensitivity Test Existing Site: Residential/Mixed Private Affordable

REFERENCE	LOCATION	SURVEY YEAR	DWELLINGS	PTAL	PARKING RATIO
EN-03-M-01	Enfield	22/06/2016	220	1b Very poor	1.1
EN-03-M-02	Enfield	12/10/2021	58	2 Poor	1.0
HD-03-M-05	Hayes	27/06/2017	261	1b Very poor	1.1

7.3.8 It is noted that the surveys are of sites with a parking ratio that is equal to or in excess of one space per dwelling, with a corresponding PTAL score of either 1b or 2.

EXISTING SITE - SENSITIVITY TEST TRIP GENERATION

7.3.9 The total person trip rates per dwelling and total person trips generated by the sensitivity test are shown in **Table 7-6**. The peak hours have been assumed as the typical network peaks, with the AM peak as 08:00am to 09:00am, evening peak as 17:00pm to 18:00pm and daily as 07:00am to 19:00pm.

Table 7-6: Existing Development Sensitivity Test - Total Person Trip Generation (192 Homes)

TRIPS	AM PEAK			PM PEAK			DAILY		
	In	Out	Total	In	Out	Total	In	Out	Total
Total person trips per home	0.178	0.840	1.018	0.330	0.200	0.530	3.234	3.620	6.854
Total person trips	**34**	**161**	**195**	**63**	**38**	**102**	**621**	**695**	**1316**

7.3.10 The mode share for the existing site sensitivity test will be again based on the TRICS data, with no adjustments made. The mode share extracted from TRICS is replicated in **Table 7-7**.

Table 7-7: Existing Site Sensitivity Test - TRICS Mode Share

MODE	AM PEAK HOUR	PM PEAK HOUR	DAILY
Pedestrians	17%	16%	16%
Cyclists	2%	1%	2%
Bus	8%	6%	7%
Underground / DLR	5%	3%	4%
Rail	6%	4%	5%
Vehicle drivers	38%	52%	47%
Vehicle passengers	24%	18%	19%
Total	**100%**	**100%**	**100%**

7.3.11 The mode share has then been applied to the total person trips generated by the existing trip generation sensitivity test assessment, with the resultant multi modal trip generation profile presented in **Table 7-8**. No adjustments have been made to the existing TRICS mode share.

Table 7-8: Existing Site Sensitivity Test – Multi Modal Trips*

MODE	AM PEAK HOUR			PM PEAK HOUR			DAILY		
	In	Out	Total	In	Out	Total	In	Out	Total
Pedestrians	6	27	33	10	6	16	99	111	211
Cyclists	1	3	4	1	0	1	12	14	26
Bus	3	13	16	4	2	6	43	49	92
Underground/DLR	2	8	10	2	1	3	25	28	53
Rail	2	10	12	3	2	4	31	35	66
Vehicle drivers	13	61	74	33	20	53	292	327	619
Vehicle passengers	8	39	47	11	7	18	118	132	250
Total	**34**	**161**	**195**	**63**	**38**	**102**	**621**	**695**	**1,316**

*Note: possibility of rounding errors

7.3.12 A comparison between the multi modal trip generation for the existing site (TRICS category '03 / D - Affordable/Local Authority Flats' presented in **Table 7-4**) and the sensitivity test for the existing site (TRICS category '03 / M - Mixed Private/Affordable Housing', presented in **Table 7-8**) is provided in **Table 7-9**.

Table 7-9: Trip Generation Comparison: Existing Site vs Sensitivity Test*

MODE	AM PEAK HOUR			PM PEAK HOUR			DAILY		
	In	Out	Total	In	Out	Total	In	Out	Total
Pedestrians	1	-9	-8	-14	-8	-22	-37	-53	-90
Cyclists	0	1	1	-2	-1	-3	0	-1	-1
Bus	-1	-19	-20	-7	-4	-11	-31	-41	-72
Underground/DLR	-1	-10	-11	-5	-3	-8	-25	-32	-57
Rail	-1	-13	-14	-5	-3	-8	-25	-32	-57
Vehicle drivers	7	9	15	15	9	24	106	103	209
Vehicle passengers	0	-25	-25	-2	-1	-3	13	5	18
Total	**6**	**-68**	**-62**	**-20**	**-11**	**-31**	**2**	**-50**	**-50**

*Note: possibility of rounding errors

7.3.13 The trip generation comparison shows that whilst in overall trip generation terms the sensitivity test results in less total person trips than the trip generation methodology using TRICS category 03 / D - Affordable/Local Authority Flats, it is more intensive in terms of vehicle trips, with an increase of 15 two-way vehicle trips in the AM peak, 24 two-way vehicular trips in the PM peak and 209 two-way vehicle trips across the duration of the day.

7.3.14 As the methodology using TRICS category 03 / D - Affordable/Local Authority Flats is less intensive in terms of vehicle trips, it is proposed to utilise this approach for the Traffic Impact Assessment, as it is likely a conservative estimation of the vehicle trip generation for the existing site and therefore is considered as robust, as any uplift associated with the proposed development will be more apparent.

7.4 PROPOSED NON-RESIDENTIAL TRIP GENERATION METHODOLOGY

COMMUNITY SPACE

7.4.1 The community space proposed is intended to replace the existing Ham Community Centre. As the community space provision is a reprovision and improvement of the existing space serving the local community, it is considered that trips will largely be local pedestrian trips already taking place on the footway network.

7.4.2 As a result, the community space is to be excluded from the trip generation assessment.

MAKER LABS

7.4.3 The proposed Maker Labs use is being provided to replace the existing provision on the site. Again, as per the Community Centre, the trips generated by this land use will typically be local and already on the network.

7.4.4 On that basis, the Maker Labs component is to be excluded from the trip generation assessment.

7.5 PROPOSED RESIDENTIAL TRIP GENERATION METHODOLOGY

7.5.1 To assess the proposed residential travel demand the TRICS database was interrogated to derive the total person trip rates that would be associated with the proposed development. TRICS survey sites were selected based on the following criteria:

- Land use category: 03 - Residential
- Sub- Land use category: M - Mixed Private/Affordable Housing
- Area: Greater London
- PTAL: 1 to 3
- Public Transport Provision: 1 to 100 services available Monday to Friday 07:00 to 10:00
- Car Parking Spaces per Dwelling: 0.5 to 1.0

7.5.2 In order to provide a consistent assessment, trip rates per dwelling will be used to determine the uplift associated with the proposed development.

7.5.3 The TRICS category '03/M – Mixed Private/Affordable Housing' was selected to reflect the proposed tenure, which is split approximately 50:50% between affordable and market dwellings. The use of this land use category is in accordance with the TRICS User Guide 'Land Use Definitions', which suggests that this classification can only be used where there is less than a 75% dominance of either affordable or market housing.

7.5.4 In order to capture the low accessibility of the site, the TRICS data has been filtered to only incorporate sites within a range of PTAL 1 to 3. However, within this initial filtering process, a number of the remaining sites were located in close proximity or walking distance to public transport services that were not accurately accounted for within the PTAL assessment.

7.5.5 The TRICS data has been filtered further to capture sites with a weekday public transport provision of less than 100 total services available Monday to Friday between 07:00am to 10:00am, assuming 400m distance for bus/tram services and 1km distance for rail services. This is to reflect and account for the low frequency of public transport services in close proximity to the site, which is identified as being served by less than approximately 45 services on a typical weekday between 07:00am to 10:00am - making public transport provision a representative parameter to apply.

7.5.6 To account for the parking provision across the site, the TRICS data was filtered to only include schemes with a parking spaces per dwelling ratio between 0.5 to 1.0 car parking spaces per dwelling.

7.5.7 Using the methodology discussed above, a total of two sites were identified within the TRICS database, as summarised in **Table 7-10**.

Table 7-10: TRICS Review - Residential / Mixed Private/Affordable Housing

REFERENCE	LOCATION	SURVEY YEAR	DWELLINGS	PTAL	PARKING RATIO
EN-03-M-02	Enfield	12/10/2021	58	2 Poor	1.0
RD-03-M-01	Richmond	10/03/2016	76	1a Very Poor	0.92

7.5.8 By applying the selected TRICS parameters, it is noted that one of the surveys was for a site located at Williams Lane, Richmond, which is in a PTAL 1a location with a car parking ratio of less than 1 space per dwelling.

7.5.9 For completeness, a copy of the TRICS output files is provided at **APPENDIX H**.

PROPOSED RESIDENTIAL TRIP GENERATION

7.5.10 The TRICS sites have been used to estimate trip generation for the proposed 452 residential homes.

7.5.11 The total person trip rates and total person trips generated are shown in **Table 7-11**. The peak hours have again been assumed as the typical network peaks, with the AM peak as 08:00am to 09:00am, PM evening peak as 17:00pm to 18:00pm and daily as 07:00am to 19:00pm.

Table 7-11: Proposed Development Total Person Trip Generation (452 Homes)

TRIPS	AM PEAK			PM PEAK			DAILY		
	In	Out	Total	In	Out	Total	In	Out	Total
Total person trips per home	0.194	0.779	0.993	0.448	0.336	0.784	3.483	3.725	7.208
Total person trips	**88**	**352**	**449**	**202**	**152**	**354**	**1,574**	**1,684**	**3,258**

7.5.12 **Table 7-11** shows that the proposed development could generate a total of 449 two-way total person trips in the AM peak, 354 two-way total person trips in the PM peak, and a total of 3,258 total person trips across the day.

7.5.13 The mode share for the proposed residential will be based on the TRICS data, with no adjustments made. The mode share extracted from TRICS is replicated in **Table 7-12.**

Table 7-12: Proposed Residential - Calculated TRICS Mode Share

MODE	AM PEAK HOUR	PM PEAK HOUR	DAILY
Pedestrians	35%	30%	25%
Cyclists	2%	1%	1%
Bus	10%	6%	7%
Underground / DLR	5%	3%	4%
Rail	7%	4%	5%
Vehicle drivers	23%	40%	39%
Vehicle passengers	18%	16%	19%
Total	**100%**	**100%**	**100%**

7.5.14 The resulting proposed residential travel demand by all modes is shown in **Table 7-13**.

Table 7-13 : Proposed Development - Forecast Trip Generation*

MODE	AM PEAK HOUR			PM PEAK HOUR			DAILY		
	In	Out	Total	In	Out	Total	In	Out	Total
Pedestrians	31	123	157	61	46	106	394	421	815
Cyclists	2	7	9	2	2	4	16	17	33
Bus	9	35	45	12	9	21	110	118	228
Underground/DLR	4	18	22	6	5	11	63	67	130
Rail	6	25	31	8	6	14	79	84	163
Vehicle drivers	20	81	103	81	61	142	614	657	1,271
Vehicle passengers	16	63	81	32	24	57	299	320	619
Total	**88**	**352**	**449**	**202**	**152**	**354**	**1,574**	**1,684**	**3,258**

*Note: possibility of rounding errors

7.5.15 The assessment shows that the proposed development would generate 103 two-way vehicular trips across the AM peak, 142 two-way vehicle trips in the PM peak and 1,271 two-way vehicle trips across the day.

7.6 NET CHANGE

7.6.1 The forecasted net change in travel demand between full occupation of the existing residential use and proposed development is shown in **Table 7-14**.

Table 7-14: Forecast Net Change in Travel Demand - Existing vs Proposed Development*

MODE	AM PEAK HOUR			PM PEAK HOUR			DAILY		
	In	Out	Total	In	Out	Total	In	Out	Total
Pedestrians	26	87	116	37	31	68	257	257	514
Cyclists	1	5	6	0	0	0	3	2	5
Bus	5	3	9	1	3	4	36	28	64
Underground/DLR	2	-1	2	-1	1	0	13	8	21
Rail	3	2	6	1	2	2	23	17	40
Vehicle drivers	14	28	44	63	50	112	428	433	861
Vehicle passengers	8	-1	9	19	16	35	194	193	387
Total	**60**	**123**	**192**	**119**	**102**	**221**	**955**	**939**	**1,892**

*Note: possibility of rounding errors

7.6.2 The net change assessment suggests that overall, the proposed development will result in an increase in total person trips, with an uplift of 192 two-way total person trips in the AM peak, 221 two-way total person trips in the PM peak and 1,892 two-way total person trips over the duration of the day.

7.6.3 In terms of vehicle trip generation, the assessment suggests that the proposed development will result in an uplift of 44 two-way vehicle trips in the AM peak, 112 two-way vehicle trips in the PM peak and 861 two-way vehicle trips across the day.

7.7 TRIP GENERATION SUMMARY

7.7.1 In summary, the proposed development is more intensive in terms of total person trips and total vehicle trips than the existing site use.

7.7.2 The implications of the uplift in total person trips will be discussed within Section 9 of this TA, with the implications of the uplift in vehicle trips discussed within Section 11 of this TA.

8 SERVICING TRIPS

8.1 OVERVIEW

8.1.1 This section of the TA will set out the anticipated level of servicing demand for the site.

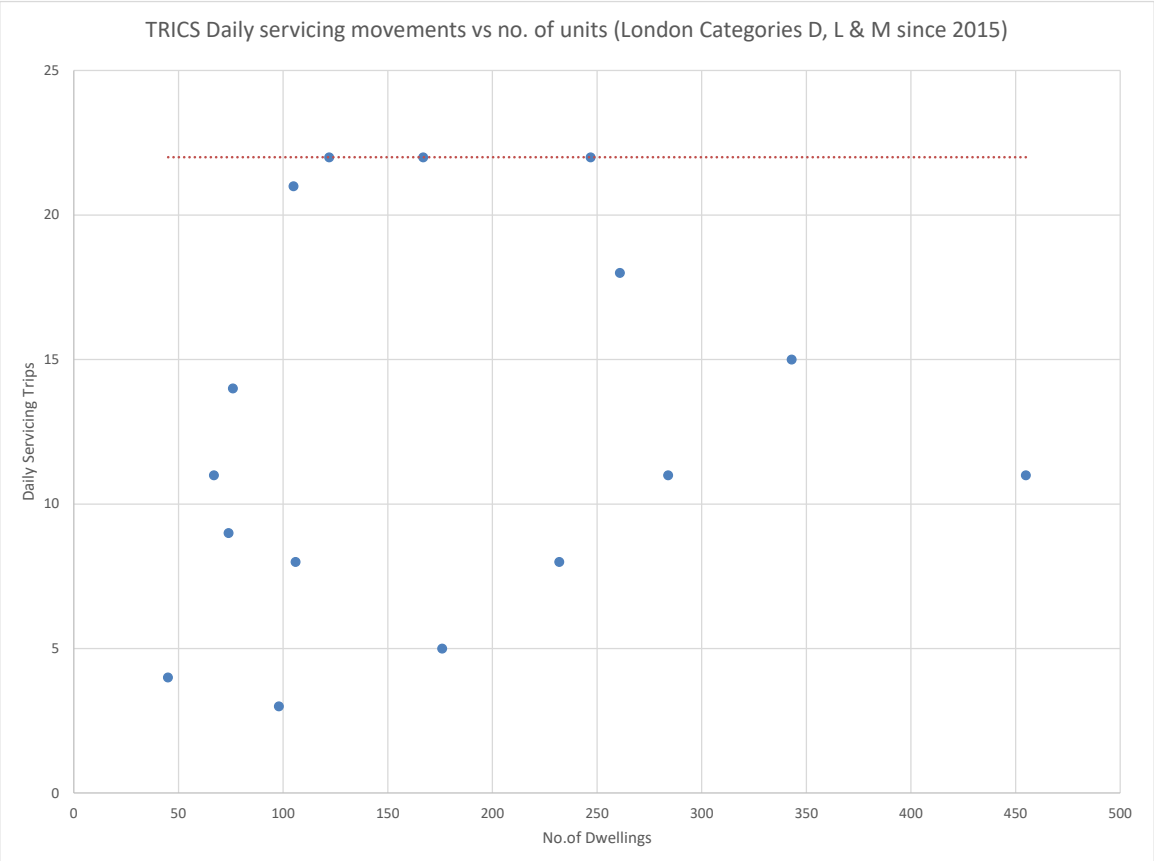
8.2 RESIDENTIAL SERVICING DEMAND

8.2.1 It is noted that residential servicing demand is typically calculated using TRICS survey data to develop a per dwelling/bedroom trip rate, which is then applied to the total number of homes or bedrooms to estimate the anticipated levels of servicing activity associated with the site.

8.2.2 However, as part of a study commissioned by the London Borough of Southwark (LBS), VTP have sought to investigate the recent residential servicing surveys within the TRICS database to understand how the trends and shift in home deliveries translates into servicing trips.

8.2.3 A total of 16 sites were selected as relevant and comparable to the proposed development, ranging from 50 dwellings to 500 dwellings. A scatter graph of this analysis is shown in **Figure 8-1** and the selected sites' TRICS database references are provided in **APPENDIX I**.

Figure 8-1: Residential servicing movements by number of units for TRICS surveys in London since 2015



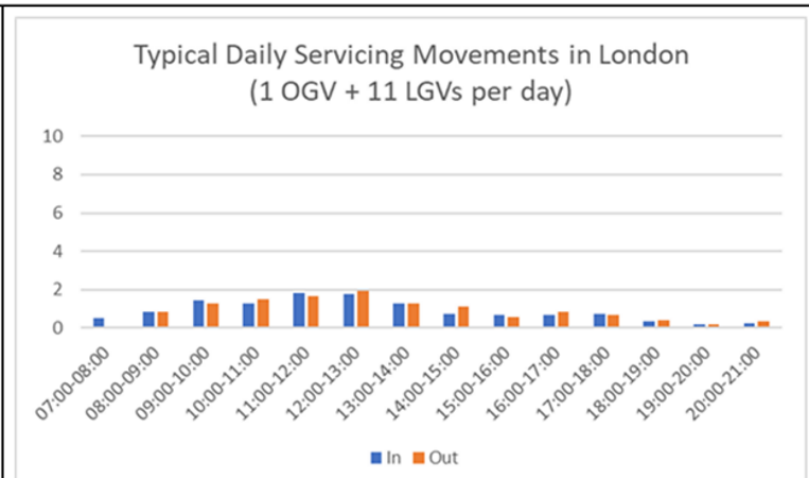
8.2.4 The spread of data in the scatter graph demonstrates there is no relationship between the number of residential homes and the resultant number of servicing trips. Instead, the surveys show that irrespective of development size, residential developments generate, on average (mean, median and mode), 12 servicing vehicle arrivals per day and no more than 22 servicing vehicle arrivals per day (with c.92% of deliveries by LGV and 8% by OGV).

8.2.5 This is entirely logical given that the vast majority of regular delivery and servicing trips are undertaken by a handful of operators (The Post Office, DPD, Amazon, DHL, etc.), who organise their deliveries so that they only make one trip to an area per day rather than multiple trips. Similarly, supermarkets organise their deliveries so that customers can only book a slot if it works conveniently with the other deliveries they are making in the local area.

8.2.6 The resultant average daily number of servicing trips, as well as the daily arrival and departure profile for a typical residential site is presented below in **Figure 8-2.**

Figure 8-2: Typical Daily Residential Servicing Profile

Time	Delivery Trips	
	In	Out
07:00-08:00	1	0
08:00-09:00	1	1
09:00-10:00	1	1
10:00-11:00	1	2
11:00-12:00	2	2
12:00-13:00	2	2
13:00-14:00	1	1
14:00-15:00	1	1
15:00-16:00	1	1
16:00-17:00	1	1
17:00-18:00	1	1
18:00-19:00	0	0
19:00-20:00	0	0
20:00-21:00	0	0
Total	**12**	**12**



**Note: numbers may not sum due to rounding.*

8.2.7 The data suggests that the proposed development would typically generate 12 servicing vehicles each day. Even if the upper limit of 22 servicing vehicles is considered for the proposed development, this equates to no more than two servicing vehicles per hour and is likely comparable to the existing levels of servicing activity currently taking place across the site.

8.2.8 Based on the TRICS data available, it is considered that the trends observed within the data could be applied to the servicing demand for both the existing and proposed site, suggesting there will be no significant change in servicing activity in the future scenario when the proposed development is in operation.

9 NETWORK IMPACT

9.1 OVERVIEW

9.1.1 This section of the TA will assess the network impact of the proposed development on the surrounding transport network and will identify, if required, the appropriate mitigation measures.

9.1.2 It is acknowledged that the TfL Healthy Streets guidance material requests for TAs to undertake an assessment of the 'London Wide' network impacts. However, due to the scale of the proposed development, it is not considered to be of significant scale to generate 'London Wide' network impacts.

9.1.3 On that basis, it is proposed to undertake an assessment of the local transport impacts which are outlined below.

9.2 PEDESTRIAN NETWORK

9.2.1 In terms of pedestrian trips, the proposed development would result in an uplift of 116 two-way pedestrian trips in the AM peak and 68 two-way pedestrian trips in the PM peak from the existing site.

9.2.2 It is also acknowledged the proposed development would also result in a number of linked pedestrian trips through public transport use - namely bus trips.

9.2.3 Whilst it is noted that some public transport trips may be linked to cycling trips, as a robust assumption and assuming all public transport trips are linked to pedestrian trips, this could generate an additional 16 two-way pedestrian trips in the AM peak and six two-way pedestrian trips in the PM peak.

9.2.4 The cumulative pedestrian impact from the proposed development could therefore total to up to 132 two-way pedestrian trips in the AM peak and 74 two-way pedestrian trips in the PM peak, which equates to under three additional pedestrians a minute within the surrounding area.

9.2.5 Overall, it is not considered this level of pedestrian trip generation is significant enough to require any further mitigation, with the existing network appropriate to accommodate this uplift

9.2.6 This conclusion is validated by the findings of the ATZ assessment, which found that the majority of the Healthy Streets indicators were being met already within the local area. Reference is also made to the proposed public realm improvements within the site and the provision of an improved east to west pedestrian link through the site, improving pedestrian permeability within the area.

9.3 CYCLING NETWORK

9.3.1 The proposed development could initially result in an uplift of nine two-way cycling trips in the AM peak from the existing site. It is noted that there could also be an amount of cycling trips linked to public transport rail trips.

9.3.2 As a highly robust assumption and assuming all rail/underground trips are associated with linked cycle trips, this could generate an additional eight two-way cycling trips in the AM peak and two two-way cycling trips in the PM peak.

9.3.3 The cumulative cycling impact from the proposed development could therefore equate to up to 14 additional two-way cycle trips in the AM peak and two additional two-way cycle trips in the PM peak.

9.3.4 Overall, it is not considered this level of trip generation is significant enough to require any further mitigation, with this equating to less than one additional cyclist per minute across the peak hours.

9.3.5 To support cycling from the site, cycle parking will be provided in accordance with the London Plan (2021) requirements. In addition, the proposed public realm and permeability improvements allowed for within the masterplan will provide additional amenity for cyclists.

9.3.6 The supporting draft Travel Plan will seek to increase the proportion of cycling trips from the site at the expense of car driver trips which is in accordance with the ambitions of the Mayor's Transport Strategy. Details of the targets, strategy and measures to deliver this mode shift are outlined within the draft Travel Plan.

9.4 PUBLIC TRANSPORT NETWORK

BUS IMPACT

9.4.1 The proposed development could result in an uplift of nine bus trips in the AM peak and four two-way bus trips in the PM peak from the existing site.

9.4.2 The bus stop in close proximity to the site is located on Ashburnham Road which is served by the 371 service, providing a service frequency of approximately seven buses per hour in both directions towards Richmond in the north and Kingston in the south. For robustness, it is assumed that all bus trips from the site will utilise the 371 service, although in reality a small proportion may utilise the K5 service towards Morden and South London.

9.4.3 Due to both locations providing similar pull factors in terms of employment, leisure and education opportunities it is assumed that the distribution of the bus trips from the site on the 371 service will be split equally in both directions.

9.4.4 However, it is also acknowledged that a portion of the rail/underground trips may at some point be linked to bus trips, particularly those trips to Richmond Station or Kingston Station which are served by the 371 service. Whilst it is acknowledged that Teddington Station is in closer proximity to the site and has a shorter journey time, this station requires an approximate 15 minute walk at the start of the journey before getting on the 285 bus which could be difficult for vulnerable road users.

9.4.5 To ensure the assessment is inclusive and appropriate for all users who may not be able to walk this distance, it is proposed to assume that all trips will go to/from either Richmond Station or Kingston Station. It is assumed that both of these stations could be utilised relatively evenly as they serve a number of wider locations, including Central London.

9.4.6 As a robust assumption for the purpose of this assessment, it will initially be assumed that all of the rail/underground trips will be at some point bus trips.

9.4.7 Due to the distance of the site from the London Underground Network at Richmond Station, it is proposed to combine both London Underground and Rail trips together.

9.4.8 By assuming that both the northbound and southbound directions of the 371 service are utilised equally at 50% each, this would provide an additional five bus arrivals and six bus departures in the AM peak and five bus arrivals and two bus departures in the PM peak onto each direction of the 371. A summary of the cumulative bus network impact is provided in **Table 9-1**.

Table 9-1: Bus Network Impact*

TRIPS	AM PEAK HOUR			PM PEAK HOUR		
	In	Out	Total	In	Out	Total
Bus Trips	5	3	9	2	2	4
Linked Bus Trips (Rail/Underground Trips)	6	1	8	0	2	2
Total	**10**	**4**	**16**	**1**	**5**	**6**
371 (Northbound)	5	2	8	1	2	3
371 (Southbound)	5	2	8	1	2	3

*Note: possibility of rounding errors

9.4.9 In total, this equates to eight additional passengers onto each direction of the 371 service across the AM peak hour and three additional passengers across the PM peak hour.

9.4.10 As there are approximately seven buses per hour in each direction on the 371 service, this uplift would equate to just over one additional passenger per bus across the peak hours.

9.4.11 It is likely that the existing capacity on the 371 service is sufficient to accommodate just over one additional passenger per service across the peak hours and therefore no mitigation is likely to be required.

RAIL/UNDERGROUND IMPACT

9.4.12 The proposed development could result in an uplift of eight two-way additional rail/underground trips in the AM peak and two two-way additional rail/underground trips in the PM peak from the existing site.

9.4.13 By utilising the assumption noted above that both Kingston Station and Richmond Station are utilised equally, this would equate to four additional two-way trips in the AM peak and one additional two-way trip in the PM peak to both stations. There may also be a number of trips that utilise Teddington Station.

9.4.14 Overall, this equates to just under one additional passenger every ten minutes to each station, spread across both National Rail and London Underground services. This level of uplift is considered to be negligible and well within daily levels of fluctuation, with no mitigation considered to be required.

9.5 VEHICULAR IMPACT

9.5.1 The proposed development could result in an uplift of 44 two-way vehicle trips during the AM peak and up to 112 two-way vehicle trips during the PM peak.

9.5.2 Following feedback from LBRuT with Pages 15-16 of the EIA Scoping Opinion, dated 6th January 2022, it was requested that a traffic impact assessment for the proposed development was undertaken to determine the traffic impacts on the local network.

9.5.3 In order to assess the vehicular impacts of the proposed development, a traffic impact assessment has been undertaken in accordance with LBRuT's request. The methodology of the traffic impact assessment is discussed within Section 10 of this TA, with the resultant junction capacity modelling provided within Section 11 of this TA.

9.5.4 It is noted that the proposed development will see the closure of Ham Close to potential through traffic, however based on the observed traffic survey data and low volumes of traffic using Ham Close, it is likely that the impact of this closure will be negligible. It is also considered that Ham Close does not provide an attractive through route to any key destinations and is unlikely to be used frequently, if at all.

9.5.5 It is acknowledged that there may be a minimal amount of vehicular activity associated with servicing of the site, however as discussed within Section 8, it is likely that this uplift will be minimal from the existing situation due to logistics and delivery providers seeking efficiencies in their delivery algorithms.

9.5.6 To further mitigate any associated impacts of servicing, an outline DSP will be provided in support of the application, with a detailed DSP being secured by way of condition.

9.6 NETWORK IMPACT SUMMARY AND KEY POINTS

- In regard to pedestrian and cyclist trips, it is considered that the trips generated by the proposed development will be negligible and will not require further mitigation.
- The local public transport network is considered to be appropriate to accommodate the uplift from the proposed development, with the impacts likely indiscernible from the daily levels of fluctuation.
- In summary, the multi modal network impact of the proposed development is considered to be negligible, with no significant additional mitigation needed to make the development acceptable in transport terms.
- As requested by LBRuT, a detailed assessment of the vehicular impacts has been undertaken, with the methodology outlined within Section 10 and the results presented in Section 11. Any required mitigation to accommodate the uplift in vehicle trips will be discussed within Section 11.

10 TRAFFIC IMPACT ASSESSMENT

10.1 OVERVIEW

10.1.1 This section discusses the scope of the traffic impact assessment to determine the impact of the proposed development on the wider highway network.

10.2 REQUESTED SCOPE

10.2.1 Pages 15-16 of the LBRuT EIA Scoping Opinion, dated 6th January 2022, requested that the traffic impact assessment for the proposed development should comprise of the following:

- A multi modal TRICS based trip generation assessment to determine the number of total person trips from the site, with a 2011 census-based method of travel to work based analysis to determine the mode share of vehicle trips.
- Trip distribution from the site using 2011 census method of travel to work data.
- A threshold of 30 two-way vehicle trips in the AM/PM peak hour to determine whether junction modelling is required.
- As there are no appropriate committed developments for inclusion, the use of TEMPRO growth factors to assess a future year (with Development) of 2027 for any capacity assessments.
- Initial junction capacity assessments at the following junctions:
    - Access junction north of Ashburnham Road, west of the clinic;
    - Ashburnham Road / Ham Street;
    - Wiggins Lane / Ham Street; and
    - Ham Common / A307 Petersham Road.
- Mitigation required at any junctions where the ratio of flow to capacity (RFC) exceeds 0.85.

10.3 PROPOSED METHODOLOGY

10.3.1 It is noted that LBRuT have suggested a threshold of 30 two-way vehicle at a junction in the AM and/or PM peak hour to require further detailed assessment.

10.3.2 In order to inform the distribution of the traffic from the proposed development on the local network and to determine where this threshold is reached, a series of traffic surveys have been undertaken on the local network to inform the site specific distribution.

10.3.3 In particular, it is considered that the distribution of local traffic from the properties at Ham Close, Sheridan Road, Mowbray Road, Stuart Road and Stretton Road would all be comparable and representative of the future traffic distribution from the proposed development, as the properties are located in close proximity to the site and would utilise a similar driving route to local destinations.

10.3.4 With respect to Stuart Road and Stretton Road, it is acknowledged that there is access to Riverside Drive in the west via Link Way and Willow Bank, however it is considered that the alternative routes to the west are convoluted, and drivers are more likely to route to the west via Woodville Road.

10.3.5 The traffic surveys were undertaken on 1st February 2022 over a 12 hour (07:00am-19:00pm) period, with the survey window agreed with LBRuT prior to the surveys taking place. The surveys also collected video footage to capture queue lengths which will be used to calibrate any junction modelling undertaken. Due to size, a copy of the raw traffic survey data is available upon request.

10.3.6 The following junctions were captured within the survey scope:

- Junction 1 - Ham Close / Woodville Road / Stuart Road;
- Junction 2 - Ham Close / Woodville Road / Stretton Road;
- Junction 3 - Ham Street / Sandy Lane;
- Junction 4 - Wiggins Lane / Ham Street;
- Junction 5 - Ashburnham Road / Ham Street;
- Junction 6 - Ham Close / Ashburnham Road / Mowbray Road;
- Junction 7 - Ham Close / Ashburnham Road / Sheridan Road; and
- Junction 8 - A307 Petersham Road / Sandy Lane.

10.3.7 For completeness, a plan showing the location of the junctions surveyed in provided below in **Figure 10-1**.

Figure 10-1: Proposed Junction Survey Locations

10.4 DSITRIBUTION

10.4.1 From the site access, it is proposed to use the average overall morning (07:00am-10:00am) and evening (16:00pm-19:00pm) distribution from the nearby junctions on the network to determine the proportion of traffic travelling to the east via Ham Street and to the west via Riverside Drive.

10.4.2 A detailed assessment of the distribution of observed traffic from the nearby access junctions is provided at **APPENDIX J**.

10.4.3 The assessment observed the following distribution from the nearby access points:

- AM peak hour: 37% via the West and 63% via the east; and
- PM peak hour: 51% via the West and 49% via the east.

10.4.4 As there are access points from the proposed development onto both Ashburnham Road and Woodville Road and once all phases are built there will be direct access onto both roads via the basement, it will be assumed that the additional traffic generated by the proposed development will be distributed equally onto each road (50% onto Woodville Road and 50% onto Ashburnham Road). This approach is considered as robust as it allows for flexibility in the access arrangements and layout of the basement.

10.4.5 Further away from the site access points and as the development traffic impacts the local road network, it is proposed to utilise the observed peak hour traffic distribution at each junction to generate the distribution profile for the proposed development.

10.4.6 It is noted that the proposed development will result in the closure of Ham Close to potential through traffic, however based on the observed traffic survey data, it currently has negligible use as a through route. For robustness, rather than distributing this small amount of traffic elsewhere within the local network, it is proposed to retain it on the network (where appropriate) so it is still considered within the junction capacity assessments.

10.4.7 For completeness, the AM peak hour distribution profile is provided at **Diagram 1** of **APPENDIX K**, with the PM peak hour distribution profile presented at **Diagram 2** of **APPENDIX K**.

10.5 TRAFFIC NETWORK IMPACT

10.5.1 The proposed development would result in an uplift of 44 two-way vehicle trips during the AM peak and up to 112 two-way vehicle trips during the PM peak.

10.5.2 By applying the total uplift in vehicle trips to the observed distribution profile, it is possible to determine which junctions exceed the 30 two-way peak hour vehicle trip threshold set by LBRuT.

10.5.3 It is noted that at the time of the surveys, approximately 89% of the existing properties across the site were occupied. It is therefore appropriate to assess the net impact, as the majority of the traffic associated with the existing site is considered to already be accounted for on the network.

10.5.4 The development traffic flows for the proposed development are provided within **Diagram 3** of **APPENDIX K** for the AM peak and **Diagram 4** of **APPENDIX K** for the PM peak.

10.5.5 **Table 10-1** summarises the two-way vehicular impact of the proposed development on the local transport network.

Table 10-1: Proposed Development Vehicle Impact by Junction

JUNCTION	TWO-WAY VEHICULAR TRIPS			
	AM	EXCEEDS THRESHOLD	PM	EXCEEDS THRESHOLD
J1 - Site Access (North) Ham Close / Woodville Road / Stuart Road	21	No	56	Yes

JUNCTION	TWO-WAY VEHICULAR TRIPS			
	AM	EXCEEDS THRESHOLD	PM	EXCEEDS THRESHOLD
J2 - Ham Close / Woodville Road / Stretton Road	13	No	27	No
J3 - Ham Street / Sandy Lane	21	No	43	Yes
J4 - Wiggins Lane / Ham Street	24	No	49	Yes
J5 - Ashburnham Road / Ham Street	16	No	33	Yes
J6 - Site Access (South) Ham Close / Ashburnham Road	21	No	56	Yes
J7 - Ham Close / Ashburnham Road / Sheridan Road	8	No	29	No
J8 - A307 Petersham Road / Sandy Lane	21	No	43	Yes
J9 - Ham Common / A307 Petersham Road (Requested by LBRuT)	4	No	6	No

10.5.6 It is noted that to the west, the maximum two-way vehicular impact reaches 29 two-way vehicles, meaning that the proposed development does not trigger the 30 two-way vehicle trip threshold set by LBRuT. As shown in **Table 10-1**, the following junctions exceed the 30 two-way vehicle trip threshold and require detailed capacity assessments:

- Junction 1 - Site Access (North) Ham Close / Woodville Road / Stuart Road (PM peak);
- Junction 3 - Ham Street / Sandy Lane (PM peak);
- Junction 4 - Wiggins Lane / Ham Street (PM peak);
- Junction 5 - Ashburnham Road / Ham Street (PM peak);
- Junction 6 - Site Access (South) Ham Close / Ashburnham Road (PM peak); and
- Junction 8 - A307 Petersham Road / Sandy Lane (PM peak).

10.6 COMMITTED DEVELOPMENTS AND ASSESSMENT YEAR

10.6.1 Page 16 of the LBRuT EIA Scoping Opinion states that:

> *"Regarding background traffic growth, there are no major committed developments within the Ham area. Therefore, TEMPRO should be used to get the level of forecast background traffic growth between the base year, the opening year, and the final year."*

10.6.2 As there are no committed developments for inclusion in the assessment, it is proposed to growth observed traffic using TEMPRO growth factors. In accordance with the (now superseded) Department for Transport 'Guidance on Transport Assessments' (2007), it is proposed to assess a future year no less than five years from the application being submitted.

10.6.3 TEMPRO growth factors will be used reach a future year of 2027 in accordance with this guidance. For completeness, the TEMPRO growth factors for Richmond upon Thames 017 are replicated below:

- 2022 to 2027 AM peak: 1.0399; and
- 2022 to 2027 PM peak: 1.0416.

10.6.4 It is considered that the use of TEMPRO is robust, as the 452 homes proposed on the site would already be accounted for within TEMPRO, as the site is identified and allocated within the LBRuT Local Plan (2018) as 'Site Allocation 15: Ham Close'. The proposed approach therefore overestimates the background growth by 'double-counting' the proposed development and providing a robust assessment.

10.6.5 As requested by LBRuT, the following scenarios will be considered for assessment, with traffic flow diagrams contained at (**APPENDIX K**):

- Observed 2022 (**Diagram 5** and **Diagram 6**);
- Observed 2022 + Development (**Diagram 7**);
- Base 2027 (**Diagram 8**); and
- Base 2027 + Development (**Diagram 9**).

10.7 METHODOLOGY COMPARISON AND SUMMARY

10.7.1 For completeness, **Table 10-2** below provides a comparison between the requested LBRuT traffic impact assessment methodology and the methodology that is proposed to be used.

10.7.2 Where the proposed methodology differs from the methodology requested by LBRuT, justification will be provided as to why this decision has been made.

Table 10-2: LBRuT Traffic Impact Assessment Methodology Comparison Vs Proposed Methodology

COMPONENT	REQUESTED LBRUT METHODOLOGY	PROPOSED VTP METHODOLOGY	JUSTIFICATION
Trip Generation	TRICS based assessment using 2011 census method of travel to work data to derive mode share for car trips	TRICS based assessment using mode share within the TRICS data to derive the number of car trips	TRICS mode share used as this is more comprehensive and captures the mode share for trips outside of commuting e.g. leisure, education, shopping.
Trip Distribution	Based on 2011 census method of travel to work data	Trip distribution based on observed traffic flows within the local area that are considered as being reflective of the distribution for the current and future residents of the proposed development.	The use of observed traffic data captures local site-specific nuances within the road network, as well as accounting for the distribution of workplace trips as well as other trip purposes, including education, leisure and shopping.
Impact Threshold	30 two-way vehicle movements in AM/PM peak hour	30 two-way vehicle movements in AM/PM peak hour	Methodology consistent
Traffic Data	Use of observed traffic survey data	Use of observed traffic survey data, undertaken in 2022 to reflect year of application	Methodology consistent
Scope of Assessment	Total of four junctions	Total of six junctions	All junctions requested by LBRuT incorporated within the assessment, with the exception of the Ham Common / A307 Petersham Road, as the impact threshold of 30 two-way vehicles during a peak hour has not been met. However, the VTP methodology incorporates additional junctions for assessment based on the trip distribution exercise and

COMPONENT	REQUESTED LBRUT METHODOLOGY	PROPOSED VTP METHODOLOGY	JUSTIFICATION
			impact threshold requested by LBRuT.
Growth Factors and Assessment Scenarios	Use of TEMPRO growth factors to reach future year of 2027	Use of TEMPRO growth factors to reach future year of 2027	Methodology consistent
Threshold for Mitigation	RFC of 0.85 and above to require mitigation	RFC of 0.85 and above to require mitigation	Methodology consistent

11 JUNCTION CAPACITY ASSESSMENTS

11.1 OVERVIEW

11.1.1 This section of the report provides the 'Local Borough Analysis' section of the Healthy Streets TA, presenting the results of the junction capacity assessments using the scope and methodology discussed within Section 10.

11.1.2 The following junctions are assessed within this section:

- Junction 1 - Site Access (North) Ham Close / Woodville Road / Stuart Road (PM peak);
- Junction 3 - Ham Street / Sandy Lane (PM peak);
- Junction 4 - Wiggins Lane / Ham Street (PM peak);
- Junction 5 - Ashburnham Road / Ham Street (PM peak);
- Junction 6 - Site Access (South) Ham Close / Ashburnham Road (PM peak); and
- Junction 8 - A307 Petersham Road / Sandy Lane (PM peak).

11.2 RESULT INTERPRETATION

11.2.1 The junction capacity modelling has been undertaken using the industry standard software, Junctions 10; with the PICADY module used for assessing priority junctions and the ARCADY module used in the assessment of both standard and mini roundabouts.

11.2.2 Junctions 10 assesses the capacity of a junction through Ratio of Flow to Capacity (RFC), with a junction being deemed to reach practical capacity when it reaches 0.85. However, in more congested scenarios an RFC value of 1.0 is deemed to be the theoretical limit of acceptable operation. An RFC value below 0.85 generally means the junction will operate with additional capacity.

11.2.3 As requested by LBRuT, any junction that exceeds an RFC of 0.85 will require mitigation.

11.2.4 'Queue' refers to the number of Passenger Car Units (PCUs) that may be queueing at each arm, with one PCU generally equating to one car or an effective length of 5.75m per PCU.

11.2.5 'Delay' refers to the time delay in seconds that drivers will face at each arm waiting to turn in/out.

CALIBRATION AND ASSESSMENT PARAMETERS

11.2.6 In accordance with best practice and the Junctions 10 User Guide, the model outputs has been calibrated against the observed flows, queues and delay, in order to ensure that the modelling undertaken appropriately reflects the true operation of the junctions assessed.

11.2.7 Geometric parameters for the base models has been calculated using AutoCAD measurements taken from an Ordnance Survey base, in accordance with the Junctions 10 User Guide.

11.2.8 Where the observed junctions appear to show significant capacity and the RFCs are low, it is proposed to assess the worst-case scenario only, which is considered as being the Base 2027 + Proposed Development scenario. If the junction operates with spare residual capacity without the need for mitigation in this scenario, then it is likely that the junction will continue to operate efficiently in the future year with the addition of the proposed development.

11.2.9 For completeness, the model measurements used are provided within **APPENDIX L** and the Junctions 10 Output Files are provided at **APPENDIX M**.

11.3 JUNCTION 1: NORTHERN SITE ACCESS / WOODVILLE ROAD / STUART ROAD

11.3.1 The results of the junction modelling for the Ham Close (Northern Site Access) / Woodville Road / Stuart Road junction is provided in **Table 11-1**.

Table 11-1: Ham Close (Northern Site Access) / Woodville Road / Stuart Road Modelling Results

SCENARIO	STREAM	PM PEAK HOUR		
		QUEUE	DELAY	RFC
Observed 2022	Stream B-ACD	0.0	7.05	0.01
	Stream A-BCD	0.0	6.16	0.02
	Stream D-AB	0.0	5.20	0.03
	Stream D-BC	0.0	7.05	0.01
	Stream C-ABD	0.0	6.15	0.01
Base 2027 + Proposed Development	Stream B-ACD	0.1	7.17	0.05
	Stream A-BCD	0.0	6.20	0.03
	Stream D-AB	0.0	5.12	0.01
	Stream D-BC	0.0	7.08	0.01
	Stream C-ABD	0.0	6.38	0.04

Arm A: Woodville Road (East), Arm B: Northern Site Access (Ham Close), Arm C: Woodville Road (West), Arm D: Stuart Road.

11.3.2 As there was a negligible amount of queueing observed within the video data and the existing traffic flows are low, it is considered that the observed model is reflective of the operation of the current junction and that no calibration is required.

11.3.3 The results of the modelling for Junction 1 suggest that the junction will continue to operate efficiently in the future scenario, with the RFC reaching a peak of 0.05 and the addition of less than second of additional delay from the observed model. This suggests that the junction has significant levels of spare capacity and that the proposed development can be accommodated with no mitigation required.

11.4 JUNCTION 3: SANDY LANE / HAM STREET

11.4.1 The results of the junction modelling for the Sandy Lane / Ham Street junction is provided in **Table 11-2**.

Table 11-2: Sandy Lane / Ham Street Modelling Results

SCENARIO	STREAM	PM PEAK HOUR		
		QUEUE	DELAY	RFC
Observed 2022	Stream B-AC	0.1	7.12	0.09
	Stream C-AB	0.2	6.93	0.17
Base 2027 + Proposed Development	Stream B-AC	0.1	7.01	0.13
	Stream C-AB	0.3	7.30	0.22

Arm A: Ham Street (North), Arm B: Sandy Lane, Arm C: Ham Street (South)

11.4.1 The results of the modelling for Junction 4 suggest that the junction will continue to operate efficiently in the future Base 2027 + Proposed Development scenario, with the RFC reaching a peak of 0.22 and the addition of less than second of additional delay from the observed model. This suggests that the junction has significant levels of spare capacity and that the proposed development can be accommodated with no mitigation required.

11.5 JUNCTION 4: WIGGINS LANE / HAM STREET

11.5.1 The results of the junction modelling for the Wiggins Lane / Ham Street junction is provided in **Table 11-3.**

Table 11-3: Wiggins Lane / Ham Street Modelling Results

SCENARIO	STREAM	PM PEAK HOUR		
		QUEUE	DELAY	RFC
Observed 2022	Stream B-AC	0.1	6.42	0.08
	Stream C-AB	0.1	5.67	0.08
Base 2027 + Proposed Development	Stream B-AC	0.1	6.70	0.11
	Stream C-AB	0.2	5.79	0.11

Arm A: Ham Street (South), Arm B: Wiggins Lane, Arm C: Ham Street (North)

11.5.1 As there was a negligible amount of queueing observed within the video data and the existing traffic flows are low, it is considered that the observed model is reflective of the operation of the current junction and that no calibration is required.

11.5.2 The results of the modelling for Junction 3 suggest that the junction will continue to operate efficiently in the future Base 2027 + Proposed Development scenario, with the RFC reaching a peak of 0.11 and the addition of less than second of additional delay from the observed model. This suggests that the junction has significant levels of spare capacity and that the proposed development can be accommodated with no mitigation required.

11.6 JUNCTION 5 - ASHBURNHAM ROAD / HAM STREET

11.6.1 The results of the junction modelling for the Ashburnham Road / Ham Street junction is provided in **Table 11-4.** The assessment includes the use of the Grey Court school entrance, which is situated opposite of Ashburnham Road.

Table 11-4: Ashburnham Road / Ham Street Modelling Results

SCENARIO	STREAM	PM PEAK HOUR		
		QUEUE	DELAY	RFC
Observed 2022	Stream B-ACD	0.2	6.49	0.13
	Stream A-BCD	0.0	0.0	0.00
	Stream D-ABC	0.0	7.61	0.01
	Stream C-ABD	0.2	6.18	0.17
Base 2027 + Proposed Development	Stream B-ACD	0.2	6.74	0.16
	Stream A-BCD	0.0	0.00	0.00
	Stream D-ABC	0.0	7.72	0.01
	Stream C-ABD	0.3	6.39	0.20

Arm A: Ham Street (South), Arm B: Ashburnham Road, Arm C: Ham Street (North), Arm D: Grey Court School Entrance

11.6.2 As there was a negligible amount of queueing observed within the video data and the existing traffic flows are low, it is considered that the observed model is reflective of the operation of the current junction and that no calibration is required.

11.6.3 The results of the modelling for Junction 5 suggest that the junction will continue to operate efficiently in the future scenario, with the RFC reaching a peak of 0.20 and the addition of around a second of additional delay from the observed model. This suggests that the junction has significant levels of spare capacity and that the proposed development can be accommodated with no mitigation required.

11.7 JUNCTION 6: SOUTHERN SITE ACCESS / ASHBURNHAM ROAD

11.7.1 Due to the proximity of the southern site access on Ham Close to Mowbray Road and given there will be little interaction between the two roads e.g. vehicles from the proposed development have little incentive to travel down Mowbray Road and vice versa, the most appropriate methodology is considered to be to assess this junction as a priority junction rather than a crossroads – as there is little interaction between the minor arms.

11.7.2 The results of the junction modelling for the Ham Close (Southern Site Access) / Ashburnham Road junction is provided in **Table 11-5**.

Table 11-5: Ham Close (Southern Site Access) / Ashburnham Road Modelling Results

SCENARIO	STREAM	PM PEAK HOUR		
		QUEUE	DELAY	RFC
Observed 2022	Stream B-AC	0.0	6.44	0.02
	Stream C-AB	0.0	4.84	0.01
Base 2027 + Proposed Development	Stream B-AC	0.1	7.41	0.08
	Stream C-AB	0.1	4.94	0.04

Arm A: Ashburnham Road (West), Arm B: Southern Site Access (Ham Close), Arm C: Ashburnham Road (East).

11.7.1 As there was a negligible amount of queueing observed within the video data and the existing traffic flows are low, it is considered that the observed model is reflective of the operation of the current junction and that no calibration is required.

11.7.2 The results of the modelling for Junction 2 suggest that the junction will continue to operate efficiently in the future Base 2027 + Proposed Development scenario, with the RFC reaching a peak of 0.08 and the addition of less than second of additional delay from the observed model. This suggests that the junction has significant levels of spare capacity and that the proposed development can be accommodated with no mitigation required.

11.8 JUNCTION 8: A307 PETERSHAM ROAD / SANDY LANE

11.8.1 The results of the junction modelling for the A307 Petersham Road / Sandy Lane junction is provided in **Table 11-6**. As the RFC in the Observed 2022 model is close to theoretical capacity on the A307 (South) arm and exceeds 1.0 on the A307 (North) approach, the impact of the proposed development has been assessed across the full range of assessment scenarios.

Table 11-6: A307 Petersham Road / Sandy Lane Modelling Results

SCENARIO	ARM	PM PEAK HOUR		
		QUEUE	DELAY	RFC
Observed 2022	A307 (South)	3.1	17.35	0.76
	Sandy Lane	0.5	10.81	0.35
	A307 (North)	43.5	155.26	1.07
Observed 2022 + Proposed Development	A307 (South)	3.3	18.39	0.77
	Sandy Lane	0.6	11.53	0.39
	A307 (North)	54.8	189.67	1.10
Base 2027	A307 (South)	3.7	19.96	0.79
	Sandy Lane	0.6	11.52	0.37
	A307 (North)	62.4	224.85	1.12
Base 2027 + Proposed Development	A307 (South)	3.9	21.41	0.81
	Sandy Lane	0.7	12.35	0.41
	A307 (North)	75.0	285.32	1.14

11.8.2 The results for the Observed 2022 junction model suggest that the RFC exceeds 1.0 on the A307 (North) approach, with a queue of approximately 44 PCUs forming and a delay of 156 seconds, suggesting that vehicles arriving at this arm are required to wait over two minutes before being able to access the junction.

11.8.3 An RFC of 1.0 in the observed scenario is theoretically not possible, as this suggests the junction has already exceed its maximum theoretical capacity – which cannot be the case as traffic has been observed as passing through the junction, with the junction continuing to operate and allow traffic through it.

11.8.4 It is noted that upon running the ARCADY model, there is a 'health warning' due to the flows along the A307 comprising over 85% of the total flow through the junction. This suggests that the model may not be appropriately representing what is taking place in the observed traffic data.

11.8.5 Paragraph 14.2.1 of the Junctions 10 Users Guide states:

> *"Some mini-roundabouts have a T-shape with unbalanced flows and may behave more like priority junctions than roundabouts, and as a result are difficult to evaluate accurately with any traffic model. The results associated with such mini-roundabouts should be treated with caution.*
>
> *This also applies to any mini-roundabout that has a dominant 'through' movement. The most common case is where the junction has a T-shape, particularly if a mini-roundabout replaces an older T-junction and has little or no deflection for the straight-ahead movement(s).*
>
> *At such sites, some drivers may continue to treat the junction as if the original priority system is still partially in place. If this is the case, consider adding a suitable intercept correction to the relevant arms. Otherwise the capacity of these arms may be underestimated by the model."*

11.8.6 In order to understand the true operation of the junction, a detailed review of the video surveys has been undertaken to assist in calibrating the observed base model.

11.8.7 Upon reviewing the video surveys, it is evident that there is little queueing on the A307, with drivers not slowing or giving way at the junction and instead treating it as a priority junction, with the A307 forming the main arm and Sandy Lane forming the minor, as evidenced by the driver position in **Figure 11-1**.

Figure 11-1: A307 Petersham Road / Sandy Lan (looking south) back onto A307 - PM Peak Video Footage

11.8.8 The video surveys suggest minimal delay and queueing on both arms of the A307. The only time that a queue was observed on the approaches along the A307 was when the pedestrian crossing was called, which was identified as being less than 10 times in the PM peak.

11.8.9 **Figure 11-2** presents an extract showing the queue build up once the pedestrian crossing has been called.

Figure 11-2: A307 Petersham Road / Sandy Lan (looking south) back onto A307 Crossing - PM Peak Video Footage

11.8.10 It was observed within the video data that once the signal became green, the queues dissipated and the junction continued to operate efficiently.

11.8.11 In order to replicate the observed operation of the junction and in accordance with the Junctions 10 User Guide and video surveys, it is proposed to adjust the capacity of the A307 (South) and A307 (North) arms of the junction to more closely reflect the observed conditions.

CALIBRATION

11.8.12 Within the ARCADY model, a direct roundabout calibration factor of 1.4 has been added onto both the A307 (South) and A307 (North) arms of the junction to reduce the delay and queues on both approaches to more accurately reflect the observed video surveys, where a typical queue of less than four vehicles and delay of no more than 20 seconds was observed.

11.8.13 The results of the capacity assessment, with the A307 (South) and A307 (North) calibrated to reduce vehicle queueing is provided in **Table 11-7**.

Table 11-7: A307 Petersham Road / Sandy Lane (Calibrated) Modelling Results

SCENARIO	ARM	PM PEAK HOUR		
		QUEUE	DELAY	RFC
Observed 2022 (Calibrated)	A307 (South)	1.1	6.21	0.53
	Sandy Lane	0.5	10.82	0.35
	A307 (North)	3.1	12.12	0.76
Observed 2022 (Calibrated) + Proposed Development	A307 (South)	1.2	6.37	0.54
	Sandy Lane	0.6	11.54	0.39
	A307 (North)	3.5	13.21	0.78
Base 2027	A307 (South)	1.2	6.56	0.56
	Sandy Lane	0.6	11.54	0.37
	A307 (North)	3.7	13.98	0.79
Base 2027 + Proposed Development	A307 (South)	1.3	6.76	0.57
	Sandy Lane	0.7	12.36	0.41
	A307 (North)	4.2	15.44	0.81

11.8.14 The results of the junction modelling using the calibrated base model suggest that even in the Base 2027 + Proposed Development scenario, the junction will continue to operate with spare capacity and below the RFC threshold of 0.85. The proposed development will also result in a negligible amount of delay, with the addition of up to a second on the A307 approaches.

11.8.15 It is not considered that the proposed development will generate much additional pedestrian demand at the crossing, as there are no key pedestrian desire lines along this route, as discussed within the ATZ assessment. On that basis, the proposed development will not directly negatively impact A307 Petersham Road / Sandy Lane junction through vehicle trips or indirectly through additional pedestrian use of the crossing to the point where mitigation is required.

11.8.16 Where the crossing is called and there are queues, it is regarded that this is likely to contribute to take place on an ad-hoc basis. When the queues form at the junction due to the crossing being called, there are no significant nearby junctions or downstream of the approaches that would be significantly impacted by queueing at the A307 Petersham Road / Sandy Lane junction, to the point where the impact could be regarded as 'severe'.

SENSITIVITY TEST

11.8.17 As the observed flows suggest that the operation of the junction more closely resembles a priority junction than a mini roundabout; with the flows being predominantly concentrated along the A307, it is proposed to undertaken an assessment of the A307 Petersham Road / Sandy Lane junction as a priority junction within Junctions 10 as a further sensitivity test.

11.8.18 The PICADY parameters have been generated using the on-street geometry and assuming Sandy Lane as the minor arm, with the A307 forming the major arm.

11.8.19 The results of the modelling for Junction 8 using the PICADY module and assuming it operates as a priority junction is provided in **Table 11-8**.

Table 11-8: A307 Petersham Road / Sandy Lane (Sensitivity Test) Modelling Results

SCENARIO	STREAM	PM PEAK HOUR		
		QUEUE	DELAY	RFC
Observed 2022	Stream B-AC	0.8	17.27	0.46
	Stream C-AB	4.2	11.33	0.68
Observed 2022 + Proposed Development	Stream B-AC	1.0	19.32	0.51
	Stream C-AB	6.1	15.92	0.77
Base 2027	Stream B-AC	1.0	19.22	0.50
	Stream C-AB	5.7	14.24	0.75
Base 2027 + Proposed Development	Stream B-AC	1.2	21.90	0.55
	Stream C-AB	8.9	22.59	0.84

Arm A: A307 Petersham Road (South), Arm B: Sandy Lane, Arm C: Petersham Road (North)

11.8.20 The PICADY assessment for the A307 Petersham Road / Sandy Lane suggests that the RFCs do not exceed the 0.85 threshold set by LBRuT, with the respective queues and delay more closely replicating the calibrated version of the Observed 2022 model. On that basis, even if the junction continues to operate like a priority junction, there is capacity at the junction to accommodate the proposed development with no mitigation required.

11.9 JUNCTION CAPACITY ASSESSMENT SUMMARY AND KEY POINTS

- The impact of the proposed development has been assessed on the local transport network, utilising the same principles as requested by LBRuT.
- The assessments undertaken suggest that there is sufficient capacity on the local road network, with no mitigation required at the following junctions:
  - Junction 1 - Site Access (North) Ham Close / Woodville Road / Stuart Road (PM peak);
  - Junction 3 - Ham Street / Sandy Lane (PM peak);
  - Junction 4 - Wiggins Lane / Ham Street (PM peak);
  - Junction 5 - Ashburnham Road / Ham Street (PM peak); and
  - Junction 6 - Site Access (South) Ham Close / Ashburnham Road (PM peak).
- With respect to the A307 / Sandy Lane junction (Junction 8), it was identified that the junction model was not operating in line with how the junction was observed to be operating in real life, within the Observed 2022 traffic data and video surveys. The model was then calibrated and remodelled, with the results suggesting that there is sufficient capacity within the junction to accommodate the demand from the proposed development.
- A sensitivity test was undertaken to model the A307 / Sandy Lane mini roundabout as a priority junction, as the dominance of flows along the A307 appear to cause the junction to operate as a priority junction rather than a mini roundabout. The results of the sensitivity test accord with the results of the calibrated model, suggesting that the proposed development can be accommodated without the need for mitigation.
- In summary, the assessment concludes that the impact of the proposed development can be suitably accommodated on the local transport network with no mitigation required.
- Nonetheless, a series of additional mitigation measures will be provided, in the form of a series of management plans, to further mitigate the impact of the proposed development.

12 MANAGEMENT PLANS

12.1 OVERVIEW

12.1.1 In support of the proposed development, the following management plans will be implemented at the site:

- Travel Plan;
- Delivery and Servicing Plan;
- Parking Management Plan; and
- Construction Logistics Plan.

12.1.2 The management plans are proposed to enable the safe and efficient operation of the proposed development, as well as promoting active travel and sustainable transport, where possible.

12.1.3 A brief overview of the key principles and contents of the relevant management plans is set out below.

12.2 TRAVEL PLAN

12.2.1 The goal of the Travel Plan (TP) will be to encourage and promote sustainable travel from the site through a series of targets, measures and incentives.

12.2.2 The aim of the TP will therefore be to help people to make their journey via the most sustainable mode of transport possible, with an emphasis on the uptake of active travel and public transport ahead of private car use.

12.2.3 As the development is proposed in an area of a low PTAL score (1a/1b) a significant proportion of the trips within the area are likely by car. This is evident in the existing TRICS mode shares, with the existing car driver mode share calculated at 23% in the AM peak and 22% in the PM peak.

12.2.4 Whilst this mode share will be confirmed through initial travel surveys within the TP, it is acknowledged that the Mayor's Transport Strategy sets out a target for 80% of trips in Outer London to be undertaken by sustainable modes by 2041. A reduction of around 5% mode share for car drivers will achieve a mode share at the proposed development that accords with the ambitions of the Mayor's Transport Strategy and London Plan.

12.2.5 The initial key targets that will be set within the TP are therefore as follows:

'To decrease the number of car trips by 5% over the five year period of the Travel Plan'

12.2.6 The TP will initially be provided as a framework, being secured by way of planning condition. A full TP will then be provided prior to occupation, followed by regular updates to the TP to reflect the mode share of residents that is taken directly from travel surveys. From the findings of these travel surveys, appropriate mode share targets will be set.

12.2.7 The TP for the proposed development has been produced by VTP and will be provided as a stand-alone document in support of the planning application.

12.3 DELIVERY AND SERVICING PLAN

12.3.1 The Delivery and Servicing Plan (DSP) is initially provided in outline, to be secured by way of the condition and provided in detail prior to occupation of the development.

12.3.2 The DSP will be used to manage and review the delivery strategy for the site, by seeking to mitigate the impact of deliveries on the surrounding transport network.

12.3.3 The key principles of the DSP will be to provide areas within the site where servicing can take place safely and efficiently, minimising the impact of servicing the site on the local transport network by as much as is practicably possible.

12.4 PARKING MANAGEMENT PLAN

12.4.1 The Outline Parking Management Plan (PMP) will be provided alongside the TA to set out the long term strategy for the allocation, management and monitoring of on-site parking. The Outline PMP will include the following:

- How parking spaces will be allocated;
- How the use of parking areas and their spaces, as well as any issues arising from their use, will be monitored and addressed; and
- How the risk of obstructive and unlawful parking will be reduced and managed, as well as how enforcement procedures will be managed.

12.4.2 This initial outline version of the PMP will be secured by way of condition on any planning permission. The full PMP that will be provided to LBRuT in order to discharge the relevant planning condition will include details on the individual allocation of the parking facilities.

12.5 CONSTRUCTION LOGISTICS PLAN

12.5.1 In accordance with the Healthy Streets guidance, Section 13 of this TA will set out the principles of the Construction Logistics Plan (CLP) and construction strategy.

12.5.2 Following feedback from LBRuT, a standalone Outline CLP has been prepared to accompany the planning application that will incorporate the detail within Section 13 into a standalone report, that will be updated as construction progresses with input from a contractor, where appropriate.

12.5.3 The Outline CLP will be secured by way of condition of any planning permission, requiring a Detailed CLP to be provided for agreement with LBRuT and TfL prior to the commencement on the site.

13 OUTLINE CONSTRUCTION LOGISTICS

13.1 OVERVIEW

13.1.1 This section of the Healthy Streets TA sets out the principles of the construction logistics strategy to support the planning application. It summarises the key transport-related matters during the construction works of the proposed development.

13.1.2 Following feedback from LBRuT, a standalone Outline CLP has been prepared to accompany the planning application that will incorporate the detail within Section 13 into a standalone report, that will be updated as construction progresses with input from a contractor, where appropriate.

13.1.3 A Detailed Demolition Logistics Plan (DLP) and CLP would be prepared prior to each phase of demolition and construction and would be implemented and monitored throughout the construction programme, which will be completed with input from the contractor undertaking the works.

13.1.4 An appropriately worded planning condition would secure the requirement for the Detailed DLPs and CLPs, which will be prepared in accordance with TfL's Construction Logistics Planning Guidance prior to the commencement of demolition and construction.

13.2 CONTEXT, CONSIDERATIONS AND CHALLENGES

13.2.1 As the site is within a residential area and is occupied by the existing residents of Ham Close, one of the greatest challenges will be ensuring that the impact of construction on the existing residents is mitigated by as much as is practicably possible. This will involve the use of construction phasing to ensure that existing residents are rehoused and relocated as appropriate.

13.2.2 Other sensitive receptors within the area include the local schools including St Richards CE Primary School immediately to the west of the site on Ashburnham Road and Grey Court School to the east on Ham Street.

13.2.3 Additional considerations that will be factored into the construction logistics strategy include determining a suitable vehicle routing strategy from the strategic network and which local roads surrounding site are appropriate for the use of construction vehicles.

13.2.4 Further details on the context, considerations and challenges will be provided within the Detailed CLP prior to commencement of demolition and construction.

13.3 CONSTRUCTION PROGRAMME AND METHODOLOGY

13.3.1 Planning for construction is at a preliminary stage and may be subject to review and modification during detailed construction planning.

13.3.2 For this reason, the following information is based on reasonable assumptions in the construction programme and the collective experience of the consulting team with similar projects.

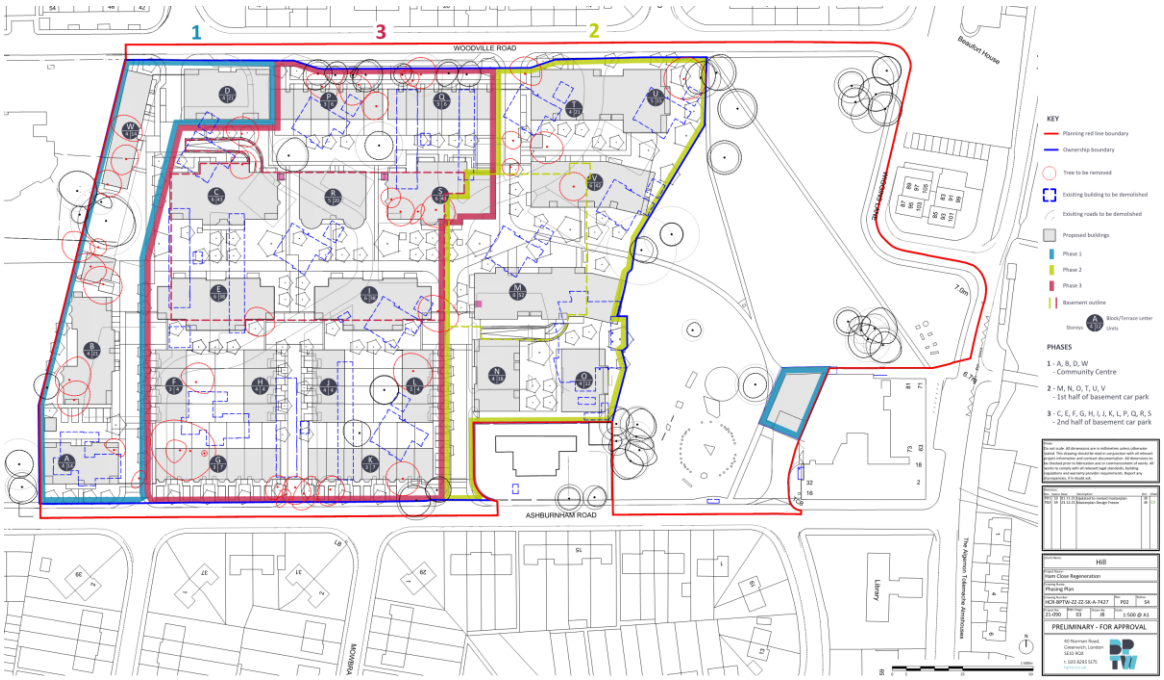
13.3.3 Construction is anticipated to be broken up into three phases, as follows:

- Phase 1 - Blocks A, B, D, W and the Community Centre and Maker Labs use (70 residential homes);
- Phase 2 - Blocks M, N, O, T, U, V and the first half of the basement car park (160 residential homes); and

- Phase 3 - Blocks C, E, F, G, H, I, J, K, L, P, Q, R and S and the second half of the basement car park (222 residential homes).

13.3.4 **Figure 13-1** provides an overview of the indicative construction phasing.

Figure 13-1: Proposed Construction Phasing Strategy



13.3.5 An indicative programme for construction phasing is as follows:

- Phase 1 - March 2023 to October 2024;
- Phase 2 - October 2024 to May 2027; and
- Phase 3 - May 2027 to March 2030.

13.3.6 The construction programme will be confirmed and set out in more detail within the Detailed CLP once further details are available.

13.4 VEHICLE ROUTING AND SITE ACCESS

13.4.1 Construction access to the site will be from Ashburnham Road (via its junction with Ham Street) and Woodville Road (via Wiggins Lane at its southern junction with Ham Street).

13.4.2 Vehicles will seek to avoid residential roads and schools as far as is practicably possible and will likely route from the south and east via the strategic transport network around Kingston upon Thames, the A307 Petersham Road and Sandy Lane, as shown in **Figure 13-2**.

Figure 13-2: Proposed Construction Vehicle Access

13.4.3 This route avoids the sharp corner on Petersham Road at its junction with River Lane, where large vehicles must travel within the opposing carriageway, often causing delays at this location.

13.4.4 The proposed route, while assessed as having the least overall impacts on sensitive receptors, passes Grey Court School and as such HGV traffic will be controlled such that no movements take place at the arrival and departure times at the beginning and end of the school day. The specific hours of vehicular movements will be agreed with LBRuT as part of the detailed DLP and CLP planning condition discharges.

13.4.5 Where possible, the construction team will look to consolidate deliveries to one block at a time to reduce the number of vehicles arriving/departing from the site.

13.4.6 In accordance with the TfL CLP methodology, location maps will be provided at the appropriate scales within the Detailed CLP, which will be agreed with LBRuT and TfL prior to commencement, once more information is known about the specific construction vehicle requirements.

13.4.7 The routes to/from the site will be agreed upon in detail with LBRuT and TfL within the Detailed CLP once further information is known about the construction methodology and any specific requirements.

13.4.8 The Contractors will ensure that the necessary pre-planning is undertaken and that the quality of the communication between those planning the project and those supplying the products and materials is maintained throughout the duration of the project.

13.4.9 The proposed overall logistics plan for the site incorporates the following key features:

- Products and materials will be delivered to the site by vehicle and unloaded within the site boundary, where possible. At the point where it is no longer possible to retain vehicles within the site boundary, the necessary agreements will be made with LBRuT to secure on-street loading areas, if required.

- Any movements through the access will be strictly controlled by marshals, and short-term temporary barriers erected to safeguard pedestrians where required. Access and egress to be controlled by banksman.

13.4.10 It is anticipated that the core working hours for construction will be as set out as follows:

- 08:00am to 18:00pm hours weekdays; and
- 08:00am to 13:00pm hours Saturdays.

13.4.11 No work may be carried out on Sundays and Bank Holidays, and no work will be undertaken out of hours without prior agreement with LBRuT. This can be secured by way of a planning condition.

13.4.12 There may be circumstances where the restriction on hours of work cannot be adhered to (such as crane erection or plant maintenance or works at the site boundary where the rail companies dictate the timings). The Applicant will endeavour to minimise the frequency and duration of such works. However, where unavoidable, there will be a requirement to fully justify any proposed deviation from these operating periods, provide written justification to LBRuT giving at least 5 working days' notice (except in case of an emergency), and notifying neighbours before works outside normal hours commence.

13.5 CONSTRUCTION VEHICLE NUMBERS

13.5.1 At this stage, it is anticipated that the site will require an average of approximately 25 construction vehicle movements per day. There will be minimal daily Heavy Good Vehicles (HGV) movement to and from site outside of normal working hours, except by agreement with LBRuT in exceptional circumstances, such as weekend working for crane erection.

13.5.2 This information will be confirmed by the appointed contractor within the Detailed CLP once this information is available, which will be agreed with LBRuT and TfL to ensure the construction vehicle demand can be suitably accommodated on the local network.

13.5.3 The TfL CLP tool will be utilised by the contractor once the construction methodology is available to compile the Detailed CLP.

13.6 STRATEGIES TO REDUCE CONSTRUCTION IMPACTS

13.6.1 A number of measures are planned to reduce the impacts of construction on the local area. The planned measures can be categorised as follows:

- **Committed -** Measures that will be implemented as part of the CLP.
- **Proposed -** Measures that are feasible and likely to be implemented. Once a contractor is appointed, these measures will be studied further and confirmed within the Detailed CLP.
- **Considered -** Measures that are unlikely to be implemented or feasible but could be investigated or become relevant in the future.

13.6.2 **Table 13-1** summarises the planned measures for the construction of the proposed development based on the checklist provided in TfL's CLP guidance.

Table 13-1: Construction planned measures

PLANNED MEASURES	COMMITTED	PROPOSED	CONSIDERED
MEASURES INFLUENCING CONSTRUCTION VEHICLES AND DELIVERIES			
Safety and environmental standards and programmes	x		
Adherence to designated routes	x		
Delivery scheduling	x		
Re-timing for out of peak deliveries		x	
Re-timing for out of hours deliveries			x
Use of holding areas and vehicle call off areas			x
Use of logistics and consolidation centres			x
MEASURES TO ENCOURAGE SUSTAINABLE FRIEGHT			
Freight by water			x
Freight by rail			x
MATERIAL PROCUREMENT MEAURES			
Design for Manufacture and Assembly and off-site manufacture			x
Re-use of material on-site		x	
Smart procurement		x	
OTHER MEASURES			
Collaboration with other sites in the area			x
Implement a staff Travel Plan	x		

13.6.3 The measures outlined above will be updated within the Detailed CLP in agreement with LBRuT and TfL.

13.7 ACCREDITATION

13.7.1 The CLOCS (Construction Logistics and Community Safety) standard will be signed up to, which will ensure that the construction contractor (as well suppliers and sub-contractors) follow safe practices in the management of their operations, vehicles, drivers and construction sites.

13.7.2 All construction vehicle operators will be required to be accredited in line with the Fleet Operator Recognition Scheme (FORS), with it anticipated that a minimum 'Silver' level would be required. FORS accreditation confirms that a fleet operator can demonstrate that appropriate systems and policies exist to ensure drivers are suitably fit, qualified and licenced to operate vehicles that are properly maintained, equipped and insured. It is a mechanism by which adherence to the CLOCS standard can be assured and monitored.

13.8 IMPLEMENTATION, MONITORING AND REVIEW

13.8.1 The key measures identified to manage and control the impacts of construction traffic are expected to be:

- Commitment to meet CLOCS / FORS accreditation.
- Use of delivery scheduling system.
- Designated construction traffic routes ensuring all HGVs use appropriate strategic roads.

13.8.2 Data sharing remains a key principle for the success and continuous improvement of construction. A list of items will be agreed, and specific data will be disseminated. This is expected to include:

- Compliance
- FORS compliance
- Routing compliance
- No construction workforce staff car parking on-site
- Data from the delivery scheduling system and the recorded log of vehicle movements to the site:
- Vehicle type and size
- Duration on site
- Safety issues including any injuries or near misses
- Breaches and complaints

13.8.3 The principles set out within this section will be taken and incorporated into the Detailed CLP, which will be a planning condition requirement on any planning permission, to be provided and agreed with LBRuT and TfL prior to commencement.

13.8.4 Once the Detailed CLP has been agreed with LBRuT and TfL, the document will be implemented and updated by the appointed contractor thereafter.

14 SUMMARY AND CONCLUSIONS

14.1 OVERVIEW

14.1.1 This Healthy Streets Transport Assessment has been prepared to support a planning application for the development proposals at Ham Close, within the London Borough of Richmond upon Thames.

14.2 DEVELOPMENT CONTEXT

14.2.1 The site is bound and accessed by the Ashburnham Road to the south, a primary school to the west, Woodville Road to the north, Wiggins Lane to the north east and a mixed use block to the south east.

14.2.2 The application site currently houses 192 homes, a community centre and a Maker Labs use as part of the existing Ham Close Estate.

14.2.3 The proposals seek to redevelop the site to provide 452 residential homes, 130 sqm (GIA) of Maker Labs use and 716 sqm (GIA) of community space, as well as improved public realm and associated cycle and car parking.

14.3 SUSTAINABLE TRANSPORT, ACTIVE TRAVEL AND HEALTHY STREETS

14.3.1 The site is located within an area of PTAL 1b, suggesting a low level of accessibility to public transport. Within a short walk of the site, there is access to the bus stops on Ashburnham Road giving access to the 371 service, which benefits from a service frequency of up to seven buses per hour in both directions.

14.3.2 Through the nearby bus services, there is access to both National Rail and London Underground services within 30 minutes, as well as access to the local hubs of Richmond, Teddington, Twickenham and Kingston.

14.3.3 The site is located within an existing residential area, meaning it is in an established location for the proposed end use.

14.3.4 An Active Travel Zone assessment has been undertaken in accordance with the TfL Guidance. The assessment identified that the local routes are suitable in their current state and in accordance with the Healthy Streets Indicators; however, a number of minor maintenance measures and improvements have been identified which could be implemented by the London Borough of Richmond upon Thames as part of wider borough-led improvements to improve the routes.

14.4 PARKING AND SERVICING

14.4.1 Cycle parking for the proposed development will be provided in accordance with the minimum requirements of the London Plan (2021), with a minimum of 5% of the total provision allocated for accessible cycling in accordance with the London Cycle Design Standards.

14.4.2 The proposed development will provide car parking within the maximum requirements of the London Plan, with a total of 287 spaces provided across the site. 274 spaces will be provided for residents' use which equates to a ratio of 0.6 car parking spaces per home. The addition of two car club spaces increases the effective parking to 319 spaces or a ratio of 0.71 spaces per household. This exceeds the calculated demand of 270 spaces. Eight visitor parking spaces will be provided on site. Blue badge parking and Electric Vehicle Charging will be provided in accordance with the London Plan requirements, with 14 residential blue badge Bays and 3 non-residential blue badge bays.

14.4.3 A series of parking surveys have been undertaken, which have found that local on-street parking occupancy has sufficient capacity to accommodate the local changes to the highway network associated with the proposed development.

14.4.4 In accordance with the Vision Zero approach, there will be suitable space within the site for servicing vehicles to access and egress within a forward gear.

14.5 TRIP GENERATION AND NETWORK IMPACT

14.5.1 The trip generation assessment undertaken suggests that the proposed development will result in an increase in total person trips, with an uplift of 192 two-way total person trips in the AM peak, 221 two-way total person trips in the PM peak and 2,145 two-way total person trips over the duration of the day.

14.5.2 A network impact assessment has been undertaken, finding that the additional demand of the proposed development can be accommodated on the local transport network, with no mitigation required.

14.6 VEHICLE IMPACT AND JUNCTION MODELLING

14.6.1 In terms of vehicle traffic, the net change assessment suggests the proposed development will result in an uplift from the existing site of 44 two-way vehicle trips in the AM peak, 112 two-way vehicle trips in the PM peak and 959 two-way vehicle trips across the day.

14.6.2 To determine the distribution of the proposed development, local traffic surveys have been used to identify the distribution from the site and local area.

14.6.3 Junction modelling has been undertaken at the following junctions, with no mitigation found to be required:

- Junction 1 - Site Access (North) Ham Close / Woodville Road / Stuart Road (PM peak);
- Junction 3 - Ham Street / Sandy Lane (PM peak);
- Junction 4 - Wiggins Lane / Ham Street (PM peak);
- Junction 5 - Ashburnham Road / Ham Street (PM peak); and
- Junction 6 - Site Access (South) Ham Close / Ashburnham Road (PM peak).

14.6.4 With respect to the A307 / Sandy Lane junction, it was identified that the junction model was not operating in line with how the junction was observed to be operating in real life, within the Observed 2022 traffic data and video surveys. The model was then calibrated and remodelled, with the results suggesting that there is sufficient capacity within the junction to accommodate the demand from the proposed development.

14.6.5 A sensitivity test was undertaken to model the A307 / Sandy Lane mini roundabout as a priority junction, as the dominance of flows along the A307 appear to cause the junction to operate as a priority junction rather than a mini roundabout. The results of the sensitivity test accord with the results of the calibrated model, suggesting that the proposed development can be accommodated without the need for mitigation.

14.6.6 In summary, the assessment concludes that the impact of the proposed development can be suitably accommodated on the local transport network with no mitigation required

14.7 CONCLUSIONS

14.7.1 **Table 14-1** summarises the conclusions of this Healthy Streets Transport Assessment.

Table 14-1: Healthy Streets Transport Assessment Conclusions

	KEY TRANSPORT IMPACTS	SOLUTIONS / MECHANISMS
Site and Surroundings	The site is located with an area of PTAL 1b, suggesting a low level of accessibility, with the majority of trips likely via private car. Parking surveys have been undertaken to determine local parking capacity within the area.	Car parking in accordance with the anticipated demand has been provided, alongside cycle parking in accordance with the London Plan requirements.
Active Travel and Vision Zero	The proposed development will result in additional trips within the Active Travel Zone and along routes to key destination. There are eight KSIs recorded within the scope of the Active travel Zone, however there is no evidence of any KSI clusters or patterns emerging.	As there are no KSIs clusters within the ATZ, this suggests there are no existing safety concerns that could be exacerbated by the proposed development. Nonetheless, a series of minor improvements have been suggested that could be implemented by the London Borough of Richmond upon Thames to improve the routes.
Network Impact	The proposed development will result in an uplift of trips from the existing site.	A review of the local network impact has been undertaken, finding that the surrounding transport network is appropriate to accommodate the demand. Junction modelling has been undertaken, finding that no mitigation is required. To reinforce this conclusion, a series of management plans will be implemented across the site to mitigate against any detrimental impacts.
Construction	Full details of the construction programme, timing and methodology will be confirmed within the Detailed CLP once a contractor is appointed. A standalone CLP will be prepared to support the planning application.	A Detailed Construction Logistics Plan will be provided prior to the commencement of any demolition and construction works.

14.7.2 This Healthy Streets Transport Assessment has demonstrated that the proposed development will prioritise active and sustainable travel, will have a negligible impact on the local transport network and will contribute positively to the site and its surroundings by creating a new piece of public realm that will improve the local highway network for both existing and future users associated with the proposed development.

14.7.3 Overall, it is considered that in transport terms, the proposed development complies with the National, Regional and Local transport policy and should be recommended for approval.

APPENDIX A

PROPOSED DEVELOPMENT PLANS

APPENDIX B

PARKING BEAT SURVEY DATA

APPENDIX C

ACTIVE TRAVEL ZONE ASSESSMENT

APPENDIX D

SWEPT PATH ANALYSIS

APPENDIX E

CYCLE STORAGE STRATEGY

APPENDIX F

ZIPCAR PROPOSAL

APPENDIX G

TRICS DATA (EXISTING)

APPENDIX H

TRICS DATA (PROPOSED)

APPENDIX I

TRICS REVIEW SERVICING TRIPS

APPENDIX J

ACCESS DISTRIBUTION REVIEW

APPENDIX K

TRAFFIC FLOW DIAGRAMS

APPENDIX L

MODELLING MEASUREMENTS

APPENDIX M

JUNCTIONS 10 OUTPUT FILES