Manor Road / Richmond

Transport Assessment

Sanderson Associates

February 2019

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Highways | Traffic | Transportation | Water

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Prepared on behalf of

Avanton Richmond Development Limited

Proposed Change of Use Development
off Manor Road, Richmond

Transport Assessment

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Acknowledgements:

The TRICS database has been used in this report to calculate traffic generations.

Disclaimer

The methodology adopted and the sources of information used by Sanderson Associates (Consulting Engineers) Ltd in providing its services are outlined within this Report.

Any information provided by third parties and referred to herein has not been checked or verified by Sanderson Associates (Consulting Engineers) Ltd, unless otherwise expressly stated within this report.

This report was checked and approved on the 6 February 2019 and the Report is therefore valid on this date, circumstances, regulations and professional standards do change which could subsequently affect the validity of this Report.

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Contents

Page No

Appendices

APPENDIX A

Figure 1 – Site Location Plan

Figure 2 – 500m, 1km & 2km Indicative Walking Radii

Figure 3 – 5km & 7.5km Indicative Cycling Radii

Figure 4 – Location of Public Transport Facilities

Figure 5 – Residential Development Traffic Distribution

Figure 6 – Residential Development Traffic Flows

Figure 7 – Commercial Development Traffic Distribution

Figure 8 – Commercial Development Traffic Flows

Figure 9 – Total Development Traffic Flows

Figure 10 – 2018 Base Traffic Flows

Figure 11 – 2023 Base Traffic Flows

Figure 12 – 2028 Base Traffic Flows

APPENDIX B

Transport for London – Pre-Application Response

APPENDIX C

Traffic Count Data

APPENDIX D

Parking Stress Survey Report

APPENDIX E

Accident Data from Transport for London

APPENDIX F

PTAL Report

APPENDIX G

Proposed Ground Floor Layout Plan

APPENDIX H

Swept Path Analysis Drawings

APPENDIX I

TRICS Data

APPENDIX J

Census Data

APPENDIX K

Junctions Output – Site Access/Manor Road

APPENDIX L

Junctions Output – Sainsbury's/Manor Road

Executive Summary

Sanderson Associates (Consulting Engineers) Ltd has been appointed by Avanton Richmond Development Limited to advise on traffic and transportation issues surrounding a proposed change of use development on land off Manor Road, Richmond.

The development proposes the demolition of existing buildings and structures and comprehensive residential-led redevelopment of four buildings of between four and nine storeys to provide 385 residential units (Class C3), flexible retail /community / office uses (Classes A1, A2, A3, D2, B1), provision of car and cycle parking, landscaping, public and private open spaces and all other necessary enabling works with vehicular access from Manor Road.

This Transport Assessment examines the highway and transportation implications of the development and is submitted to the Council in support of a planning application.

The development scheme will positively influence travel behaviour at the site by incorporating facilities to encourage sustainable trip movements and ensuring easy, convenient access to sustainable travel options. A Travel Plan has been developed for the site which sets out the strategy and initiatives that will be adopted in order to encourage the use of sustainable modes of travel associated with the development.

The impact of the residual trips from the proposed development have been assessed through detailed capacity analysis using junction performance modelling techniques and proportional impact assessment.

The development supports the transport objectives of National and Local Planning Policy.

The proposed development is acceptable in transport planning terms, suitable access for all people can be achieved, and there will be no significant transport impacts as a result of the proposed development as the scheme will result in a reduction of traffic compared to the existing use.

1 Introduction

1.1 Sanderson Associates (Consulting Engineers) Ltd has been appointed by Avanton Richmond Development Limited to advise on traffic and transportation issues surrounding a proposed change of use development on land off Manor Road, Richmond as indicated on the plan attached at **Appendix A (Figure 1)**.

1.2 The development proposes the demolition of existing buildings and structures and comprehensive residential-led redevelopment of four buildings of between four and nine storeys to provide 385 residential units (Class C3), flexible retail /community / office uses (Classes A1, A2, A3, D2, B1), provision of car and cycle parking, landscaping, public and private open spaces and all other necessary enabling works with vehicular access from Manor Road.

1.3 In accordance with the Planning Practice Guidance 'Transport evidence bases in plan making and decision taking' this Transport Assessment addresses key transport issues including:

- the local highway network
- the access arrangements to the proposed development
- the existing use of the site
- the proposed development and its operational facilities
- the impact of the development on the local highway network in terms of highway safety
- accessibility of the site in relation to sustainable transport and local facilities

1.4 For the benefit of the report, Sanderson Associates has undertaken a visit to the site on Wednesday 20th June 2018, in order to observe and record the prevailing highway conditions.

1.5 A Travel Plan has been developed for the site which sets out the strategy and initiatives that will be adopted in order to encourage the use of sustainable modes of travel associated with the development. The Transport Assessment should be considered in conjunction with the Travel Plan.

1.6 This development has been the subject of several pre-submission discussions with the London Borough of Richmond upon Thames Council (LBRuTC), the Greater London Authority (GLA) and Transport for London (TfL) which are detailed later in this report.

1.7 The views of the Highway Authority are sought on the content of this report.

2 Planning Policy Context

2.1 National Planning Policy

2.1.1 In July 2018 a new National Planning Policy Framework (NPPF) was published, which sets out the Government's planning policies for England and how these are expected to be applied. This NPPF replaces the previous NPPF dated March 2012.

2.1.2 At NPPF paragraph 38 it is stated that;

'Decision-makers at every level should seek to approve applications for sustainable development where possible.'

2.1.3 Paragraph 108 states that in assessing development applications;

'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; and

c) 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.'

2.1.4 NPPF Paragraphs 109 and 110 state 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.

Within this context, applications for development 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.'

2.1.5 NPPF Paragraph 111 states that;

'All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed.'

2.1.6 A Travel Plan has also been prepared in support of the development proposals, and is submitted under a separate cover.

2.2 National Planning Practice Guidance

2.2.1 The National Planning Practice Guidance (NPPG) brings together National Planning Policy Framework. It was launched in March 2014 and coincided with the cancelling of the majority of Government Circulars which had previously given guidance on many aspects of planning.

2.2.2 In relation to Transport NPPG provides the following guidance:

- *Transport evidence bases in plan making and decision taking* - March 2015
- *Travel Plans, Transport Assessments and Statements* - March 2015

2.2.3 NPPG *Transport evidence bases in plan making and decision taking* sets out the key issues that local planning authorities should consider in developing the transport base to support the Local Plan, including:

- assess the existing situation and likely generation of trips over time by all modes and the impact on the locality in economic, social and environmental terms;
- assess the opportunities to support a pattern of development that, where reasonable to do so, facilitates the use of sustainable modes of transport
- highlight and promote opportunities to reduce the need for travel where appropriate;
- identify opportunities to prioritise the use of alternative modes in both existing and new development locations if appropriate;
- consider the cumulative impacts of existing and proposed development on transport networks;
- assess the quality and capacity of transport infrastructure and its ability to meet forecast demands;
- identify the short, medium and long-term transport proposals across all modes.

2.2.4 NPPG *Travel Plans, Transport Assessments and Statements* sets out the key principles that should be taken into account in preparing a Travel Plan and Transport Assessment. NPPG states that Travel Plans and Transport Assessments are important as they can positively contribute to:

- encouraging sustainable travel;
- lessening traffic generation and its detrimental impacts;
- reducing carbon emissions and climate impacts;
- creating accessible, connected, inclusive communities;
- improving health outcomes and quality of life;
- improving road safety; and
- reducing the need for new development to increase existing road capacity or provide new roads.

2.3 Local Planning Policies

2.3.1 The adopted London Plan (2016), is "the overall strategic plan for London" that "sets out an integrated economic, environmental, transport and social framework for the development of London over the next 20–25 years". All local development documents for each London Borough are to be "in general conformity" with the London Plan.

2.3.2 The London Mayor's Transport Strategy 2018 has the vision of reducing "Londoners' dependency on cars in favour of increased walking, cycling and public transport use".

2.3.3 The Local Plan for LBRuT, adopted July 2018, sets out the key planning policies for the area for a 15 year period. Policy LP 44 relates to Sustainable Travel Choices including cycling and walking, public transport and location of new developments. *"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".*

2.4 The Development in Planning Policy Context

2.4.1 This Transport Assessment demonstrates that the development is sustainable, can be accessed by all people and the residual cumulative traffic impact is not severe. The development is therefore in accordance with the transport principles set out in NPPF.

2.4.2 The planning application is supported by a Transport Assessment and Travel Plan in accordance with NPPF and NPPG.

2.4.3 The development supports the general principles of sustainable transport set out within the Local Plan 2018 and does not conflict with the objectives of the Mayor's Transport Strategy.

3 Pre-Application Consultation

3.1 London Borough of Richmond upon Thames Council

3.1.1 A series of pre-application meetings with LBRuTC have taken place. The initial meeting took place on 2 July 2018. Comments arising from this meeting indicated that the level of parking provision initially proposed was greater than that preferred for developments in areas of high PTAL ratings, such as this. Therefore, the proposals have been amended to reflect this and a reduced parking provision is now proposed.

3.1.2 A further meeting took place on 24 September 2018 when the Transport Scoping Study was discussed in detail. The Scoping Report had previously been provided to the Council for consideration. Key items discussed/agreed are as follows:-

- Car free development welcomed in such a highly accessible location;
- Pedestrian infrastructure is of great importance and footway widths and crossing facilities need to be carefully assessed and addressed with appropriate mitigation measures as deemed necessary;
- In terms of vehicle movements a reduction in car borne trips is anticipated and, therefore only limited junction capacity and queuing analysis is required with a qualitative assessment only of the Lower Richmond Road roundabout to the north of the site being required;
- Servicing and Delivery Strategy to be developed;
- Cycle parking should meet the standards within the London Plan with short-term cycle parking being made available at street level in connection with the proposed retails/commercial elements;
- Parking for the potential M&S outlet was discussed and the Council felt that it should be kept to an operational minimum and carefully managed to prevent use by residents.

3.2 Greater London Authority

3.2.1 A pre-application meeting was held with the GLA on 10 October 2018 and present at this meeting was a representative of TfL. The Scoping Report dated 18th September 2018 was discussed in some detail. Key points raised from a Traffic and Transportation perspective are detailed below:-

- A robust transport assessment will be required which should include a multi-modal trip generation assessment based on London only sites from the TRICS database.
- Existing site access to be utilised but it will be necessary to demonstrate that this will not impact upon the operation of the bus terminus.
- Car-free development welcomed. Suggest a reduction in the proposed disabled parking in line with London Plan. Electric Vehicle Charging Points (active and passive) required.
- Cycle parking should meet draft London Plan levels. Long stay to be broken up into smaller areas to increase security and accessibility. Short stay provision also required.
- Healthy Streets approach to be taken including pedestrian and cycle route audit. Travel planning, servicing and delivery strategies also to be covered in TA.

3.3 Transport for London

3.3.1 A formal pre-application meeting took place with Transport for London (TfL) on 7 November 2018 and a copy of the letter of pre-application advice subsequently provided is attached at **Appendix B**.

4 Site History

4.1 In 1991 an application for the erection of two non-food retail units was granted on the former Jewson site.

4.2 A further application was granted, in 1992, for change of use from open air car sales to car parking and part bus lay-by facility on the former Tradex site in association with the Homebase store that was under construction at the time.

4.3 In 1999 an application for the extension of the garden centre element of the Homebase store was granted.

4.4 The site currently consists of Homebase and Pets at Home retail units with associated car parking and servicing areas. In addition, a bus terminus occupies the northern section of the site.

5 Existing Situation

5.1 The Site and Surrounding Area

5.1.1 The development site is currently occupied by operational Homebase and Pets at Home stores with associated surface level parking. The site is bounded by active railway lines to both the North and the South of the site. The East of the site is bounded by Manor Road as can be seen in the figure below;

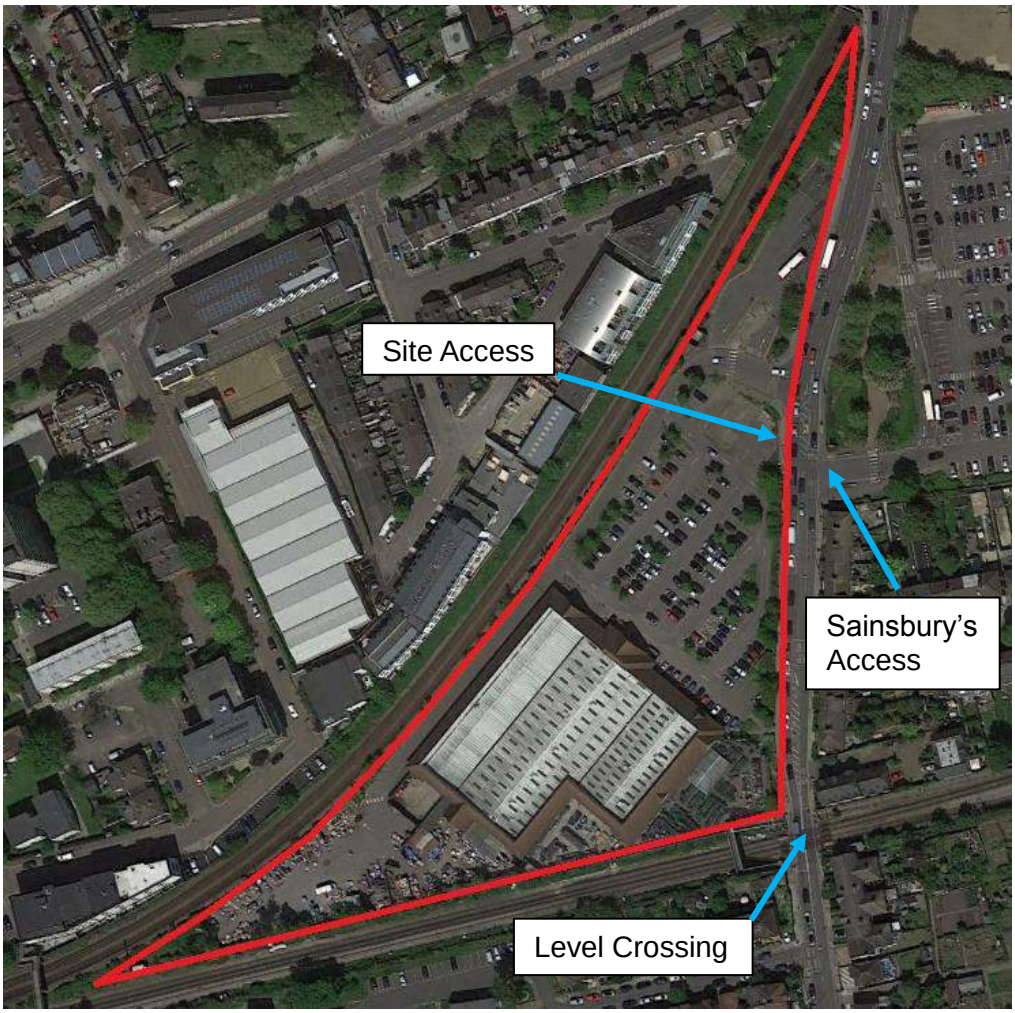


Figure 5.1.1 – Approximate extents of site (Imagery © 2018 Google)

5.1.2 Vehicular access is taken from Manor Road in the form of a standard priority junction arrangement, the dimensions of which are able to accommodate heavy goods vehicles and buses.

5.1.3 The initial section of the access road within the site also serves the North Sheen Bus Terminus, situated in the northern part of the site.

5.1.4 The existing car park provides a total of 174 spaces. However, 14 of these are occupied by a hand car wash & valeting service and 11 are reserved for use by Europcar Car Hire customers.

5.2 Existing Traffic Flows

5.2.1 Fully classified traffic counts at both the site access and the access to Sainsbury's opposite were undertaken by Nationwide Data Collection Ltd on 2nd October 2018. The AM and PM peak hours were shown to be 08:30-09:30 and 17:00-18:00, the full report is included at **Appendix C**.

5.2.2 The recorded vehicle movements at the junctions in the peak hours are shown on the diagram below;

AM 08:30 - 09:30
PM 17:00 - 18:00

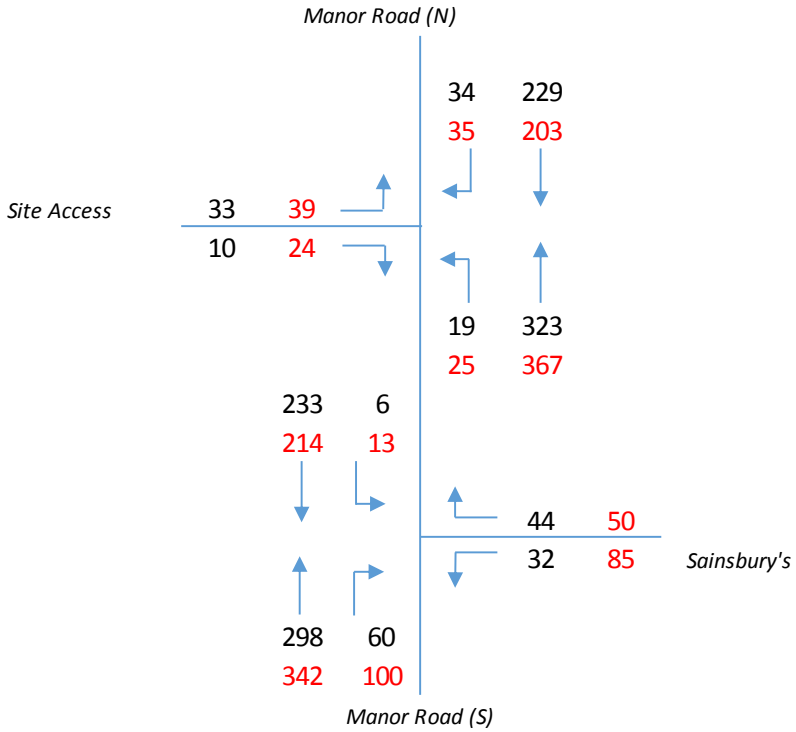


Figure 5.2.2 – Recorded peak hour vehicle movements

5.2.3 The peak hour vehicle movements at the existing site access were recorded as shown below:

	Arrivals	Departures	Total
AM Peak	53	43	96
PM Peak	60	63	123

Table 5.2.3 – Existing total vehicle movements at the site access

5.2.4 However, these numbers include large vehicles, the majority of which are passenger service vehicles that are associated with the bus terminus and will continue to occur. Therefore, the number of light vehicles has been extracted in order to show the number of vehicle movements associated with the Homebase part of the development site in its existing use which will cease to occur. The results of this are shown below:

	Arrivals	Departures	Total
AM Peak	46	33	79
PM Peak	52	55	107

Table 5.2.4 – Existing light vehicle movements at the site access

5.3 Level Crossing

5.3.1 On Manor Road, adjacent to the southern boundary of the site, a level crossing is present, as indicated on Figure 5.1.1. On 2nd October 2018, Nationwide Data Collection Ltd undertook surveys of the activations of the level crossing and the associated queues that formed.

5.3.2 In the AM peak hour, the level crossing was activated 9 times resulting in the barrier being down for 37m 28s. In the PM peak hour this was 30m 38s over 11 activations.

5.3.3 In the AM, the average southbound queue caused by the barrier being down was 128 metres which extends to the site access junction. In the PM, the average queue was 83 metres which extends to a point between Manor Grove and Sainsbury's access.

5.4 The Existing Highway Network

5.4.1 Manor Road, classified as the B353, runs in a north-south direction from Sheen Road (A305) in the south to the roundabout junction of Lower Richmond Road/Lower Mortlake Road (A316) and Sandycombe Road (B353) to the north.

5.4.2 Manor Road is a predominantly residential street and is generally a single carriageway with right turn lanes provided for access to both this site and the Sainsbury's supermarket opposite. It is subject to a 30mph speed limit and has double yellow line parking restrictions in place.

5.4.3 Along the site frontage there are two central islands which aid pedestrian movements, both have dropped kerbs and at the northern crossing tactile paving is also provided.

5.4.4 To the south of the site a stepped bridge is present to allow pedestrian movements to continue whilst the level crossing barriers are down as trains pass.

5.4.5 An assessment has been made of the walking routes from the site to the bus stops on Manor Road, Lower Mortlake Road and Lower Richmond Road, further details of these bus stops are given in section 6.4.

5.4.6 Along Manor Road, street-lighting is provided on both flanks, as are footways that link to the wider network. On the western side, the footway width is approximately 2.5m leading to the bus stop and then gradually narrows to approximately 1.8m on the approach to the roundabout junction.

5.4.7 At the roundabout junction, all arms have controlled pedestrian crossings in the form of zebra crossings. To the west, on Lower Mortlake Road, is a segregated foot/cycle way providing access to the nearest bus stops.

5.4.8 Towards the eastbound bus stop on Lower Richmond Road (shown on **Figure 4** at **Appendix A)**, raised crossing points with a central island and tactile paving are provided to aid pedestrian crossings of North Road and also act as a traffic calming measure. From North Road, footways with a width of approximately 4m are present.

5.5 Parking Stress Survey

5.5.1 In line with the Transport Scoping Study a Parking Stress Survey has been commissioned to establish the current parking restrictions and controls in force and also to identify the level of on-street parking which takes place.

5.5.2 Alpha Parking Limited undertook the surveys between 01:00-05:30, 09:00-10:00 and 13:00-14:00 on Monday 12 and Tuesday 13 November 2018 and a copy of the final report is attached at **Appendix D**.

5.5.3 The overall conclusion of this report is that both day (AM and PM) and overnight parking stress levels are between 62% and 63%.

5.5.4 Further consideration of the implications of the development on existing on-street parking provision is provided in Section 7.2 of this report.

5.6 Personal Injury Accident Data

5.6.1 Personal injury accident data has been obtained from Transport for London (TfL) for the local highway network in the vicinity of the site, as shown in figure 5.6.7. This data is for the 60 months to 31st December 2017, the most recent 5 year period available. A full copy of the accident data is included at **Appendix E**.

5.6.2 As can be seen, 31 incidents have occurred in the study area. Two of these incidents were ‘serious’ and the others ‘slight’ in severity with no fatal incidents.

5.6.3 The majority (25) of the incidents occurred in the vicinity of the A316 roundabout junction. Of these, seven involved a pedestrian, three involved a pedal cycle and one involved a mobility scooter. Of the seven pedestrian incidents it appears that the pedestrian was at fault in three cases.

5.6.4 The remaining six incidents occurred at various positions along Manor Road, two involving a pedestrian and one a pedal cycle. In one instance it appears that the pedestrian was at fault.

5.6.5 Reasons given for the incidents involving only motorised vehicles include: not looking properly, loss of control, poor turn or manoeuvre, sudden braking, following too close and travelling to fast for conditions.

5.6.6 Of the two serious incidents, one involved a pedal cyclist colliding with a car (ref: 0114TW60241). From the information provided it is not clear who was at fault, however it is inferred that either the driver or rider was impaired by alcohol.

5.6.7 The other serious incident (ref: 0115TW60298) involved a motorcycle that was travelling at excess speed that then braked suddenly causing the driver to go over the handlebars.

5.6.8 The figure provided overleaf illustrates the location of recorded incidents within the study area.

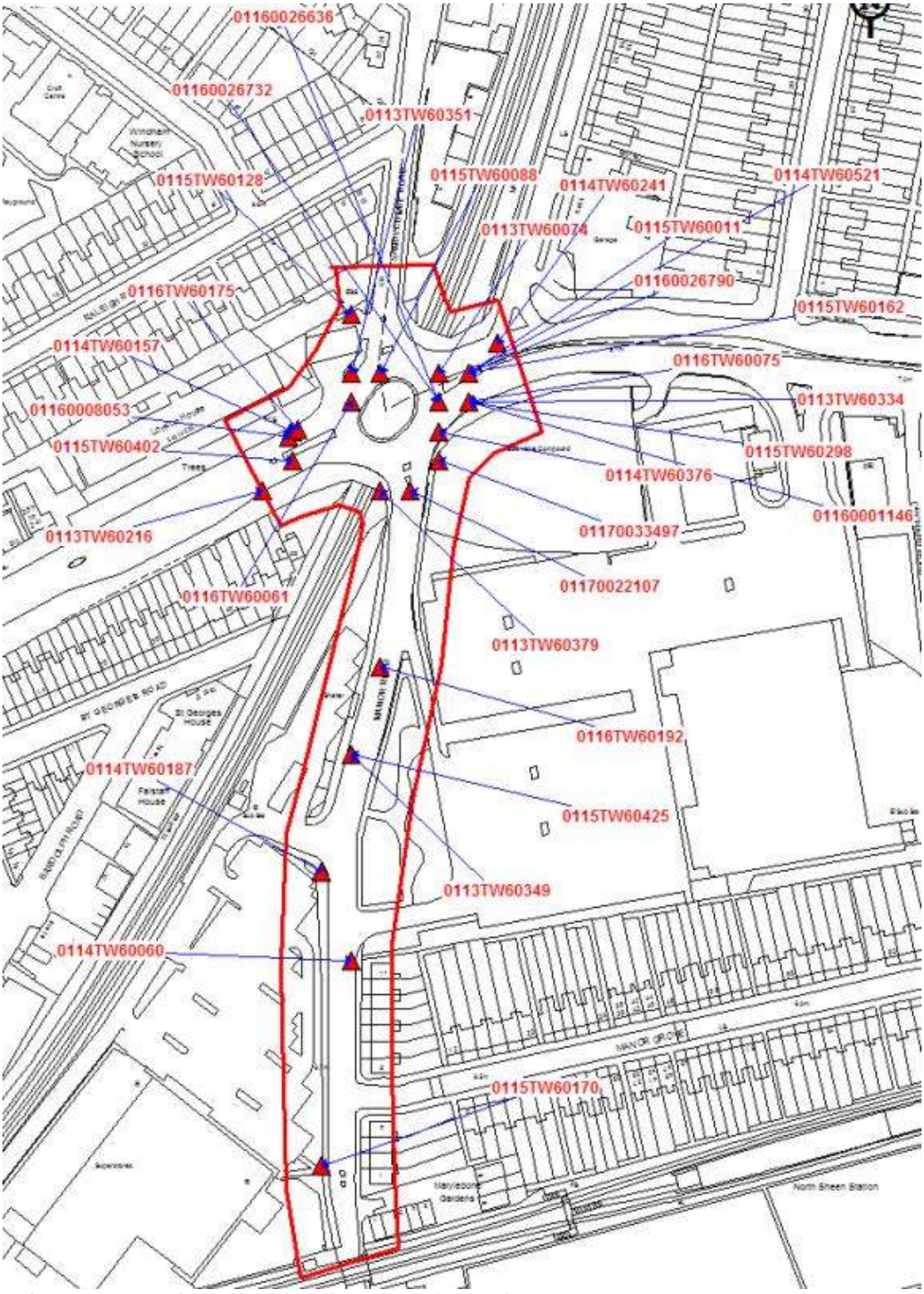


Figure 5.6.8 – Plot of incident locations from TfL

6 Accessibility by Non-Car Travel Modes

6.1 Overview

6.1.1 This section of the report considers the accessibility of the development by the following modes of transport in order to review the opportunities that will exist for residents, staff and visitors.

- Accessibility on foot;
- Accessibility by cycle;
- Accessibility by bus; and
- Accessibility by rail and tube

6.1.2 A PTAL (public transport access levels) report has been obtained using the online WebCAT tool and the site has a value of 5, 'very good'. The full report is included at **Appendix F**.

6.2 Accessibility on Foot

6.2.1 Walking is the most important mode of transport in the local level and can replace short car trips in journeys under 2km, which contribute to congestion and pollution, and the need for car parking. Walking is the most sustainable form of transport and provides one way of reducing pressure on the environment. People walking are also travelling at a pace that gives them a greater connection with their surroundings and can have positive benefits in relation to a community's security through increased surveillance.

6.2.2 Walking stimulates both personal health and the health of communities and local economies. Government health improvement advice states that just 30 minutes brisk walking 5 times a week can bring about significant reductions in the risk of coronary heart disease, high blood pressure and diabetes.

6.2.3 In relation to acceptable walking distances, Manual for Streets is the latest national guidance on the design of residential roads and offers the following guidance in Section 4.4 "The walkable neighbourhood".

"Walkable neighbourhoods are typically characterised by having a range of facilities within 10 minutes (up to about 800m) walking distance of residential areas which residents may access comfortably on foot. However, this is not an upper limit and PPG13 states that walking offers the greatest potential to replace short car trips, particularly those under 2 km. MfS encourages a reduction in the need to travel by car through the creation of mixed-use neighbourhoods with interconnected street patterns, where daily needs are within walking distance of most residents." It is noted that PPS 13 has been superseded by NPPF but the general guidance offered in Manual for Streets is considered relevant.

6.2.4 The IHT publication *"Providing for Journeys on Foot"* also identifies suggested acceptable walking distances for commuting, school and sight-seeing as follows with times based on a walking speed of 1.4m/s.

Desirable 500m	6 minutes
Acceptable 1000m	12 minutes
Preferred maximum 2000m	24 minutes

6.2.5 **Appendix A (Figure 2)** identifies 500m, 1km and 2km walking radii from the site. It is noted that walking routes will not follow the simple radius of this plan and the plan is provided as an indication of where destinations lie and the general extent to which the local area can be accessed on foot. The following amenities and facilities are all located within walking distance of the site.

6.2.6 Within a 500m walking distance of the site there are bus stops on Manor Road, Lower Richmond Road, Sandycombe Road and Lower Mortlake Road, North Sheen Train Station, Sainsbury's supermarket, Lloyd's Pharmacy, Starbucks coffee shop, Bright Horizons Day Nursery and Preschool.

6.2.7 Within a 1km walking distance of the site there is Darel Primary School, Windham Nursery School, The Kings Road Nursery, Marshgate Primary School, Christ's School and Sixth Form Centre, Holy Trinity Primary School, North Sheen recreation ground, North Sheen Bowling Club, Skinners Newsagent and Post Office, Seymour House Surgery, Kew Road Dental, Dental Care London, Specsavers and Vision Express.

6.2.8 Within 2km there is Kings House School, North Road Surgery, Pensford Tennis Club, Richmond Town Centre with various amenities and facilities, Richmond Station, Kew Gardens Station and Royal Botanic Gardens at Kew.

6.2.9 It is therefore considered that local facilities are highly accessible by pedestrians with a wide range of key amenities within a "walking neighbourhood" from the site.

6.2.10 The IHT publication *"Guidelines for Planning for Public Transport in Developments"* identifies maximum walking distances to bus stops as 400m, with 300m desirable. The PTAL assessment takes into account bus stops within 640m. The bus stops on Manor Road are located approximately 170-180m from the site therefore within the desired walking distance. Bus stops on Lower Mortlake Road and Lower Richmond Road are located approximately 340-390m from the site therefore within acceptable walking distances.

6.3 Accessibility by Cycle

6.3.1 Like walking, cycling has an important part to play in reducing congestion, improving accessibility and reducing pollution. A further benefit of cycling is linked to increased general health and fitness which has personal benefits as well as economic benefits for the nation in terms of health service costs. The bicycle is generally more affordable than the car and hence there are social equity benefits to the promotion of cycling. Cycling may also allow people without cars to reach destinations that they may otherwise be unable to reach.

6.3.2 It is indicated in PPG13 (2001) that "cycling has the potential to substitute for short car trips, particularly those under 5km and to form part of a longer journey by public transport". However, 'Building Sustainable Transport into New Developments' (2008) identifies that "people may be willing to walk or cycle further where their surroundings are more attractive, safe and stimulating". Furthermore, the National Travel Survey identifies longer cycle journeys than 5km with an average distance of 5.3km and an 85th percentile distance of 7.4km.

6.3.3 In relation to the application site; cycling distances from local centres and key locations within cycling distance are as follows. The plan at **Appendix A** (**Figure 3**) indicates destinations which lie within 5km and 7.5km radii of the application site. It is noted that cycling will not follow the simple radius of this plan and the plan is provided as an indication of where destinations lie and the general extent to which the site is accessible by cycle.

Origin/Destination	**Distance**
North Sheen Station	0.1km
North Sheen	0.7km
Kew	1.3km
Richmond Station	1.5km
Richmond Town Centre	1.6km
Kew Gardens Station	1.7km
East Sheen	2.1km
East Twickenham	2.5km
Chiswick	3.8km
Roehampton	4.2km
Brentford	4.9km
Hammersmith	5.7km
West Kensington	7.2km
Shepherd's Bush	7.3km
Kington upon Thames	7.4km

6.3.4 In the vicinity of the site, Manor Road, Manor Grove, Lower Richmond Road and Lower Mortlake Road are shown as off road/quiet cycle routes on the Transport for London Cycling Guides.

6.3.5 The site is accessible by cycle and plentiful cycle parking will be provided. It is therefore concluded that the site's location provides good cycling accessibility to the local area and the local infrastructure provides good opportunities for cycle use with ongoing connectivity to public transport.

6.4 Accessibility by Bus

6.4.1 The closest bus stops to the site are located on Manor Road approximately 170-180m from the site. In addition, bus stops are located on Lower Mortlake Road, Lower Richmond Road and Sandycombe Road slightly further from the site. **Appendix A** (**Figure 4**) details the location of these stops are as follows;

Manor Road

Location:	Manor Road
Reference:	Sainsbury's (SU)
Distance to stop:	Approx 170m from site
Direction of travel:	Buses travelling southbound
Facilities:	Pole with flag, timetable information, road markings
Bus services:	371

Location:	Manor Road
Reference:	Sainsbury's (SC)
Distance to stop:	Approx 180m from site
Direction of travel:	Buses travelling northbound
Facilities:	Pole with flag, shelter with seating, timetable information
Bus services:	371, 493, R70

Lower Mortlake Road

Location:	Lower Mortlake Road
Reference:	Manor Road
Distance to stop:	Approx 340m from site
Direction of travel:	Buses travelling southwest-bound
Facilities:	Pole with flag, lay-by
Bus services:	H22, H37

Location:	Lower Mortlake Road
Reference:	Manor Circus (SB)
Distance to stop:	Approx 420m from site
Direction of travel:	Buses travelling southwest-bound
Facilities:	Pole with flag, shelter with seating, timetable information, road markings
Bus services:	190, 371, 391, 419, 493, H22, H37, N22, R68, R70

Location:	Lower Mortlake Road
Reference:	Manor Circus (SA)
Distance to stop:	Approx 440m from site
Direction of travel:	Buses travelling northeast-bound
Facilities:	Pole with flag, shelter with seating, timetable information, road markings
Bus services:	190, 371, 391, 419, 493, H22, H37, N22, R68, R70

Lower Richmond Road

Location:	Lower Richmond Road
Reference:	Sandycombe Road (SL)
Distance to stop:	Approx 390m from site
Direction of travel:	Buses travelling northeast-bound
Facilities:	Pole with flag, shelter with seating, timetable information, road markings
Bus services:	190, 419, N22, R68

Sandycombe Road

Location:	Sandycombe Road
Reference:	Gainsborough Road (SP)
Distance to stop:	Approx 400m from site
Direction of travel:	Buses travelling southbound
Facilities:	Pole with flag, shelter with seating, timetable information, road markings
Bus services:	391

6.4.2 A summary of the services available at these bus stops is given below:

		Approximate Peak Frequency		
Service	**Route**	**Mon - Sat Daytime**	**Mon - Sat Evening**	**Sunday**
190	George Street – Empress State Building/West Brompton Station	15 mins	20 mins	20 mins
371	Manor Road/Sainsbury's – Kingston Hall Road	8-12 mins	15 mins	11-12 mins
391	George Street – Sands End/Sainsbury's	9-14 mins	15 mins	11-14 mins
419	George Street – Hammersmith Bus Station	15 mins	20-30 mins	30 mins
493	St George's/University of London – Richmond/Manor Road	9-14 mins	20 mins	20 mins
H22	The Bell – Manor Road	11-14 mins	20 mins	20 mins
H37	Hounslow/Blenheim Centre – Manor Road	5-10 mins	6-15 mins	7-10 mins
N22	South Road/Fulwell – Margaret Street/Oxford Circus (Night Bus)	No Service	30 mins	30 mins
R68	Kew Retail Park – Hampton Court Station	15 mins	20 mins	15 mins
R70	Nurserylands Shopping Centre – Richmond/Manor Road	6-12 mins	15-20 mins	15 mins

Table 6.4.2 – Summary of bus services

6.4.3 As can be seen from the above, there are a wide range of frequent bus services available seven days a week. The above services stop at various rail and tube stations which provide frequent and varied services to a wider range of destinations for onward travel.

6.5 Accessibility by Rail and Tube

6.5.1 The closest train station to the site is North Sheen Station located approximately 180m to the east of the site. North Sheen Railway Station is a two platform station that is under the management of South Western Railway. It provides the following facilities; information services, ticket counter, ticket machines and help points. No car or cycle parking facilities are available at this station.

6.5.2 This station provides services to Chiswick, London Waterloo, Wimbledon, Putney and other local destinations.

6.5.3 In addition, Richmond Station is located approximately 1.5km from the site which equates to a 30 minute walk or 7½ minute cycle journey. Richmond Station is managed by South West Railway and provides both rail and underground services. The station provides the following facilities: CCTV monitored cycle stands for 212 cycles, 55 space car park, taxi/drop off area, fully staffed ticket office, ticket machines, help points, ATM, pay phones, post box, toilets, waiting rooms, shops, step free access and ramps for train access with staff available to help.

6.5.4 This station provides rail services to Chiswick, London Waterloo, Stratford, Reading, Wokingham and other local destinations. Richmond Station also provides over-ground line services on the Richmond and Clapham Junction to Stratford route with approximately 12-18 minute frequency.

6.5.5 District line underground services are also available at approximately 10 minute intervals.

6.5.6 Both of these provide links to the wider Transport for London network with a wide range of possibilities for onward travel. The locations of the stations are shown on **Figure 4** at **Appendix A**.

6.6 Accessibility Summary

6.6.1 The site is considered to be highly accessible by both active and public transport. As such, residents, staff and visitors to the development will have a choice of sustainable travel options which will reduce the need to travel by car.

7 Development Proposals

7.1 Development Overview

7.1.1 The development proposes the demolition of existing buildings and structures and comprehensive residential-led redevelopment of four buildings of between four and nine storeys to provide 385 residential units (Class C3), flexible retail /community / office uses (Classes A1, A2, A3, D2, B1), provision of car and cycle parking, landscaping, public and private open spaces and all other necessary enabling works with vehicular access from Manor Road.

7.1.2 The four main buildings will surround a central courtyard area with pedestrian links throughout. Each building is to have stairwells and lifts to provide access to the residential units on upper floors. The proposed ground floor layout is included at **Appendix G**.

7.1.3 The primary pedestrian and cycle entrance to the site is to be off Manor Road opposite Manor Grove with vehicular access remaining from Manor Road in place of the existing site access.

7.1.4 The residential apartments are proposed to be a mix of private and affordable units of different sizes, as shown in the table below.

	1 bed	2 bed	3 bed	Total
Private	101	116	36	253
Affordable Rent	6	28	19	53
Shared Ownership	45	34	0	79
Total	152	178	55	385

Table 7.1.4 – Schedule of residential accommodation

7.1.5 The commercial element of the proposals is to be at ground level in three parts; one unit within the central courtyard yard space and two flanking the main entrance to the site, opposite Manor Grove.

7.2 Parking Provision

7.2.1 The development is to be predominantly car-free with no standard car parking spaces provided. Twelve parking spaces (3% provision) are proposed within the site and these are all to be designated as accessible spaces. The potential to increase to the full 10% provision is to be made available if required.

7.2.2 The 'Maximum Parking Standards' set out in the London Plan (2016) note that; *"All developments in areas of good public transport accessibility (in all parts of London) should aim for significantly less than 1 space per unit".* Moving forward, the Draft London Plan (2017) proposes that all new developments in areas of PTAL 5 – 6 should be car-free. It is therefore considered that the car-free proposals are in conformity with the current standards and also satisfy the future aspirations of the London Plan.

7.2.3 In line with the policies of TfL and LBRuTC residents of the proposed development will, as owners/occupiers of a new property, be exempt from applying for residents parking permits for those roads in the vicinity of the site subject to such restrictions, this can be secured by way of a planning condition.

7.2.4 However, in order to mitigate against residents of the proposed development parking on roads in the vicinity of the site which are subject to daytime only parking restrictions or no restriction at all, it is proposed that the results of the parking stress survey attached at **Appendix D** are discussed in detail with LBRuTC with a view to amending and extending the existing Traffic Regulation Orders covering the Controlled Parking Zones adjacent to the site. An extension to the Controlled Parking Zone can be secured by way of a planning obligation.

7.2.5 With regards to cycle parking; Chapter 6 – 'London's Transport' of the London Plan sets out the applicable standards for the possible commercial and residential elements of the development. These are summarised below:

	Use class	Long stay	Short stay
Commercial	A1 Food retail	1 space per 175sqm GEA	1 space per 40sqm
	A1 Non-food retail	1 space per 250sqm	1 space per 125sqm
	A2	1 space per 175sqm GEA	1 space per 40sqm
	B1 Office	1 space per 150sqm	1 space per 500sqm
Residential	C3	1 space per studio/1 bed unit, 2 spaces all other dwellings	1 space per 40 units

Table 7.2.5 – London Plan 2016 - Table 6.3: Cycle Parking minimum standards

7.2.6 As the exact use of the commercial areas is not yet known, the most stringent standards have been applied resulting in the following requirements for the proposed development.

	Long stay	Short stay
Commercial	3	24
Residential	693	11
Total	696	35

Table 7.2.6 – Cycle parking requirements

7.2.7 The following long stay cycle parking is to be provided, which is above the standards required in order to promote the use of this transport mode:

- Building A – 720 secure cycle spaces within a basement storage area
- Building C – 120 secure cycle spaces within a ground floor storage area

7.2.8 The required short stay cycle parking provision is to be located throughout the open space of the site as indicated on the layout plan attached at Appendix G.

7.3 Access

7.3.1 As part of the proposals, improvements are to be made to the footway along the site frontage including widening and planting of trees and shrubs.

7.3.2 TfL have plans to make safety improvements to the roundabout junction to the north of the site, with work expected to begin in winter 2019. These works are expected to include signalising the junction, including the introduction of signalised pedestrian crossings, and providing an improved environment for both pedestrians and cyclists.

7.4 Servicing

7.4.1 All servicing of the buildings is to be undertaken within the site. All of the buildings will have a managed waste system whereby the refuse bins will be moved to a collection area in readiness for the refuse collection vehicle.

7.4.2 Swept path analysis of a refuse collection vehicle, rigid vehicle, hydraulic inspection platform, fire appliance and removal van have been carried out and are included at **Appendix H**.

7.4.3 Further details regarding the servicing of the development are included within the site's Servicing and Delivery Management Plan, which has been prepared under separate cover.

7.5 Car Club

7.5.1 Two electric car club spaces are to be provided on site. Car Clubs are widely accessible and provide users with access to a vehicle, without the need to own one themselves. They will be managed by the operators of the scheme who are to be confirmed in due course.

7.6 Healthy Streets Approach

7.6.1 The 'Healthy Streets Approach' has been introduced by the Mayor of London, Sadiq Khan, and "aims to reduce traffic, pollution and noise, create more attractive, accessible and people-friendly streets where everybody can enjoy spending time and being physically active, and ultimately to improve people's health". There are ten indicators as illustrated overleaf.

7.6.2 In relation to these indicators, the development will encourage travel by active and sustainable modes by being predominantly car-free, providing ample cycle parking and electric car club vehicles.

7.6.3 It will also provide public spaces with seating where people can relax, rest and seek shade and shelter in a safe environment. The improvements to the footway on the site frontage will ensure the space is suitable for all sections of the

community and will be able to accommodate a range of activities. A dropped crossing with tactile paving will be provided across the site access road to assist with pedestrian movements along Manor Road.

7.6.4 In addition, Manor Road is street-lit and the addition of trees and shrubs will add to

the varied appearance of the frontage. The courtyard within the site will be used for various events potentially including markets, art installations and outdoor cinema which will bring life and interest to the area.

Figure 7.6.4 – Ten Healthy Streets Indicators (Transport for London)

8 Multimodal Traffic Generations

8.1 Multimodal trip rates have been assessed using information contained within the TRICS v7.5.2 database and the 2011 Census.

8.2 As described in detail in the EA Screening Technical Note (ref 10596TN1), a considered approach has been taken to the TRICS assessments with sites deemed to be 'unrepresentative', removed.

8.3 Residential Multimodal Generations

Privately Owned Flats

8.3.1 To predict the multimodal trips for the privately owned residential element of the development, the TRICS database has been used to derive total person trip rates using the following search parameters:

Land Use: 03 – Residential

Category: C – Flats Privately Owned

Selected Regions and Areas: Greater London only (sites with PTAL rating less than 4 excluded)

Parameter: Number of Dwellings

Actual Range: 29-472 units

Date Range: 01/01/10 – 30/11/16

Selected Survey Days: Monday – Friday

Selected Locations: Town centre sites excluded

8.3.2 The following table provides details of the resulting weekday AM and PM peak hour total person trip rates per unit along with the corresponding generated trips for the proposed 252 flats. The full TRICS outputs are contained in **Appendix I**.

Time	Trip Rate per Unit	Generations from 253 Units
Weekday AM Peak (08:00-09:00)	0.334	84
Weekday PM Peak (17:00-18:00)	0.345	87

Table 8.3.2 – Total person trip generations for private residential element (253 units)

Affordable Flats

8.3.3 To predict the multimodal trips for the affordable residential element of the development, the TRICS database has been used to derive total person trip rates using the following search parameters:

Land Use: 03 – Residential

Category: D – Affordable/Local Authority Flats

Selected Regions and Areas: Greater London only (sites with PTAL rating less than 4 excluded)

Parameter: Number of Dwellings

Actual Range: 36-250 units

Date Range: 01/01/10 – 27/06/16

Selected Survey Days: Monday – Friday

Selected Locations: Town Centre sites excluded

8.3.4 The following table provides details of the weekday AM and PM peak hour total person trip rates per unit along with the corresponding generated trips for the proposed 132 flats. The full TRICS outputs are contained in **Appendix I**.

Time	Trip Rate per Unit	Generations from 132 Units
Weekday AM Peak (08:00-09:00)	0.734	97
Weekday PM Peak (17:00-18:00)	0.633	84

Table 8.2.4 – Total person trip generations - affordable residential element (132 units)

Total Residential Generations

8.3.5 This results in the below total person trip generations.

Time	Total generations
Weekday AM Peak (08:00-09:00)	181
Weekday PM Peak (17:00-18:00)	171

Table 8.2.5 – Total person trip generations

8.3.6 In order to determine the likely modal split of the person trips calculated above the 2011 Census Data – Method of Travel to Work dataset has been used. The Richmond upon Thames 004 MSOA (Middle Super Output Area), in which the site lies, has been compared to Richmond as a whole and England and the table below gives a summary of this data with a full copy included at **Appendix J**.

	Richmond upon Thames 004	Richmond upon Thames	England
Method of Travel to Work	**% working**	**% working**	**% working**
Work Mainly at or From Home	8.0%	8.9%	5.4%
Underground, Metro, Light Rail, Tram	21.6%	10.7%	4.1%
Train	17.9%	21.9%	5.3%
Bus, Minibus or Coach	7.5%	7.6%	7.5%
Taxi	0.2%	0.2%	0.5%
Motorcycle, Scooter or Moped	1.6%	1.7%	0.8%
Driving a Car or Van	26.8%	32.5%	57.0%
Passenger in a Car or Van	1.2%	1.4%	5.0%
Bicycle	5.9%	6.1%	3.0%
On Foot	8.6%	8.2%	10.7%
Other Method of Travel to Work	0.8%	0.7%	0.6%

Table 8.3.6 – Census Data – Method of Travel to Work

8.3.7 Applying these figures to the predicted total person generations results, the number of trips by each mode given below.

Method of Travel to Work	%	AM Peak Hour	PM Peak Hour
Work Mainly at or From Home	8.0%	14	14
Underground, Metro, Light Rail, Tram	21.6%	39	37
Train	17.9%	32	31
Bus, Minibus or Coach	7.5%	14	13
Taxi	0.2%	0	0
Motorcycle, Scooter or Moped	1.6%	3	3
Driving a Car or Van	26.8%	49	46
Passenger in a Car or Van	1.2%	2	2
Bicycle	5.9%	11	10
On Foot	8.6%	16	15
Other Method of Travel to Work	0.8%	1	1

Table 8.3.7 – Modal split of total person trip generations

8.3.8 Given the absence of ‘standard’ car parking spaces within the site it is considered that the level of generation associated with car / van drivers is unlikely to be realised and in reality there will be a greater shift towards the use of sustainable transport modes. Nevertheless, the peak hour demand from the residential development for walking, cycling and public transport is predicted to be at a level which is unlikely to have a detrimental impact on the existing infrastructure.

8.4 Commercial Multimodal Generations

8.4.1 During the analysis of the TRICS database in relation to the proposed commercial space within the development it was noted that there were no “Greater London” sites in the “Shopping Centre - Local Shops” category.

8.4.2 It is, however, considered that the commercial spaces in question are of such a size that the end use would be limited to those outlets serving the immediate community and thus would generate the majority of its traffic as pass-by movements on foot and cycle.

9 Vehicle Traffic Generations

9.1 The vehicle trips associated with the proposed development have also been assessed using the TRICS database v7.5.2. The approach to 'unrepresentative' sites that has been applied with the multimodal TRICS data has also been used for vehicle trip generations.

9.2 Residential Traffic Generations

9.2.1 To predict the vehicle trips for the private and affordable residential elements of the development the TRICS data used in section 8.2 of this report has been used.

	Trip Rate Per Dwelling		Traffic Generations from 253 Units		
	Arrivals	Departures	Arrivals	Departures	Total
AM Peak (08:00-09:00)	0.011	0.015	3	4	7
PM Peak (17:00-18:00)	0.023	0.011	6	3	9

Table 9.2.1a – Traffic generations for private residential element (253 units)

	Trip Rate Per Dwelling		Traffic Generations from 132 Units		
	Arrivals	Departures	Arrivals	Departures	Total
AM Peak (08:00-09:00)	0.029	0.096	4	13	17
PM Peak (17:00-18:00)	0.043	0.040	6	5	11

Table 9.2.1b – Traffic generations for affordable residential element (132 units)

9.2.2 The predicted residential vehicle trips are 24 vehicle movements two-way in the AM and 20 in the PM peak hours. This equates to approximately one vehicle every 2.5-3 minutes in the AM and PM peak hours.

9.2.3 Providing complementary amenities within the site will reduce the need for residents to travel off site for the same facilities and traffic flows could be expected to be lower than at comparative residential development sites without convenience facilities on site.

9.3 Commercial Traffic Generations

9.3.1 At this stage, the exact uses of the commercial space within the development have not yet been confirmed. However, it is understood that this could be a mix of A1/A2 retail outlets and B1 office.

9.3.2 To provide an initial assessment the TRICS land use category '01 Retail – I Shopping Centre Local Shops' has been utilised. It is considered that whilst this category may not necessarily be exactly representative of the development proposals, it is the most appropriate land use category available within the TRICS database.

9.3.3 The table below shows the trip rates and associated traffic generations based on the available sites with the full report included at **Appendix I**;

	Time Period	Trip Rates (per 100sqm GFA)		Traffic Generations		
		Arrivals	Departures	Arrivals	Departures	Two-way
Commercial Space (480.1sqm)	AM (08:00-09:00)	5.180	4.773	25	23	48
	PM (17:00-18:00)	6.369	6.933	31	33	64

Table 9.3.3 - Trip rates and generations for proposed commercial use

9.3.4 It is considered that the generations identified in the table above are wholly unrealistic and in reality are unlikely to be realised at the proposed development site. This is due to no on-site parking provision associated with the commercial element of the development combined with TRO's along Manor Road which prohibit on-street car parking. In addition, the modest size of the proposed commercial areas means it is unlikely that trips would be drawn from further-a-field and use of the retail space is likely to be by pass-by trips.

9.3.5 Taking this into account and applying the reductions detailed in the EIA Screening Technical Note (ref 10596TN1), the trip generations below result;

	Time Period	Traffic Generations		
		Arrivals	Departures	Two-way
Commercial Space (480.1sqm)	(08:00-09:00)	7	6	13
	(17:00-18:00)	8	9	17

Table 9.3.5 - Trip generations for proposed commercial use with reductions applied

9.3.6 This equates to approximately one vehicle every 3.5-4.5 minutes in the AM and PM peak hours.

9.4 Total Traffic Generations

9.4.1 Following the above assessments, the total trip generations associated with the development proposals can be summarised as follows:-

Land Use	Time Period	Traffic Generations		
		Arrivals	Departures	Two-way
Private Flats	AM	3	4	7
Affordable Flats		4	13	17
Commercial		7	6	13
Total		**14**	**23**	**37**
Private Flats	PM	6	3	9
Affordable Flats		6	5	11
Commercial		8	9	17
Total		**20**	**17**	**37**

Table 9.4.1 - Total proposed development vehicle trip generations

9.4.2 Taking into consideration the existing use of the development site, described in section 5.2, the proposed development could be expected to result in a reduction of 42 traffic movements in the AM peak and 70 in the PM peak.

9.5 Development Traffic Distribution

9.5.1 The distribution of the traffic generated by the residential element of the site has been predicted using the 'WU03EW - Location of usual residence and place of work by method of travel to work (MSOA level)' dataset from the 2011 Census. The site falls within Richmond upon Thames 004 MSOA which is illustrated overleaf.

Figure 9.5.1 – Richmond upon Thames 004 MSOA (MapItUK)

9.5.2 The traffic distribution and resulting traffic flows are shown at **Appendix A,** on **Figures 5 and 6** respectively.

9.5.3 The traffic generated by the commercial element of the site has been distributed by the existing turning proportions of light vehicles at the site access. The traffic distribution and resulting traffic flows are shown at **Appendix A,** on **Figures 7 and 8** respectively.

9.5.4 The total development traffic flows are shown on **Figure 9** at **Appendix A**.

10 Traffic Impact Assessment

10.1 This section of the report seeks to quantify the impact of the proposed development traffic flows upon the local highway network.

10.2 Base Traffic Flows

10.2.1 Fully classified traffic counts of the site access and Sainsbury's supermarket access opposite were undertaken by Nationwide Data Collection Ltd on 2 October 2018.

10.2.2 A diagram showing the base traffic flows is included on **Figure 10** at **Appendix A**.

10.3 Committed Development

10.3.1 No committed development sites have been identified.

10.4 Traffic Growth

10.4.1 The traffic impact of the development has been assessed at the initial year of 2018, an opening year of 2023 and a design year of 2028.

10.4.2 Traffic growth factors have been generated utilising the latest version of TEMPRO (v7.2), adjusted against Table AF15 of the Department for Transport's National Traffic Model Dataset 7.2. The growth factors used are shown below:

2018 to 2023	AM	1.0519	**2018 to 2028**	AM	1.0905
	PM	1.0510		PM	1.0905

10.4.3 Diagrams showing the base traffic flows growthed to 2023 and 2028 are included at **Appendix A,** on **Figures 11 and 12** respectively.

10.5 Junction Modelling

10.5.1 Detailed junction capacity modelling has been undertaken using Junctions software. Both the site access and the access to Sainsbury's supermarket opposite have been modelled in the 2023 and 2028 future years.

Site Access priority junction

10.5.2 The results of this assessment are summarised as follows;

Arm A = Manor Road (S)

Arm B = Site Access

Arm C = Manor Road (N)

	2018 Base AM		2018 Base PM	
	Max RFC	**Max Queue (veh)**	**Max RFC**	**Max Queue (veh)**
B-AC	0.10	0.1	0.15	0.2
C-B	0.08	0.1	0.08	0.1
	2023 Base + Dev AM		**2023 Base + Dev PM**	
	Max RFC	**Max Queue (veh)**	**Max RFC**	**Max Queue (veh)**
B-AC	0.08	0.1	0.06	0.1
C-B	0.04	0.0	0.06	0.1
	2028 Base + Dev AM		**2028 Base + Dev PM**	
	Max RFC	**Max Queue (veh)**	**Max RFC**	**Max Queue (veh)**
B-AC	0.08	0.1	0.06	0.1
C-B	0.04	0.0	0.06	0.1

Table 10.5.3 – Junctions results

10.5.3 The output results can be found at **Appendix K**.

10.5.4 This shows that, even in the worst case situation of 2028 with development traffic, the junction would operate comfortably within its practical capacity, which is generally accepted as being represented by a ratio of flow to capacity (RFC) of 0.850.

Sainsbury's supermarket access priority junction

10.5.5 The results of this assessment are summarised as follows;

Arm A = Manor Road (N)

Arm B = Site Access

Arm C = Manor Road (S)

	2018 Base AM		2018 Base PM	
	Max RFC	**Max Queue (veh)**	**Max RFC**	**Max Queue (veh)**
B-C	0.07	0.1	0.18	0.2
B-A	0.14	0.2	0.18	0.2
C-AB	0.10	0.1	0.17	0.2
	2023 Base + Dev AM		**2023 Base + Dev PM**	
	Max RFC	**Max Queue (veh)**	**Max RFC**	**Max Queue (veh)**
B-C	0.07	0.1	0.19	0.2
B-A	0.15	0.2	0.19	0.2
B-C	0.11	0.1	0.18	0.2
	2028 Base + Dev AM		**2028 Base + Dev PM**	
	Max RFC	**Max Queue (veh)**	**Max RFC**	**Max Queue (veh)**
B-C	0.08	0.1	0.20	0.2
B-A	0.16	0.2	0.20	0.2
C-AB	0.11	0.1	0.19	0.2

Table 10.5.6 – Junctions results

10.5.6 The output results can be found at **Appendix K**.

10.5.7 This shows that, even in the worst case situation of 2028 with development traffic, the junction would operate comfortably within its practical capacity, which is generally accepted as being represented by a ratio of flow to capacity (RFC) of 0.850.

Southbound queues

10.5.8 As the total proposed traffic generations during the peak AM and PM hours are predicted to result in reductions when compared to the existing use of the site, it is considered that queues at the level crossing to the south would not be adversely affected by the proposals.

11 Summary and Conclusions

11.1 Sanderson Associates (Consulting Engineers) Ltd has been appointed by Avanton Richmond Development Limited to advise on traffic and transportation issues surrounding a proposed change of use development on land off Manor Road, Richmond.

11.2 The development proposes the demolition of existing buildings and structures and comprehensive residential-led redevelopment of four buildings of between four and nine storeys to provide 385 residential units (Class C3), flexible retail /community / office uses (Classes A1, A2, A3, D2, B1), provision of car and cycle parking, landscaping, public and private open spaces and all other necessary enabling works with vehicular access from Manor Road. The residential apartments are proposed to be a mix of private and affordable (rent and shared ownership) units ranging from 1, 2 and 3 bed apartments.

11.2.1 The primary pedestrian and cycle entrance to the site is to be off Manor Road opposite Manor Grove with vehicular access being retained at the existing site access which will also continue to serve the bus terminus.

11.3 A detailed assessment of the surrounding highway network and public transport infrastructure has been undertaken and it is considered that the facilities available are capable of accommodating the person trips likely to be generated by the development.

11.4 The London Plan (2016) notes that; *"All developments in areas of good public transport accessibility (in all parts of London) should aim for significantly less than 1 space per unit".* Moving forward, the Draft London Plan (2017) proposes that all new developments in areas of PTAL 5 – 6 should be car-free.

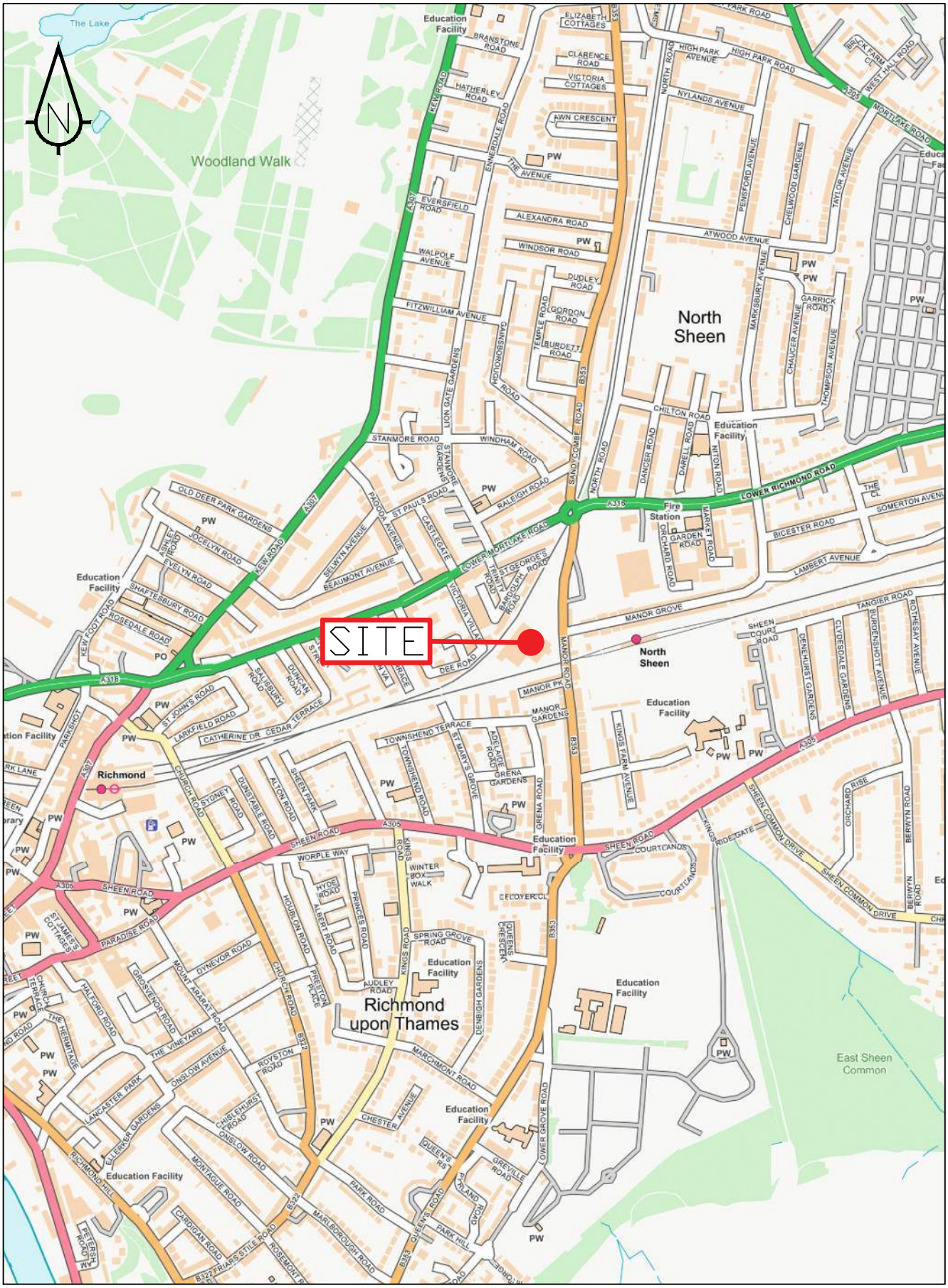
11.5 Only a limited amount (3%) of disabled spaces being provided with the capability to increase this to 10% if required. Cycle parking is proposed in line with the

standards contained within the draft London Plan and electric car club spaces are also proposed.

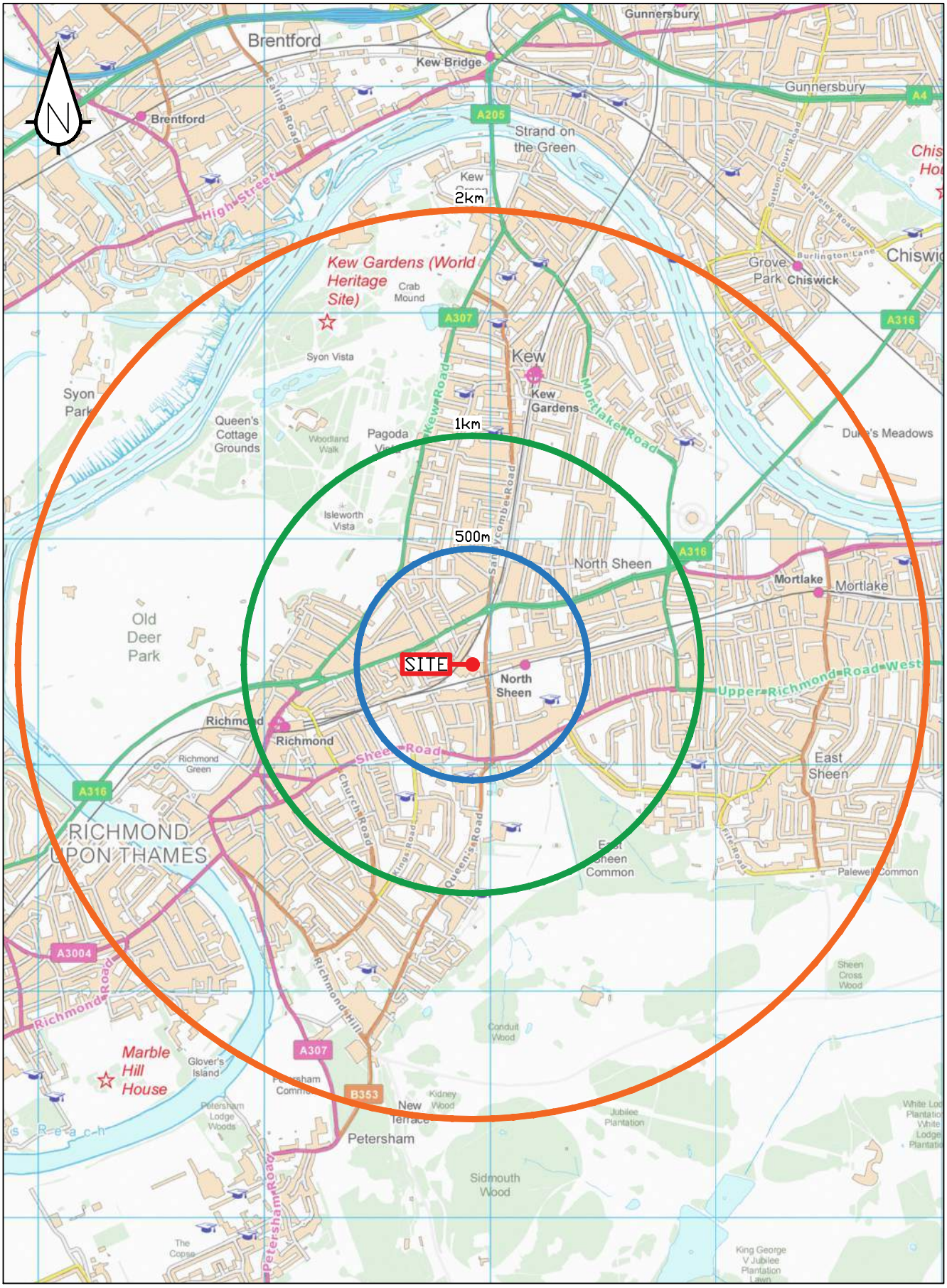
11.6 It is therefore considered that, as the development site is situated in a highly accessible area, the virtually car-free proposals are in conformity with the current policies adopted by the LBRuTC, and also satisfy the future aspirations of the London Plan.

11.7 There are, therefore, no transportation related reasons why the development should not be allowed to proceed.

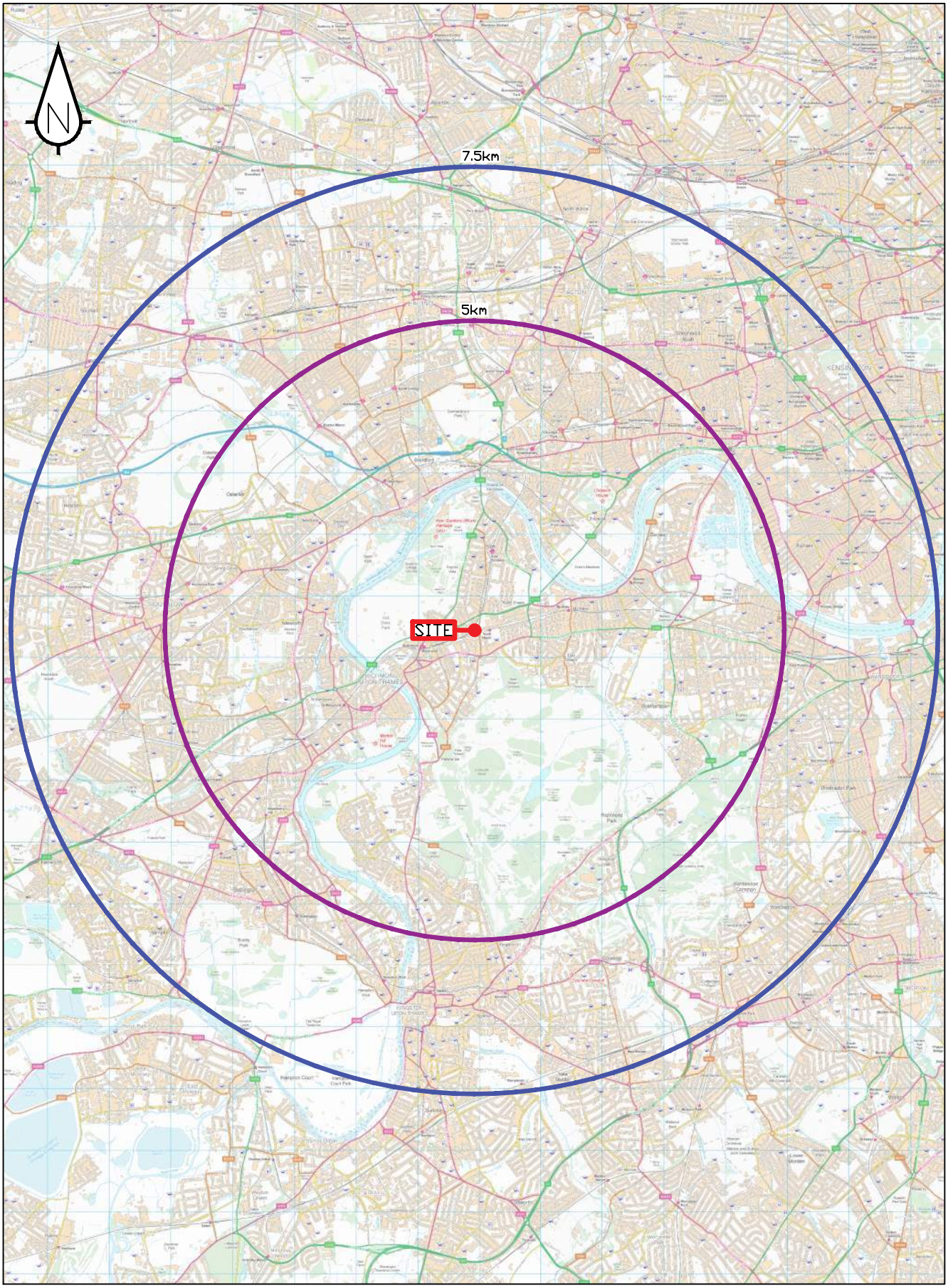
APPENDIX A



sanderson associates (consulting engineers) ltd Highways | Traffic | Transportation | Water T 01924 844080 mail@sandersonassociates.co.uk F 01924 844081 www.sandersonassociates.co.uk	Site Location Plan	Drawn CH	Scale NTS
		Checked KS	Date July 2018
	Proposed Change of Use Development off Manor Road, Richmond	Approved KS	Drawing Number Figure 1
			Size A4



sanderson associates (consulting engineers) ltd Highways | Traffic | Transportation | Water T 01924 844080 mail@sandersonassociates.co.uk F 01924 844081 www.sandersonassociates.co.uk	500m, 1km & 2km Indicative Walking Radii	Drawn: CH	Scale: NTS
		Checked: KS	Date: July 2018
	Proposed Change of Use Development off Manor Road, Richmond	Approved: KS	Drawing Number: Figure 2
			Size: A4



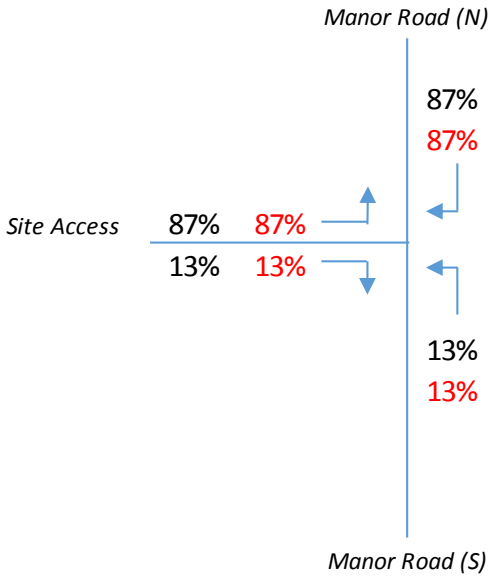
sanderson associates (consulting engineers) ltd
Highways | Traffic | Transportation | Water
T 01924 844080 mail@sandersonassociates.co.uk
F 01924 844081 www.sandersonassociates.co.uk

5 & 7.5km Indicative Cycling Radii

Proposed Change of Use Development off Manor Road, Richmond

Drawn: CH	Scale: NTS	
Checked: KS	Date: July 2018	
Approved: KS	Drawing Number: Figure 3	Size: A4

sanderson associates (consulting engineers) ltd Highways | Traffic | Transportation | Water T 01924 844080 mail@sandersonassociates.co.uk F 01924 844081 www.sandersonassociates.co.uk	Location of Public Transport Proposed Change of Use Development off Manor Road, Richmond	Drawn: CH	Scale: NTS
		Checked: KS	Date: July 2018
		Approved: KS	Drawing Number: Figure 4
			Size: A4



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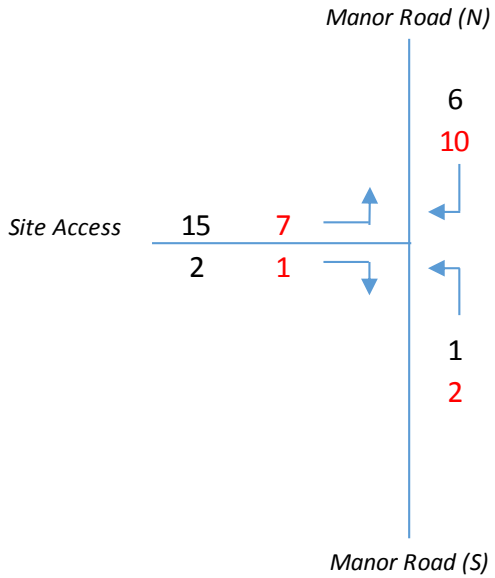
Proposed Change of Use Development,
Off Manor Road,
Richmond Upon Thames

Residential Development
Traffic Distribution

Rev	Amendment	Drawn	Date	Checked

Scale: NTS	Draw by: CH
Drawing Size: A3	Checked by: KS
Date: January 2019	Approved by: KS
	Drawing Number: Figure 5
	Rev.



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**Proposed Change of Use Development,
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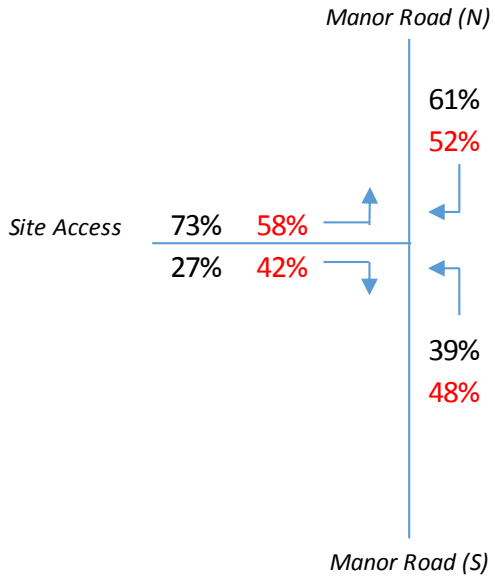
**Residential Development
Traffic Flows**

Rev	Amendment	Drawn	Date	Checked

Scale: NTS	Draw by: CH
Drawing Size: A3	Checked by: KS
Date: January 2019	Approved by: KS
	Drawing Number: Figure 6 / Rev.



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**Proposed Change of Use Development,
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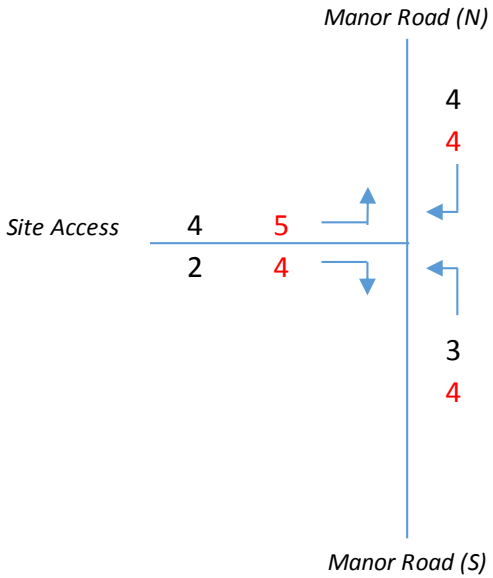
**Commercial Development
Traffic Distribution**

Rev	Amendment	Drawn	Date	Checked

Scale: NTS	Draw by: CH
Drawing Size: A3	Checked by: KS
Date: January 2019	Approved by: KS
Drawing Number: Figure 7	Rev.



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**Proposed Change of Use Development,
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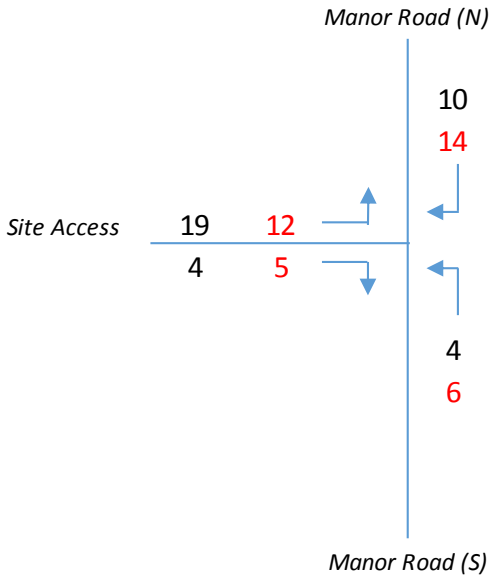
Richmond Upon Thames**

**Commercial Development
Traffic Flows**

Rev	Amendment	Drawn	Date	Checked

Scale: NTS	Draw by: CH
Drawing Size: A3	Checked by: KS
Date: January 2019	Approved by: KS
Drawing Number: Figure 8	Rev.



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**Proposed Change of Use Development,
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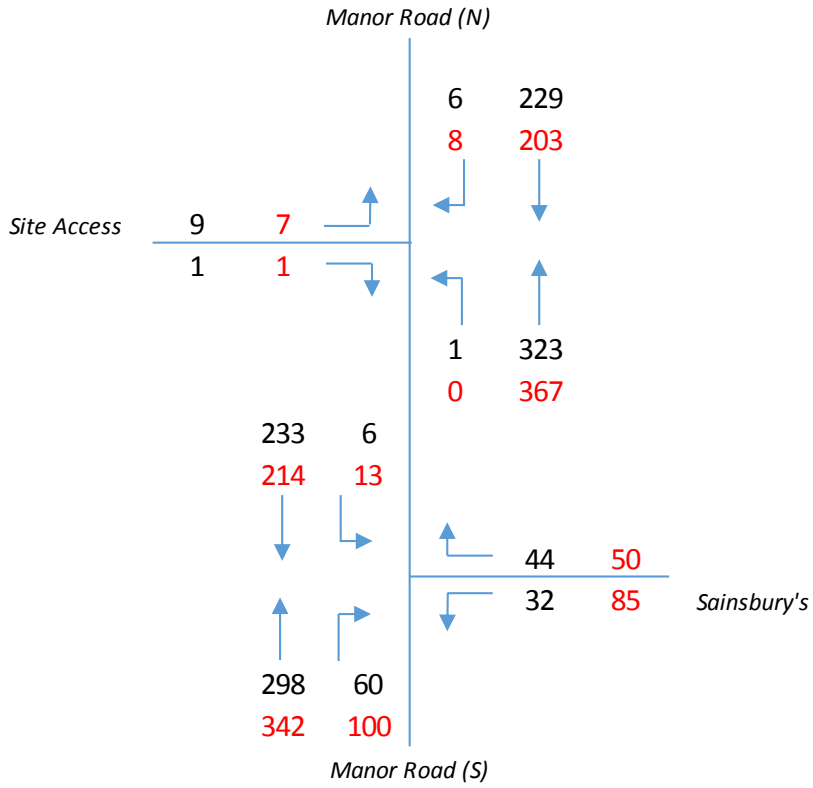
**Total Development
Traffic Flows**

Rev	Amendment	Drawn	Date	Checked

Scale: NTS	Draw by: CH
Drawing Size: A3	Checked by: KS
Date: January 2019	Approved by: KS
Drawing Number: Figure 9	Rev.



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Proposed Change of Use Development,
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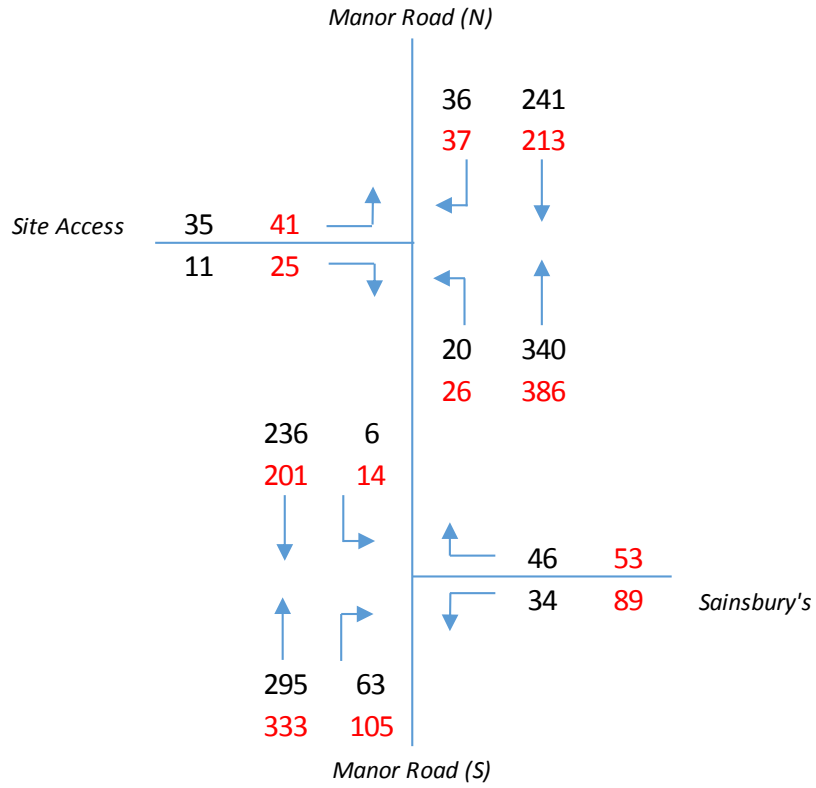
2018 Base
Traffic Flows

Rev	Amendment	Drawn	Date	Checked

Scale: NTS	Draw by: CH
Drawing Size: A3	Checked by: KS
Date: January 2019	Approved by: KS
Drawing Number: Figure 10	Rev.



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Proposed Change of Use Development,
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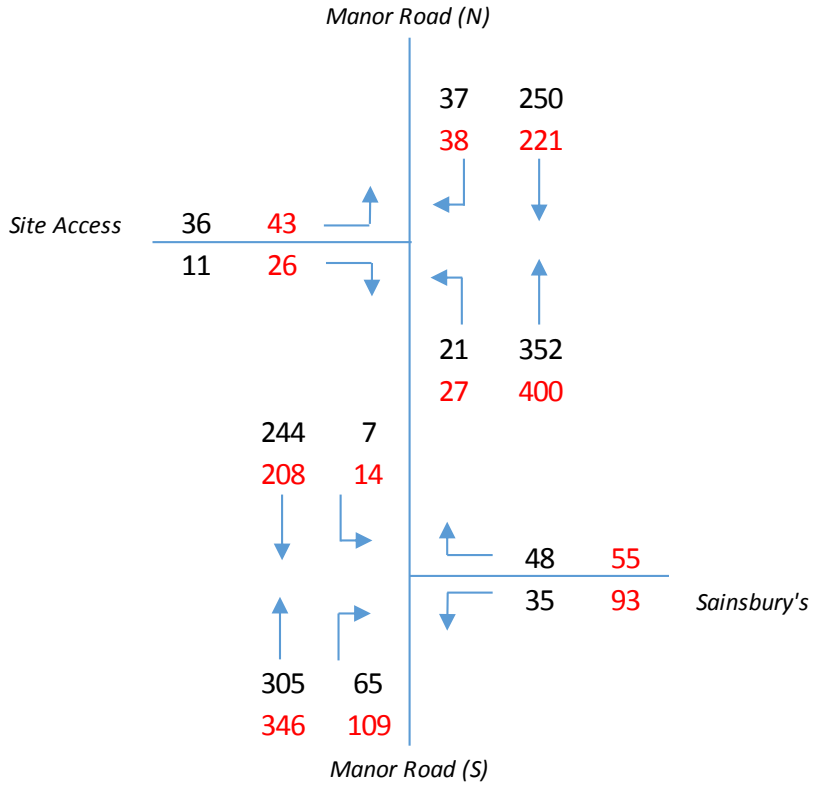
2023 Base
Traffic Flows

Rev	Amendment	Drawn	Date	Checked

Scale: NTS	Draw by: CH
Drawing Size: A3	Checked by: KS
Date: January 2019	Approved by: KS
Drawing Number: Figure 11	Rev.



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**Proposed Change of Use Development,
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**2028 Base
Traffic Flows**

Rev	Amendment	Drawn	Date	Checked

Scale: NTS	Draw by: CH
Drawing Size: A3	Checked by: KS
Date: January 2019	Approved by: KS
Drawing Number: Figure 12	Rev.