Manor Road / Richmond

Revised Transport Assessment

Sanderson Associates

November 2019

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Highways | Traffic | Transportation | Water

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Prepared on behalf of

Avanton Richmond Development Limited

Redevelopment of Homebase
Manor Road, North Sheen

Revised Transport Assessment

November 2019

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Acknowledgements:

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

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Executive Summary

Sanderson Associates (Consulting Engineers) Ltd has been appointed by Avanton Richmond Development Limited to advise on traffic and transportation issues surrounding the proposed redevelopment of Homebase, Manor Road, North Sheen.

The development proposes the demolition of existing buildings and structures and comprehensive phased residential-led redevelopment to provide residential units (Class C3), flexible retail /community / office uses (Classes A1, A2, A3, D2, B1), a police facility (Use Class B1), a bus layover with driver facilities (Sui Generis Use), provision of car and cycle parking, landscaping, public and private open spaces and all other necessary enabling works on the Homebase site on Manor Road, North Sheen.

This revised Transport Assessment examines the highway and transportation implications of the development and is submitted in support of a revised planning application following the Mayor's direction to take over the original Planning Application for his determination.

The development 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. Travel Plans have 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.

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 On behalf of Avanton Richmond Development Ltd, a detailed planning application (ref. 19/0510/FUL) was submitted to the London Borough of Richmond Upon Thames (LBRuT) in February 2019 for the redevelopment of the Homebase store at 84 Manor Road, North Sheen.

1.2 The application was considered at LBRuT Planning Committee on 3 July 2019 and was recommended for refusal by LBRuT officers. The Planning Committee resolved that they were minded to refuse the Application in line with the officer's recommendation for six reasons relating to affordable housing; design; residential amenity; living standards; energy; and absence of a legal agreement.

1.3 On 29 July 2019 the Mayor issued a Direction pursuant to Article 7 of the Town and Country Planning (Mayor of London) Order 2008 and powers conferred by Section 2A of the Town and Country Planning Act (1990) that he would act as the LPA for the purposes of determining the Application.

1.4 Further to the Mayor's direction to take over the Planning Application for his determination, the Applicant, in consultation with the GLA and TfL, has taken the opportunity to review the scheme with the principle aim of increasing the delivery of affordable housing through additional density and addressing other issues raised in the Mayor's Stage 2 Report.

1.5 The Amended scheme now proposes a residential-led redevelopment of five buildings of between three and ten storeys. The development will provide 433 residential units (Class C3), flexible retail /community / office uses (Classes A1, A2, A3, D2, B1), a police facility (Use Class B1), a bus layover with driver facilities (Sui Generis Use), car and cycle parking, landscaping, public and private open spaces and other necessary enabling works.

1.6 The proposed changes necessitate an amendment to the Applications description of development. The revised description of development is detailed overleaf:

Demolition of existing buildings and structures and comprehensive phased residential-led redevelopment to provide residential units (Class C3), flexible retail /community / office uses (Classes A1, A2, A3, D2, B1), a police facility (Use Class B1), a bus layover with driver facilities (Sui Generis Use), provision of car and cycle parking, landscaping, public and private open spaces and all other necessary enabling works.

1.7 The amended scheme is referred as the 'Amended Proposed Development' and its previous iteration that was considered at LBRuT Planning Committee in 3 July 2019, is referred to as the 'Original Proposed Development'.

1.8 Sanderson Associates (Consulting Engineers) Ltd has been appointed by Avanton Richmond Development Limited to advise on traffic and transportation issues associated with the redevelopment proposals for the Homebase store on Manor Road, North Sheen as indicated on the plan attached at **Appendix A (Figure 1)**.

1.9 This is a revised Transport Assessment which has been updated to take into account the amendments to the scheme proposals since the application was "Called In" by the Mayor. The key scheme revisions relevant to transport are detailed below:-

- The proposed new Block (Block E) located on the existing bus layover area to the north of the site which will provide a bus layover area for four buses at ground level along with a driver facility (Sui-Generis Use);
- Pro-rata increases in disabled car parking provision to reflect changes in unit numbers across the site including the relocation of bays as necessary, and
- The relocation of cycle parking facilities to distribute same across all blocks.

1.10 This revised Transport Assessment also provides a detailed response to previous transport related comments which were raised by statutory consultees during the LBRuT determination period.

1.11 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

1.12 For the benefit of this report, Sanderson Associates are relying on information obtained during a visit to the site on Wednesday 20 June 2018, when observations were made in relation to prevailing highway conditions. However, this information has been supplemented by further survey work, including CCTV surveys at the North Sheen Rail Station entrance/exit, and discussions with key stakeholders.

1.13 Travel Plans have 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.

1.14 The Amended Proposed Development has been the subject of several pre-submission discussions with the Greater London Authority (GLA) and Transport for London (TfL) which are detailed later in this report.

2 Planning Policy Context

2.1 National Planning Policy

2.1.1 The latest National Planning Policy Framework (NPPF) was published in February 2019 and sets out the Government's planning policies for England and how these are expected to be applied.

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 London Plan Policies

2.3.1 The current London Plan (2016) is the adopted London Plan and 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 However, "the draft London Plan is a material consideration in planning decisions" and the latest version of the draft London Plan – Consolidated Suggested Changes version was published July 2019 and key policies applicable to this development are set out below:-

Policy T1 Strategic approach to transport

A Development Plans should support and development proposals should facilitate:

1) the delivery of the Mayor's strategic target of 80 per cent of all trips in London to be made by foot, cycle or public transport by 2041

2) the proposed transport schemes set out in Table 10.1.

B All 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.

Policy T2 Healthy Streets

A Development proposals and Development Plans should deliver patterns of land use that facilitate residents making shorter, regular trips by walking or cycling.

B Development Plans should:

1) promote and demonstrate the application of the Mayor's Healthy Streets Approach to: improve health and reduce health inequalities; reduce car dominance, ownership and use, road danger, severance, vehicle emissions and noise; increase walking, cycling and public transport use; improve street safety, comfort, convenience and amenity; and support these outcomes through sensitively designed freight facilities.

2) identify opportunities to improve the balance of space given to people to dwell, walk, cycle, and travel on public transport and in essential vehicles, so space is used more efficiently and streets are greener and more pleasant.

C In Opportunity Areas and other growth areas, new and improved walking, cycling and public transport networks should be planned at an early stage, with delivery phased appropriately to support mode shift towards active travel and public transport. Designs for new or enhanced streets must demonstrate how they deliver against the ten Healthy Streets Indicators.

D Development proposals should:

1) demonstrate how they will deliver improvements that support the ten Healthy Streets Indicators in line with Transport for London guidance.

2) reduce the dominance of vehicles on London's streets whether stationary or moving.

3) be permeable by foot and cycle and connect to local walking and cycling networks as well as public transport.

Policy T4 Assessing and mitigating transport impacts

A Development Plans and development proposals should reflect and be integrated with current and planned transport access, capacity and connectivity.

B When required in accordance with national or local guidance, transport assessments/statements should be submitted with development proposals to ensure that impacts on the capacity of the transport network (including impacts on pedestrians and the cycle network), at the local, network-wide and strategic level, are fully assessed. Transport assessments should focus on embedding the Healthy Streets Approach within, and in the vicinity of, new development. Travel Plans, Parking Design and Management Plans, Construction Logistics Plans and Delivery and Servicing Plans will be required in accordance with relevant Transport for London guidance142.

C Where appropriate, mitigation, either through direct provision of public transport, walking and cycling facilities and highways improvements or through financial contributions, will be required to address adverse transport impacts that are identified.

D Where the ability to absorb increased travel demand through active travel modes has been exhausted, existing public transport capacity is insufficient to allow for the travel generated by proposed developments, and no firm plans and funding exist for an increase in capacity to cater for the increased demand, planning permission will be contingent on the provision of necessary public transport and active travel infrastructure.

E The cumulative impacts of development on public transport and the road network capacity including walking and cycling, as well as associated effects on public health, should be taken into account and mitigated.

F Development proposals should not increase road danger.

Policy T5 Cycling

A Development Plans and development proposals should help remove barriers to cycling and create a healthy environment in which people choose to cycle. This will be achieved through:

1) supporting the delivery of a London-wide network of cycle routes, with new routes and improved infrastructure

2) securing the provision of appropriate levels of cycle parking which should be fit for purpose, secure and well-located. Developments should provide cycle parking at least in accordance with the minimum standards set out in Table 10.2 and Figure 10.2, ensuring that a minimum of two short-stay and two long-stay cycle parking spaces are provided where the application of the minimum standards would result in a lower provision.

AA Cycle parking should be designed and laid out in accordance with the guidance contained in the London Cycling Design Standards. Development proposals should demonstrate how cycle parking facilities will cater for larger cycles, including adapted cycles for disabled people.

AB Development Plans requiring more generous provision of cycle parking based on local evidence will be supported.

B Where it is not possible to provide suitable short-stay cycle parking off the public highway, the borough should work with stakeholders to identify an appropriate on-street location for the required provision. This may mean the reallocation of space from other uses such as on-street car parking. Alternatively, in town centres, adding the required provision to general town centre cycle parking is also acceptable. In such cases, a commuted sum should be paid to the local authority to secure provision.

C Where it is not possible to provide adequate cycle parking within residential developments, boroughs must work with developers to propose alternative solutions which meet the objectives of the standards. These may include options such as providing spaces in secure, conveniently-located, on-street parking facilities such as bicycle hangers.

Policy T6 Car parking

A Car parking should be restricted in line with levels of existing and future public transport accessibility and connectivity.

B 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, with developments elsewhere designed to provide the minimum necessary parking ('car-lite'). Car-free development has no general parking but should still provide disabled persons parking in line with Part D of this policy.

BA 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.

Appropriate disabled persons parking for Blue Badge holders should be provided as set out in Policy T6.1 Residential parking to Policy T6.5 Non- residential disabled persons parking.

Where car parking is provided in new developments, provision should be made for infrastructure for electric or other Ultra-Low Emission vehicles in line with policies T6.1, T6.2, T6.3 and T6.4.

All operational parking should make this provision, including offering rapid charging. New or re-provided petrol filling stations should provide rapid charging hubs and/or hydrogen refuelling facilities.

Adequate provision should be made for efficient deliveries and servicing and emergency access.

2.3.3 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".

2.4 Local Planning Policies

2.4.1 The Local Plan for LBRuT, adopted July 2018, sets out the key planning policies for the area for a 15 year period and key policies applicable to this development in transport terms are replicated below:-

Policy LP 44

Sustainable Travel Choices

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 Council will:

A Location of development

Encourage high trip generating development to be located in areas with good public transport with sufficient capacity, or which are capable of supporting improvements to provide good public transport accessibility and capacity, taking account of local character and context.

B Walking and cycling

Ensure that new development is designed to maximise permeability within and to the immediate vicinity of the development site through the provision of safe and convenient walking and cycling routes, and to provide opportunities for walking and

cycling, including through the provision of links and enhancements to existing networks.

C Public transport

Ensure that major new developments maximise opportunities to provide safe and convenient access to public transport services. Proposals will be expected to support improvements to existing services and infrastructure where no capacity currently exists or is planned to be provided.

Protect existing public transport interchange facilities unless suitable alternative facilities can be provided which ensure the maintenance of the existing public transport operations. Applications will need to include details setting out how such re-provision will be secured and provided in a timely manner.

D The road network

Ensure that new development does not have a severe impact on the operation, safety or accessibility to the local or strategic highway networks. Any impacts on the local or strategic highway networks, arising from the development itself or the cumulative effects of development, including in relation to on-street parking, should be mitigated through the provision of, or contributions towards, necessary and relevant transport improvements.

In assessing planning applications the cumulative impacts of development on the transport network will be taken into account. Planning applications will need to be supported by the provision of a Transport Assessment if it is a major development, and a Transport Statement if it is a minor development.

F Safeguarding of routes and facilities

Land required for proposed transport schemes as identified in the London Plan and the Council's Local Implementation Plan for Transport will be protected from developments which would prevent their proper implementation.

Local filling stations and supporting services such as car repair facilities will be protected from redevelopment for alternative uses unless exceptional circumstances can be demonstrated that warrant their loss.

G. Taxis and private hire vehicles

Ensure that taxis and private hire vehicles are adequately catered for in appropriate locations.

Policy LP 45

Parking Standards and Servicing

Parking standards

The Council will require new development to make provision for the accommodation of vehicles in order 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. It will achieve this by:

1. Requiring new development to provide for car, cycle, 2 wheel and, where applicable, lorry parking and electric vehicle charging points, in accordance with the standards set out in Appendix 3. Opportunities to minimise car parking through its shared use will be encouraged.

2. Resisting the provision of front garden car parking unless it can be demonstrated that:

a. there would be no material impact on road or pedestrian safety;

b. there would be no harmful impact on the character of the area, including the streetscape or setting of the property, in line with the policies on Local Character and Design; and

c. the existing on-street demand is less than available capacity.

3. Car free housing developments may be appropriate in locations with high public transport accessibility, such as areas with a PTAL of 5 or 6, subject to:

a. the provision of disabled parking;

b. appropriate servicing arrangements; and

c. demonstrating that proper controls can be put in place to ensure that the proposal will not contribute to on-street parking stress in the locality.

All proposals for car free housing will need to be supported by the submission of a Travel Plan.

4. Managing the level of publicly available car parking to support the vitality and viability of town and local centres within the borough whilst limiting its impacts on the road network.

Freight and Servicing

New major development which involves freight movements and has servicing needs will be required to demonstrate through the submission of a Delivery and Servicing Plan and Construction and Logistics Plan that it creates no severe impacts on the efficient and safe operation of the road network and no material harm to the living conditions of nearby residents.

2.5 The Development in Planning Policy Context

2.5.1 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.

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

2.5.3 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, Statutory Consultee Comments and Further Consultation

3.1 The development proposals have been the subject of extensive consultation with a number of key stakeholders commencing with initial pre-application consultations prior to the submission of the first application to LBRuT.

3.2 Further consultations subsequently took place during the LBRuT determination period which have influenced the development of the site layout and in-particular from a transportation perspective the location of the cycle parking/storage and servicing arrangements.

3.3 Since the application was “Called In” by the Mayor for his determination a series of meetings have taken place between the development design team, GLA and TfL to further develop the scheme to submission readiness in advance of the Hearing which is scheduled for January 2020.

3.4 The following sub-sections summarise the transport related discussions which have taken place and which have influenced the Amended Proposed Development.

3.5 Transport for London

3.5.1 A formal pre-application meeting took place with Transport for London (TfL) on 9 October 2019 and a copy of the letter of pre-application advice subsequently provided is attached at **Appendix B**.

3.5.2 Subsequent discussions have also taken place regarding the design of the bus terminus facility on the northern portion of the site and the drivers’ facilities that TfL would require.

3.5.3 Five options for the bus layover facility were put forward to TfL for their consideration following the October 2019 meeting. However, the majority of these options were considered unacceptable by TfL as they either did not provide an appropriate number of bus stands or required buses to undertake reversing movements which is contrary to TfL guidelines. On the following pages are the five indicative layouts with the TfL comments below:-

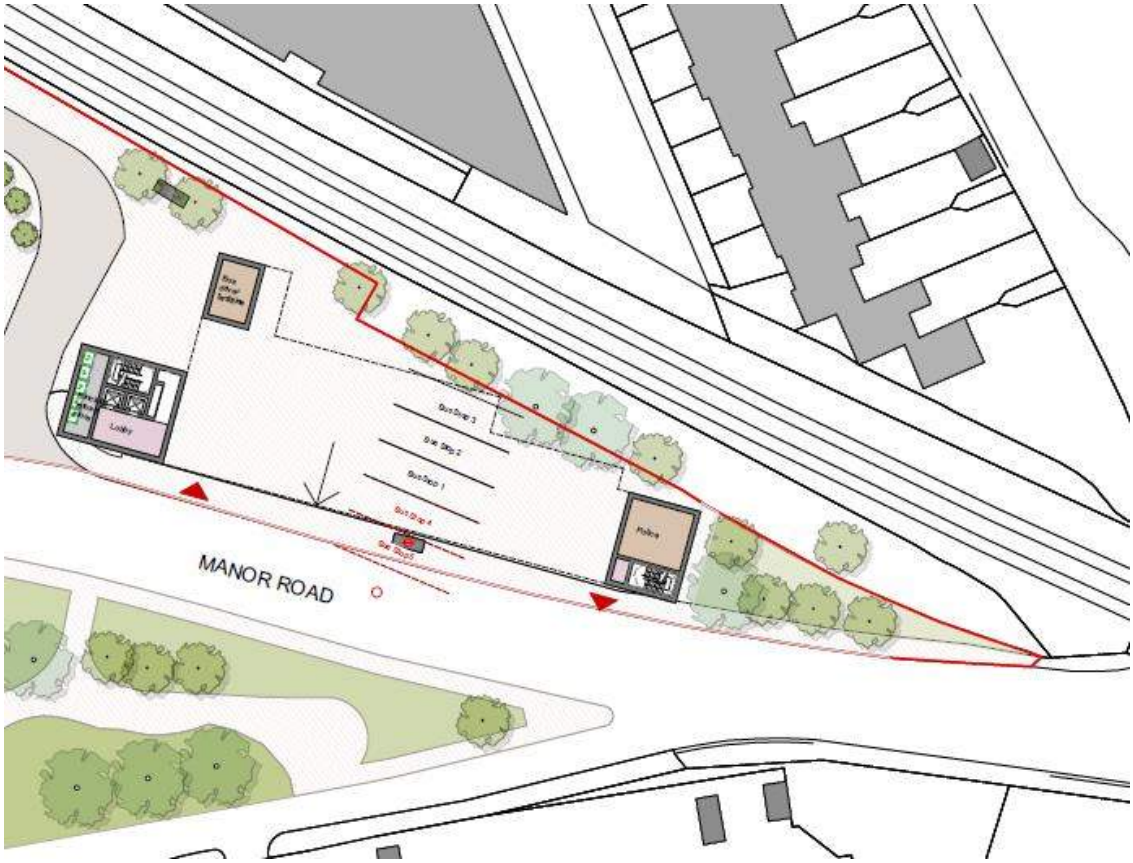
Option 1

Option 1 – Number of stands acceptable; but TfL will need a more detailed plan which shows the dimensions of each of the standing areas. Bus stop 1 and part of bus stop 2 are shown outside of the building line. TfL would therefore need to understand where the building columns will be located, as this may impact on how buses can manoeuvre and whether you could realistically accommodate the number of stands shown. Swept path analysis for each stop is required to be shown on separate plans using a 12m rigid bus at 10mph (or 5mph depending on site requirements). The drawings also need to demonstrate where bus alighting and boarding will occur on Manor Road. It's still not clear if this is a workable from the information provided to date. **TfL's preferred options subject to further work**.

Option 2

Option 2 – Only provides standing for 2 buses, so would not meet TfL's operational requirements which require a minimum of 4 stands. Buses would be unable to align flush with the island to be able to deploy ramps. It's not clear from the drawings provided how easily buses could manoeuvre into and out of bus stop 1. Where would the building columns be located, as this will impact on how buses can manoeuvre and whether you could realistically accommodate the number of stands shown. **Option not acceptable**.

Option 3



Option 3 - Only provides standing for 2 buses, so would not meet TfL's operational requirements which require a minimum of 4 stands. Bus stop 1 appears to be half inside half outside. Where would the building columns be located, as this will impact on how buses can manoeuvre and whether you could realistically accommodate the number of stands shown. **Option not acceptable**.

Option 4

Option 4 – Number of stands acceptable; however whilst the options analysis states reversing not required it is not clear how buses enter or exit the arrangement shown without reversing. Swept path analysis shows the bus encroaching over the kerb line and into disabled persons parking spaces and the landscape area of Block A (North). There is potentially an operational impact for buses entering the access road and encountering a bus reversing. Where would the building columns be located, as this will impact on how buses can manoeuvre and whether you could realistically accommodate the number of stands shown. There are also safety concerns as the majority of manoeuvring occurs on the site access, and you cannot provide a physical separation between buses and pedestrians and cyclist and other general traffic. **Option not acceptable**.

Option 5

Option 5 - Number of stands acceptable; however there are major safety concerns as buses are required to reverse out into the site access road which is also used by pedestrians and cyclists. Reversing buses in a new bus standing arrangement, where you cannot provide a physical separation between buses, pedestrians, cyclist and general traffic, would be unacceptable. **Option not acceptable**.

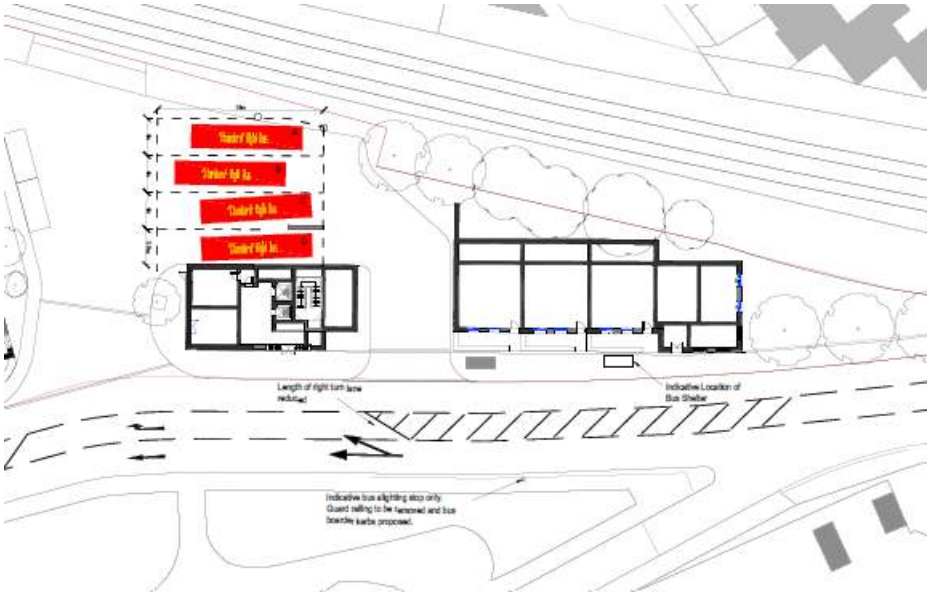
3.5.4 The table below details the key features of each option:-

Option	No. of stands	Reversing required?	Bus driver facility?
1	3	No	Yes
2	3	No	Yes
3	3	No	Yes
4	4	No	Yes
5	4	Yes	Yes

Table 3.5.4 – Summary of Block E Bus Layover Options

3.5.5 A sixth option was suggested by TfL which looked to provide the bus layover stands along the service/access road to the western boundary of the site (adjacent to the railway line). However, when this was reviewed the impact on the site was considered to be too great and it could not be accommodated without buses having to undertake a reversing manoeuvre. This option was not, therefore, progressed.

3.5.6 In order to progress the design of Option 1 further liaison with TfL has taken place and the latest layout is detailed below:-



Option 1 – Updated Layout

3.6 Network Rail

3.6.1 Network Rail provided a series of comments during the LBRuT determination period which resulted in a number of contribution sums being agreed, which are to be secured by a S106 Agreement, including:-

- Railway Safety £15,000
- Level Crossing Improvements £60,000
- Station Access Feasibility £30,000

3.6.2 Following on from the dialogue with Network Rail a pedestrian survey of the activity at the entrance/exit at North Sheen Station has been undertaken and the results are discussed in detail later in this report.

3.7 South Western Rail

3.7.1 South Western Rail also provided a number of comments during the LBRuT determination period particularly focusing on the limitations of access to the station for passengers with mobility issues and disabilities as well as potential improvements to passenger facilities within the station itself.

3.7.2 During this period a contribution of £40,000.00 was suggested towards improvements within the station. However, the improvement contribution to North Sheen station was not agreed by the applicant during the determination of the original submission application as the works were due to be covered by the Community Infrastructure Levy list and as such it was considered that the works should be funded from this sum.

3.7.3 It is, however, acknowledged that the Community Infrastructure Levy regulations have since changed and as such this aspect of the development will likely be the subject of further discussions during the GLA determination period.

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 area.

4.5 In addition, a bus terminus occupies the northern section of the site which provides layover parking for 5 buses, associated with services 493 and R70, which also incorporates an alighting point for passengers. No passenger boarding or waiting facilities are provided within the terminus area.

4.6 Buses drive into the terminus area and stop allowing any passengers to alight within the immediate terminus area. The bus then manoeuvers forward and then reverses into the staggered bays to leave the site in forward gear. The manoeuvres can be undertaken within the terminus area and apart from the initial entry and final exit movements there is no conflict with traffic entering or exiting the site.

4.7 There is also a bus layover area within the Sainsbury's supermarket site to the east of the Homebase site. This provides two layover stands for service 371.

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;

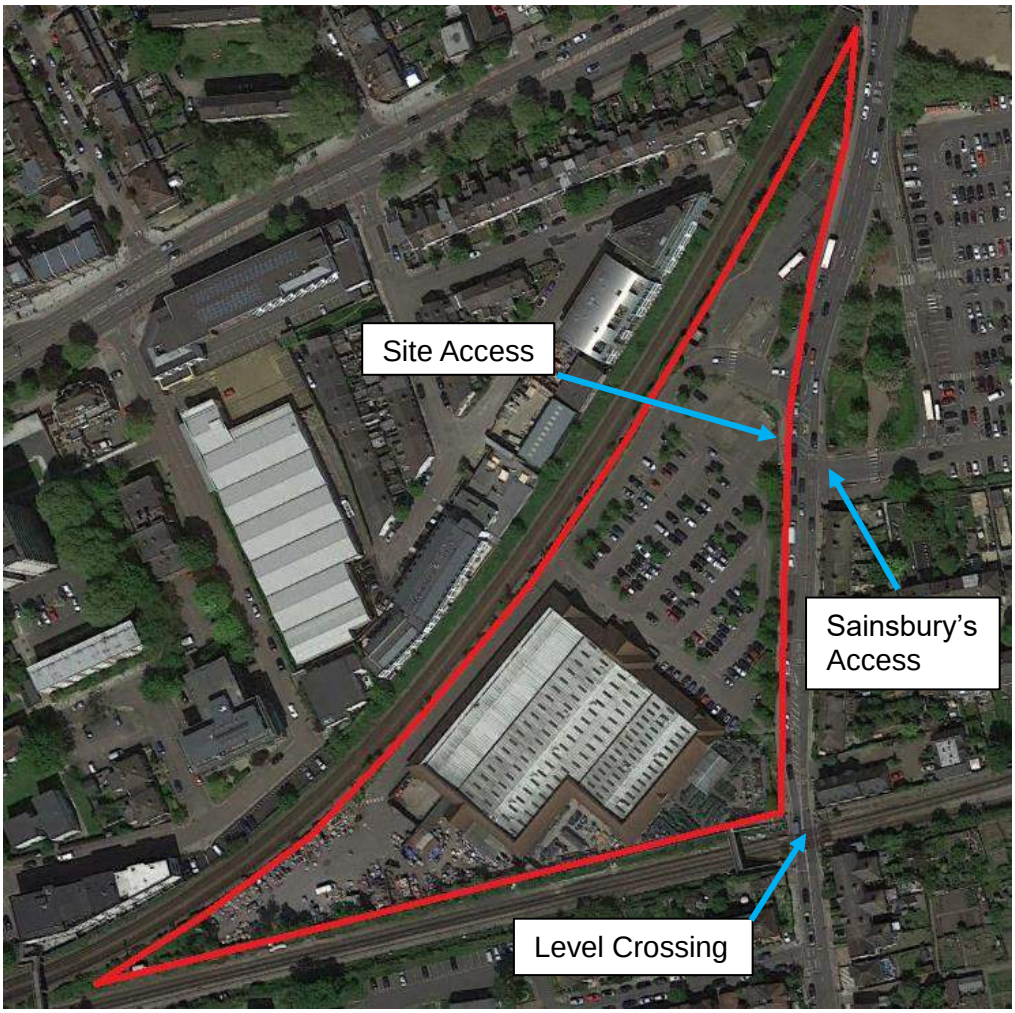


Figure 5.1.1 – Approximate extents of site (Imagery © 2018 Google)

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

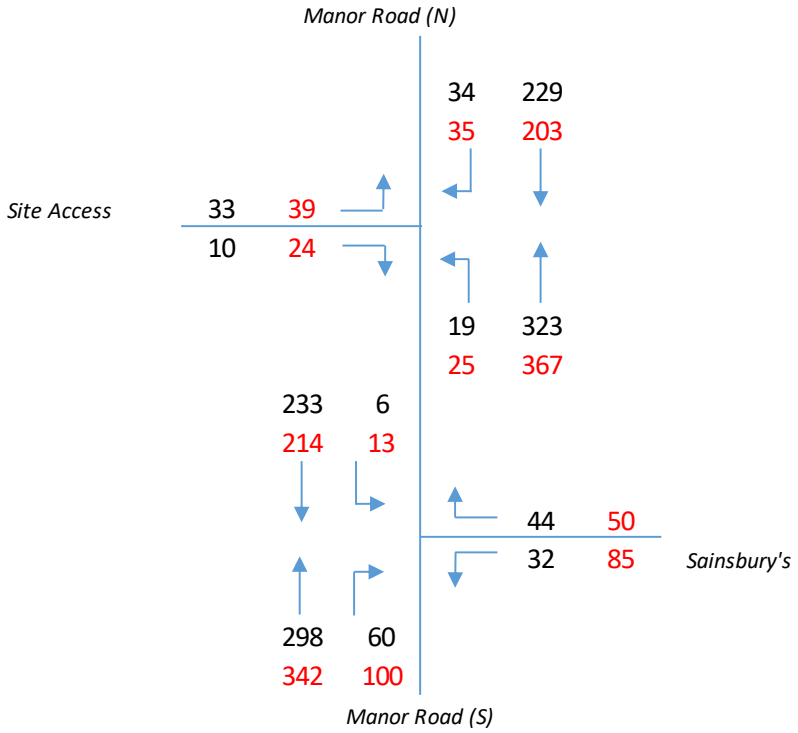


Figure 5.2.2 – Recorded peak hour vehicle movements

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 2 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 Pedestrian Activity Survey at North Sheen Station

5.6.1 During the consideration of application 19/0510/FUL, the 'Original Proposed Development', the matters of potential platform congestion and the availability of space on trains to London, particularly during the AM peak were raised by South Western Rail and TfL.

5.6.2 In order to be able to consider this in greater detail and to enable a development impact assessment to be undertaken a survey was undertaken on three neutral weekdays, Tuesday 8, Wednesday 9 and Thursday 10 October 2019 between the hours of 07:00-09:30 and 15:00-18:00. Unfortunately, due to a camera failure data was not recorded after 09:20 on Thursday 10. However, a further survey was subsequently undertaken on Thursday 24 October 2019 to obtain additional data for analysis.

5.6.3 The full results of the surveys are presented at **Appendix E** and summarised as follows, (numbers in brackets represent cyclists):-

Time Period	Tuesday 08/10/19		Wednesday 09/10/19		Thursday 10/10/19		Thursday 24/10/19	
	In	Out	In	Out	In	Out	In	Out
07:00 – 07:30	99	31	93	25 (1)	90	25 (1)	73	23
07:30 – 08:00	160	31 (1)	129	28 (1)	138	36 (1)	111	27 (2)
08:00 – 08:30	130	51	124	38	114	35	141	47
08:30 – 09:00	81	21	73	24	73	30	75	30
09:00 – 09:30	49	11	58	19			58	15
AM Total	**519**	**145 (1)**	**477**	**134 (2)**			**458**	**142 (2)**
15:00 – 15:30	24	24	27	17 (1)			23	27
15:30 – 16:00	12	18	42 (1)	27			24	21
16:00 – 16:30	27	50	24 (1)	31			28	18
16:30 – 17:00	33	55	31 (6)	46 (1)			23	58
17:00 – 17:30	42 (1)	56 (1)	23 (2)	44 (1)			44 (1)	53
17:30 – 18:00	23	73	31 (2)	95 (3)			30 (1)	80
18:00 – 18:30	32	54	30 (1)	42			27	36
PM Total	**193 (1)**	**330 (1)**	**208 (13)**	**302 (6)**			**199 (2)**	**293**

Table 5.6.3 – Summary of pedestrian activity at North Sheen Station

5.6.4 The base data recorded during this survey is analysed in greater in Section 6.5 where the number of visitors to the station is compared to the frequency of trains typically stopping at North Sheen Station during these peak periods.

5.7 Personal Injury Accident Data

5.7.1 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 F**.

5.7.2 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.

5.7.3 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.

5.7.4 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.

5.7.5 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.

5.7.6 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.

5.7.7 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.

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

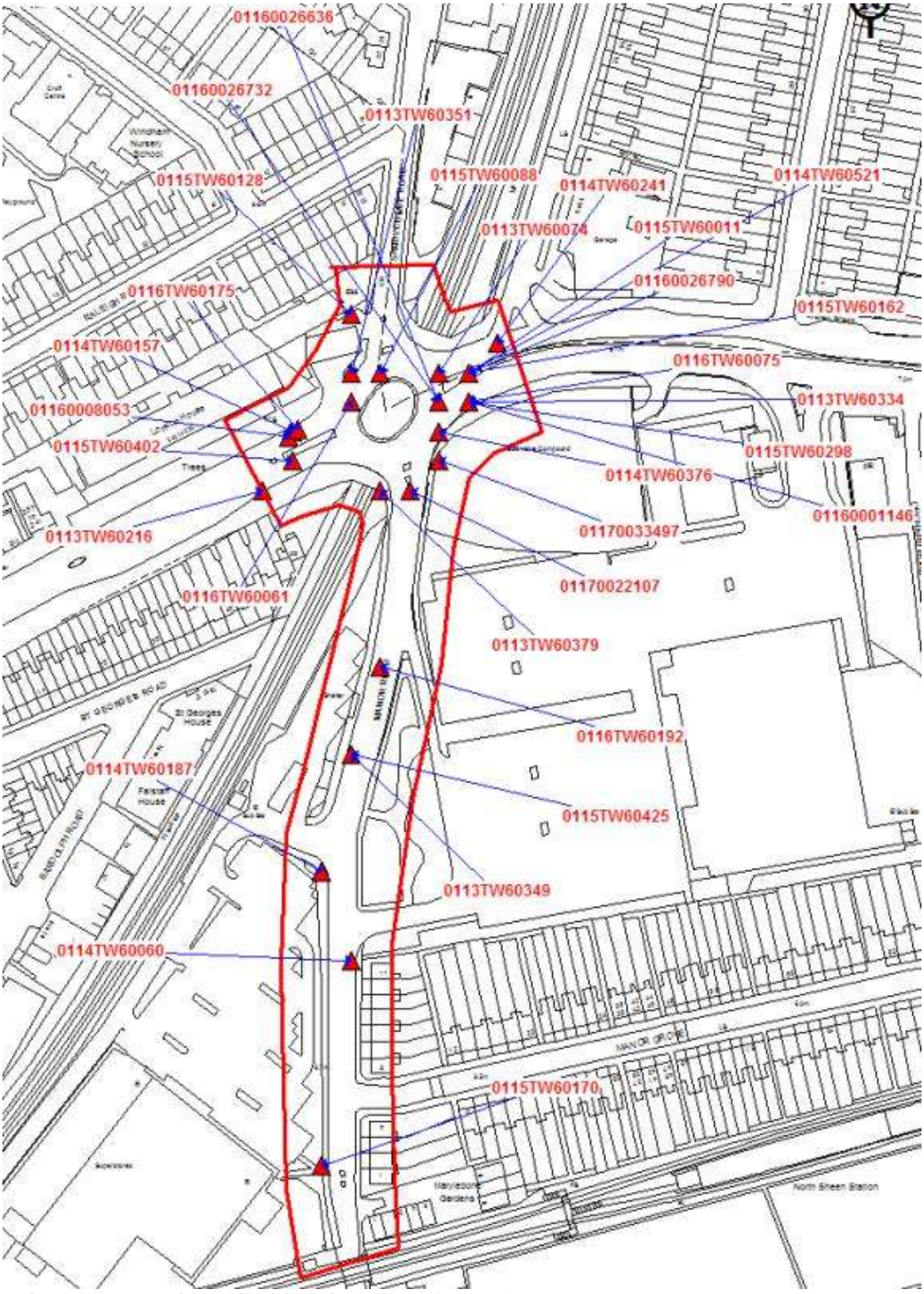


Figure 5.7.8 – Plot of incident locations from TfL

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 G**.

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 As detailed in Section 5.6 a survey of pedestrian activity at the station has been undertaken. This has revealed that on a typical neutral weekday the morning "peak" occurs between 07:30 and 08:30 when an average of 262 passengers enter the station.

6.5.4 As there is only a single point of entry linking to a central platform it is not known for certain which direction passengers are intending to travel in. However, it is noted that trains from North Sheen towards central London (Waterloo) are available on both west and east bound lines with varying journey times and number of stops.

6.5.5 In this "peak" period 8 trains are scheduled to stop at North Sheen which provide access to London Waterloo and varying station en-route. Some trains provide an option to change at Richmond to catch a faster onward train.

6.5.6 It is, therefore, considered that typically these 8 services would need to be able to accommodate, on average 33 passengers each. Bearing in mind that the South Western Rail trains on this line usually operate between 8 and 10 carriages during peak times this is not considered to be unreasonable.

6.5.7 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.

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

6.5.9 There have been recent rail improvements including the introduction of new trains which has increased the available capacity of the trains on key routes in south-west London. In addition, Network Rail has also improved/realigned the platforms at Waterloo Station which now means that all 24 platforms are able to be used for South Western train services thus increasing the available services and reliability.

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

6.5.11 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**.

Accessibility Summary

6.5.12 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.

6.5.13 From analysis of the pedestrian survey which recorded activity at the entrance/exit at North Sheen Station it is considered that existing rail passengers can be accommodated on peak hour services. Further analysis of the predicted uplift also indicates that the station and attending trains will be able to accommodate future passenger levels during peak hours.

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 five buildings of between three and ten storeys to provide 433 residential units (Class C3), flexible retail /community / office uses (Classes A1, A2, A3, D2, B1), a police facility (Use Class B1), a bus layover with driver facilities (Sui Generis Use), 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 Block E, which incorporates the bus layover area and associated facility with residential units above, has been designed to accommodate 4 bus stands to serve services 493 and R70. The layover area, the layout of which can be seen in Section 2, has been designed in accordance with TfL's Operational & Construction Guidelines which sets out the design parameters of facilities such as these in terms of stand sizes, clearance heights and manoeuvring space requirements. In order to comply with the guidelines all four bays can be accessed and egressed independently without any reversing manoeuvres being required. Attached at **Appendix H** is **Drawing 11205-009** which shows the swept path analysis of each bus accessing and egressing this area of the site.

7.1.3 Also attached at **Appendix H** is **Drawing 11205-008** which details the amendments proposed to the white lining on Manor Road to accommodate the manoeuvre of buses exiting the site and pulling up to the northbound boarding bus stop on Manor Road, which is proposed to be moved some 15 metres to the north to enable passengers to board the bus. A southbound alighting only stop is also proposed on Manor Road as a replacement to the existing facility within the existing bus layover area. These works will be secured via a planning condition and associated S 2778 Agreement (Highways Act 1980).

7.1.4 Dedicated driver facilities are also incorporated within Block E along with an area for use by the local police force. The layover will be provided with passive Electric Vehicle Charging capabilities to future proof the operation of the network.

7.1.5 During the construction period of Block E, a temporary bus layover area will be provided within the main part of the site. The layout of this area is shown indicatively on **Drawing 11205-010** which is attached at **Appendix H**. the swept path analysis and pedestrian linkages are also shown.

7.1.6 Each building is to have stairwells and lifts to provide access to the residential units on upper floors with access to highway network being available via a network of footpaths and communal areas. The proposed ground floor layout is included at **Appendix I**.

7.1.7 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 the place of the existing site access.

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

	Studio / 1 bed	2 bed	3 bed	Total
Private	91	137	34	262
Social	12	36	27	75
Intermediate	45	51	0	96
Total	148	224	61	433

Table 7.1.7 – Schedule of residential accommodation

7.1.9 The two commercial units are located at ground floor level of Blocks A and D facing onto Manor Road. The Block D unit section extends towards the level crossing both areas flanking the main entrance to the site, opposite Manor Grove.

7.2 Parking Provision

7.2.1 The development is to be “car-free” with no standard car parking spaces provided. Fourteen parking spaces (3% provision) are proposed within the site and these are all designated as accessible spaces. The potential to increase to the full 10% provision has been assessed and full details of this are available in the Landscape Addendum prepared by Gillespies (see sections 1.24 and 1.25 of the Landscape Addendum report).

7.2.2 Two Electric Car Club vehicles are to be provided within the development. These will be managed by the operators of the scheme who are to be confirmed in due course with the provision being secured via a S106 obligation.

7.2.3 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 (2019) 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 draft London Plan.

7.2.4 In line with the policies of TfL and LBRuT, residents of the Amended Proposed Development will be restricted from applying for residents parking permits for those roads in the vicinity of the site subject to such restrictions. This will be secured by way of a planning condition/obligation.

7.2.5 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, the results of the parking stress survey attached at Appendix D have been discussed in detail with LBRuT with a view to amending and extending the existing Traffic Regulation Orders covering the Controlled Parking Zones adjacent to the site.

7.2.6 During the LBRuT determination period it was agreed that a contribution of £50,000.00 would be made to support a Controlled Parking Zone study with a further £50,000.00 to be provided (conditionally) should amendments be deemed necessary. This is likely to be secured by way of a planning obligation.

7.3 Cycle Parking

7.3.1 With regards to cycle parking; Chapter 10 – 'Transport' of the draft London Plan sets out the applicable standards for the commercial and residential elements of the development. These are summarised overleaf:

	Use class	Long stay	Short stay
Commercial	A1 Food retail	1 space per 175sqm GEA	1 space per 20sqm
	A1 Non-food retail	1 space per 250sqm	1 space per 60sqm
	A2	1 space per 175sqm GEA	1 space per 20sqm
	B1 Office	1 space per 75sqm	1 space per 500sqm
Residential	C3	1 space per studio/1 bed unit, 2 spaces all other dwellings	1 space per 40 units

Table 7.3.1 – Draft London Plan 2019 - Table 10.2: Minimum Cycle Parking Standards

7.3.2 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.

Land Use	Long Stay Provision		Short Stay Provision	
	Requirement	Provision	Requirement	Provision
Commercial Flexible A1/A2/A3/D2/B7 490sqm	3	3	27	28
Commercial Police Facility B1 26sqm Bus Driver Facility sui-generis 14sqm	1	1	1	1
Residential C3 433 Units	787	798	11	11
Total	791	802	39	40

Table 7.3.2 – Draft London Plan 2019 - Cycle parking requirements for the Amended Proposed Development

7.3.3 The development proposes to provide a total of 798 long stay cycle parking spaces which is above the standards required in order to promote the use of this transport mode. The vast majority of these spaces are within dedicated areas within the confines of the residential blocks. However, two external facilities will serve Blocks A and D which will take the form of secure “containers” located within the communal courtyards. The required short stay cycle parking provision is to be located throughout the open space of the site, incorporated into the landscaping.

7.3.4 Cycle parking, in the form of two Sheffield Stands giving 4 spaces, are located within Block D for the commercial elements of the Amended Proposed Development.

7.3.5 Below is an extract from the Assael Architecture Design and Access Statement Addendum which details the locations of the cycle parking/storage across the site. To increase accessibility for residents and in response to comments from statutory consultees the cycle parking has been relocated from the basement to the ground floor of residential blocks.

Figure 7.3.4 – Location of Cycle Parking/Storage (Assael Architecture)

7.4 Access

7.4.1 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. Highway related works are also proposed on Manor Road in association with the Block E element of the scheme and the proposed bus layover area. A new egress is proposed along with associated amendments to the road markings, relocation of the northbound bus stop and the introduction of a southbound alighting only bus stop.

7.4.2 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. During the LBRuT determination period a contribution of £330,000 was agreed with TfL towards this scheme which was 15% of the estimated final scheme costs. This was requested having regard to the predicted increase in users at Manor Circus generated by the proposed development.

7.4.3 However, during more recent pre-application discussions it has been established that the scheme design costs have risen. We have also been advised that TfL will not have a more accurate cost estimate until the end of concept design at the beginning of 2020 but it is likely that this will result in an uplift of at least £50,000 to the contribution. Therefore, TfL have requested a revised financial contribution of £380,000 towards the implementation of the Manor Circus scheme and this will be negotiated during the determination of the application.

7.5 Servicing

7.5.1 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.

7.5.2 Swept path analysis of a refuse collection vehicle, rigid vehicle, hydraulic inspection platform and fire appliance has been carried out and is detailed on **Drawings 11205-007** attached at **Appendix H.**

7.5.3 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.

7.6 Car Club

7.6.1 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 with the provision to be secured via a S106 obligation.

8 Healthy Streets Approach

8.1.1 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.

8.1.2 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.

8.1.3 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.

8.1.4 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 8.1.1 – Ten Healthy Streets Indicators (Transport for London)

8.1.5 In line with the strategies incorporated into the Draft London Plan 2019 and additional guidance published by TfL a detailed Active Travel Zone assessment has been undertaken. This is attached at **Appendix J**.

8.1.6 The scope of this assessment was agreed in advance with TfL and was limited to Manor Circus to the north of the site and then extended to include the nearest primary school and GP surgery both of were identified as being located on Sheen Road to the south of the site.

8.1.7 The routes assessed generally perform well in relation to the Healthy Streets indicators by providing safe places to cross, being well-maintained, not having an accident history of concern and having public and private areas of vegetation that provide interest and variety. In addition, the development will enhance the routes along the site frontage by providing improved footways, landscaping, places to rest and overlooking buildings.

8.1.8 Within the Draft London Plan 2019 the Mayor, through TfL and the boroughs, proposes to set out a programme to achieve the Vision Zero aim of reducing the number of people killed or seriously injured on London's streets to zero. The key aims of this strategy are shown in the diagram below which is extracted from the "Vision Zero Action Plan".

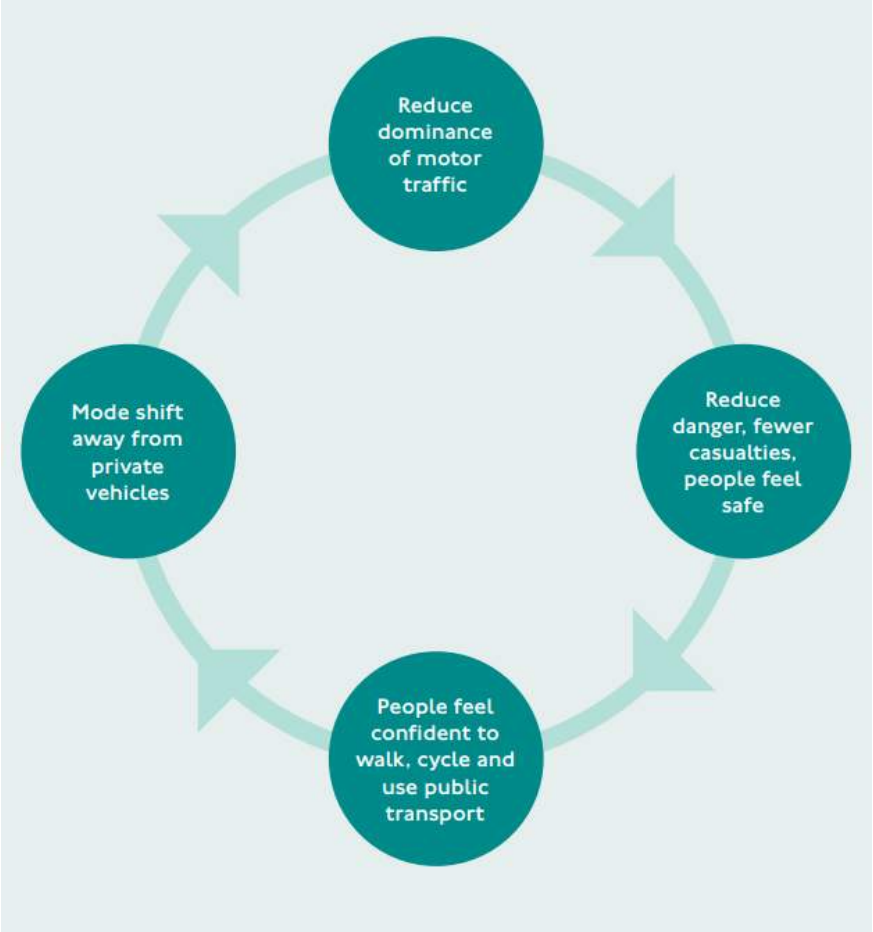


Figure 8.1.7 – Road danger reduction (Transport for London

8.1.9 In order to tie into this strategy the following initiatives have been integrated within the Amended Proposed Development:-

- Virtually car-free development, providing only disabled parking
- Contribution to improvements to Manor Circus which will benefit pedestrians and cyclists
- Permeable links to all parts of the site
- Improved facilities for public transport

9 Multimodal Traffic Generations

9.1 As part of the Environmental Assessment screening process associated with the original proposed development a Technical Note was prepared by Sanderson's (10596-TN1) which considered, in detail, the potential traffic impact resulting from the development proposals. The Technical Note looked at trip generation information from the TRICS database for each proposed land use and highlighted how influencing factors such as accessibility by sustainable travel modes (PTAL ratings) and parking availability within and in proximity to the site have a significant impact on how people travel to and from the site. Consequentially, a considered approach was taken to obtain multimodal trip rates which were as representative of the development proposals as practicable. The resulting trip rates and forecast trip generations were presented in the previously submitted Transport Assessment dated February 2019.

9.2 However, during the LBRuT determination period of the original proposed development, TfL advised that it did not agree with the methodology applied to predict the multi modal generation potential of the proposed development. It was advised that the residential trip rate assessment must be based on total person trip rates which had not been adjusted to remove sites from the TRICs Database with higher parking ratios. Instead, TfL advised that 2011 Census 'Method of Travel to Work' data to be used to establish mode share which should then be adjusted down to account for the limited car parking provision and the remaining trips reassigned pro-rata to the other modes.

9.3 This chapter of the Revised Transport Assessment identifies the multimodal trip generation potential of the Amended Proposed Development based on both TfL's desired assessment methodology and Sanderson's original approach.

9.4 TfL Methodology

9.4.1 Total person trip rates for each proposed land use have been derived from the TRICS database. The sites used to generate the trip rates have been filtered to remove any sites considered unrepresentative in terms of accessibility (PTAL <4 excluded), however, no further filtering in relation to parking has been undertaken as requested by TfL.

9.4.2 A summary of the total person trip rates and generations for each land use is provided below along with details of the TRICS filtering parameters applied.

Residential Multimodal Generations

Privately Owned Flats

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: 9-472 units

Date Range: 01/01/10 – 03/07/18

Selected Survey Days: Monday – Friday

Selected Locations: Town centre sites excluded

9.4.3 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 private 262 units. The full TRICS outputs are contained in **Appendix K**.

Time	Trip Rate per Unit	Generations from 262 units
Weekday AM Peak (08:00-09:00)	0.542	142
Weekday PM Peak (17:00-18:00)	0.449	118
Weekday Daily	4.565	1,196

Table 9.4.3 – Total person trip generations for private residential element (262 units)

Affordable Flats

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: 36-247 units

Date Range: 01/01/10 – 27/06/16

Selected Survey Days: Monday – Friday

Selected Locations: Town Centre sites excluded

9.4.4 The following tables provide details of the weekday AM and PM peak hour total person trip rates per unit along with the corresponding generated trips for the proposed 171 affordable units. The full TRICS data is contained in **Appendix K**.

Time	Trip Rate per Unit	Generations from 171 units
Weekday AM Peak (08:00-09:00)	0.646	110
Weekday PM Peak (17:00-18:00)	0.450	77
Weekday Daily	6.702	1146

Table 9.4.4 – Total person trip generations - affordable residential (171 units)

9.4.5 In summary, the total person trip generations associated with the residential element of the development can be summarised as follows:

Time	Total generations
Weekday AM Peak (08:00-09:00)	252
Weekday PM Peak (17:00-18:00)	195
Weekday Daily	2,342

Table 9.4.5 – Total person trip generations

9.4.6 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 L**.

	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 9.4.6 – Census Data – Method of Travel to Work

9.4.7 As acknowledged by TfL, 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. Therefore, to provide a more representative assessment, the modal share proportions have been adjusted so that vehicle occupancy (drivers and passengers) is limited to 3%. This is consistent with the level of car parking provided for disabled occupants.

Method of Travel to Work	%
Underground, Metro, Light Rail, Tram	32.7%
Train	27.1%
Bus, Minibus or Coach	11.3%
Taxi	0.3%
Motorcycle, Scooter or Moped	2.5%
Driving a Car or Van	2.9%
Passenger in a Car or Van	0.1%
Bicycle	8.9%
On Foot	13.0%
Other Method of Travel to Work	1.2%

Table 9.4.7 – Adjusted modal splits

9.4.8 The modal splits identified above have been applied to the total person trip rates and generations set out in Table 9.4.5 in order to establish the number of people travelling by each mode during the AM and PM peak periods, as well as on a daily basis.

9.4.9 It is acknowledged that due to the distance of the site from Richmond Underground Station, those travelling to work via the Underground are likely to first travel by bus in order to reach the station. Therefore, in order to provide a robust assessment, the estimated modal share for Underground users has been added to the modal share for bus users.

9.4.10 The generations for each mode of travel are summarised below:

		8 - 9 AM			17 - 18 PM			Daily		
		Arr	Dep	Two-way	Arr	Dep	Two-way	Arr	Dep	Two-way
Method of Travel to Work	**%**	*36*	*216*	*252*	*122*	*73*	*195*	*1150*	*1192*	*2342*
Underground, Metro, Light Rail, Tram	32.7%	12	71	82	40	24	64	376	390	765
Train	27.1%	10	59	68	33	20	53	312	323	635
Bus, Minibus or Coach	11.3%	4	24	28	14	8	22	130	135	264
Taxi	0.3%	0	1	1	0	0	1	4	4	7
Motorcycle, Scooter or Moped	2.5%	1	5	6	3	2	5	29	30	58
Driving a Car or Van	2.9%	1	6	7	4	2	6	34	35	68
Passenger in a Car or Van	0.1%	0	0	0	0	0	0	1	1	3
Bicycle	8.9%	3	19	22	11	7	17	103	106	209
On Foot	13.0%	5	28	33	16	9	25	150	155	305
Other Method of Travel to Work	1.2%	0	2	3	1	1	2	13	14	27
Bus + Underground		16	95	111	54	32	86	506	524	1030

Table 9.4.10 – AM, PM and Daily Multimodal Trip Generations

Commercial Multimodal Generations

9.4.11 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.

9.4.12 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.

9.5 Sanderson's Methodology

9.5.1 Again, total person trip rates for each proposed land use have been derived from the TRICS database and the sites used to generate the trip rates have been filtered to remove any sites considered unrepresentative in terms of accessibility (PTAL <4 excluded). However, on this occasion, further filtering has been undertaken to remove sites with a parking ratio per dwelling of > 0.5. Copies of the TRICS outputs with advanced filtering are included at **Appendix M**.

9.5.2 The resulting trip rates and generations associated with the residential elements of the development are summarised below. With regards to the commercial element of the development, the same principle applies as described in paragraphs 9.4.11 and 9.4.12.

Time	Trip Rate per Unit	Generations from 262 Units
Weekday AM Peak (08:00-09:00)	0.334	88
Weekday PM Peak (17:00-18:00)	0.345	90
Weekday Daily	3.637	953

Table 9.5.2a – Total person trip generations for private residential (262 units)

Time	Trip Rate per Unit	Generations from 171 Units
Weekday AM Peak (08:00-09:00)	0.632	108
Weekday PM Peak (17:00-18:00)	0.463	79
Weekday Daily	6.565	1,123

Table 9.5.2b – Total person trip generations - affordable residential (171 units)

Time	Total generations
Weekday AM Peak (08:00-09:00)	196
Weekday PM Peak (17:00-18:00)	169
Weekday Daily	2,076

Table 9.5.2c – Total person trip generations

9.5.3 It is considered that given the deliberated approach taken to derive trip rates from the TRICS database, the results of the TRICS assessment are representative of how a car-free development is likely to operate in an area of high accessibility such as the proposed development site (PTAL rating = 5).

9.5.4 It should also be noted that the TRICS data (based on surveys of similar sites) accounts for the movements associated with all journey purposes. As such it is considered appropriate to use the multimodal TRICS data to estimate the likely modal split with all journey purposes accounted for.

9.5.5 It is this point where Sanderson's methodology is inherently different to that requested by TfL which is entirely based upon 'Method of Travel to Work' data.

9.5.6 The 2017 National Travel Survey (Table NTS0409) identifies that commuting (i.e. Travel to Work journeys) accounts for just 15% of all journey purposes. It is considered that the mode of travel associated with other common journey purposes such as education / escort education (12%), shopping (19%), personal business (10%) and leisure (26%) is likely to be different to how people choose to travel to work; especially given the proximity of the site to the adjacent supermarket and various primary schools.

9.5.7 Given the above, it is considered that the use of TRICS to establish a modal split is a valid approach and that the results of the assessment are representative of how people will travel to and from the development as a whole, not just to and from work.

9.5.8 Using the multimodal TRICS data for the 'Privately Owned Flats' element of the development, the predicted modal split is detailed in Table 9.5.8. It should be noted that the available TRICS data for the 'Affordable Flats' element of the development does not provide enough detail to determine a split between the various public transport modes. Nevertheless, the split identified by the 'Privately Owned Flats' data is considered representative.

		Modal Share			Two-way Trip Generation		
	Mode of Travel	AM	PM	Total	AM	PM	Total
Active Transport	Pedestrians	34%	33%	43%	66	56	893
	Cyclists	1%	2%	1%	2	3	18
Private Transport	Taxis	4%	1%	3%	7	2	59
	Cars	3%	9%	5%	6	15	99
	LGV	1%	1%	1%	2	1	29
	OGV	0%	0%	0%	0	0	2
	Motorcycles	0%	0%	0%	0	0	6
	Vehicle Passengers	0%	2%	1%	0	3	25
Public Transport	Underground	28%	23%	21%	55	39	427
	Overground	5%	4%	3%	11	7	68
	Bus	24%	26%	21%	47*	43*	442*
Total People		100%	100%	100%	196	169	2076

Table 9.5.8 – Predicted modal split based on multimodal TRICS data

9.5.9 As noted by TfL, those travelling on the Underground will likely travel to / from the station by bus. Therefore, the total number of people travelling by bus is estimated to be in the order of 102 people in the AM peak period, 82 people in the PM peak period and 869 people daily.

9.6 Comparison of results

9.6.1 The following tables provide a comparison between the modal split predictions associated with each assessment methodology as well as the resulting trip generations:

Method of Travel	2011 Census 'Method of Travel to Work' modal split %	TRICS data 'Daily' modal split %
Underground, Metro, Light Rail, Tram	32.7%	21%
Train	27.1%	3%
Bus, Minibus or Coach	11.3%	21%
Taxi	0.3%	3%
Motorcycle, Scooter or Moped	2.5%	0%
Driving a Car or Van	2.9%	5%
Passenger in a Car or Van	0.1%	1%
Bicycle	8.9%	1%
On Foot	13.0%	43%
Other Method of Travel to Work	1.2%	0%

Table 9.6.1 – Modal Split % Comparison

9.6.2 With regards to the impact on trip generations, a comparison is provided below:

Method of Travel	2011 Census 'Method of Travel to Work' trip generations	TRICS data 'Daily' trip generations
Underground, Metro, Light Rail, Tram	765	427
Train	635	68
Bus, Minibus or Coach	264	442
Taxi	7	59
Motorcycle, Scooter or Moped	58	6
Driving a Car or Van	68	99
Passenger in a Car or Van	3	25
Bicycle	209	18
On Foot	305	893
Other Method of Travel to Work	27	0
Bus and Underground	1030	869

Table 9.6.2 – Trip Generation Comparison

9.6.3 From the above it can be seen that there are material differences in predicted modal splits for almost all modes of travel. It is considered that this appropriately reflects how travel modes vary depending upon journey purpose.

9.6.4 The 'Travel to Work' estimations rely more heavily on public transportation, in particular the rail and underground network, which makes sense because most people do not live within a reasonable walking distance from their workplace. In comparison, the TRICS data, which account of all journey purposes, predicts a much greater proportion of people travelling on foot. Given the range of education, leisure and retail opportunities available within reasonable walking distance of the site it is understandable that people are likely to be less reliant upon public transportation.

9.6.5 For the purpose of providing a robust assessment of the impact of the Amended Proposed Development on pedestrian infrastructure as well as on public transport services, it is proposed to use the generations resulting from TfL's assessment methodology. Further details are provided within Chapters 12 – 14 of this report.

10 Vehicle Traffic Generations

10.1 Trip Generations

10.1.1 Notwithstanding the different methodologies described in the previous Chapter of this report, the original Transport Assessment identified no material junction capacity issues surrounding the development proposals. Therefore, for the purpose of this Revised Transport Assessment, the vehicle trips associated with the proposed development have been assessed using vehicle trip rates from the TRICS database which have not been filtered to exclude sites based on parking ratios, as per TfL's request. These trip rates are presented within the multimodal outputs in Appendix K and are summarised below:

	Trip Rate Per Dwelling		Traffic Generations from 265 Units		
	Arrivals	Departures	Arrivals	Departures	Total
AM Peak (08:00-09:00)	0.032	0.081	8	21	29
PM Peak (17:00-18:00)	0.054	0.031	14	8	22

Table 10.1.1 (a) – Traffic generations for private residential element (265 units)

	Trip Rate Per Dwelling		Traffic Generations from 171 Units		
	Arrivals	Departures	Arrivals	Departures	Total
AM Peak (08:00-09:00)	0.027	0.078	5	13	18
PM Peak (17:00-18:00)	0.054	0.038	9	6	15

Table 10.1.1 (b) – Traffic generations for affordable residential element (171 units)

10.1.2 The predicted residential vehicle trips are 47 vehicle movements two-way in the AM and 37 in the PM peak hours. This equates to approximately one vehicle every 1½ to 2 minutes in the AM and PM peak hours.

10.1.3 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.

10.1.4 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.

10.1.5 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.

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

	Time Period	Trip Rates (per 100sqm GFA)		Traffic Generations		
		Arrivals	Departures	Arrivals	Departures	Two-way
Commercial Space (583sqm)	AM (08:00-09:00)	5.180	4.773	30	28	58
	PM (17:00-18:00)	6.369	6.933	34	37	71

Table 10.1.6 - Trip rates and generations for proposed commercial use

10.1.7 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.

10.1.8 Taking this into account the trip generations are envisaged to be as detailed in the table below:-

	Time Period	Traffic Generations		
		Arrivals	Departures	Two-way
Commercial Space (480.1sqm)	(08:00-09:00)	8	7	15
	(17:00-18:00)	9	9	18

Table 10.1.8 - Trip generations for proposed commercial use with reductions applied

10.1.9 This equates to approximately one vehicle every 3 -4 minutes in the AM and PM peak hours.

10.2 Total Traffic Generations

10.2.1 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	8	21	29
Affordable Flats		5	13	18
Commercial		8	7	15
Total		**21**	**41**	**62**
Private Flats	PM	14	8	22
Affordable Flats		9	6	15
Commercial		9	9	18
Total		**32**	**23**	**55**

Table 10.4.1 - Total proposed development vehicle trip generations

10.2.2 Taking into consideration the existing use of the development site, described in Section 5.1, the proposed development could be expected to result in a reduction of 17 traffic movements in the AM peak and 52 in the PM peak.

10.3 Development Traffic Distribution

10.3.1 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 10.3.1 – Richmond upon Thames 004 MSOA (MapItUK)

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

10.3.3 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.

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

11 Traffic Impact Assessment

11.1 This section of the report seeks to quantify the impact of the Amended Proposed Development upon the operation of the local highway network.

11.2 Base Traffic Flows

11.2.1 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.

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

11.3 Committed Development

11.3.1 During the pre-application discussions on the Amended Proposed Development no committed development sites have been identified.

11.4 Traffic Growth

11.4.1 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.

11.4.2 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

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

11.5 Junction Modelling

11.5.1 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

11.5.2 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	0.11	0.1	0.08	0.1
C-B	0.05	0.1	0.08	0.1
	2028 Base + Dev AM		**2028 Base + Dev PM**	
	Max RFC	**Max Queue (veh)**	**Max RFC**	**Max Queue (veh)**
B-AC	0.11	0.1	0.08	0.1
C-B	0.05	0.1	0.08	0.1

Table 10.5.2 – Junctions results

11.5.3 The output results can be found at **Appendix N**.

11.5.4 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

11.5.5 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 10.5.5 – Junctions results

11.5.6 The output results can be found at **Appendix O**.

11.5.7 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

11.5.8 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.

12 Impact of the Development on the Pedestrian Network

12.1 TfL's multimodal assessment methodology, detailed in Chapter 9 of this report used '2011 Census: Method of Travel to Work data' to form a modal split. However, as previously noted, there are other journey purposes to consider as well as Travel to Work (e.g. education and shopping). Furthermore, those using public transport modes are likely to require a short journey on foot in order to be able to access those services.

12.2 The multimodal trip generations set out within Table 9.4.10 of this report estimates that the development is likely to generate in the order of 33 pedestrian trips (two-way) in AM peak, 25 pedestrian trips (two-way) in the PM peak hour and 305 trips (two-way) daily.

12.3 Further to the above, those utilising public transport modes are expected to generate an additional pedestrian demand in the order of 179 trips (two-way) in the AM, 139 trips in the PM and 1,665 trips (two-way) daily. These journeys on foot would be limited to between the site and local bus stops / North Sheen Station.

12.4 The following assessment seeks to provide a realistic estimate of the distribution of pedestrian movement about the site and evaluate the suitability of existing crossing facilities.

12.5 The chart below shows the split between journey purposes as a % of all walking trips based on the results of the National Travel Survey (Table NTS0409 – Average number of trips by purpose and main mode).

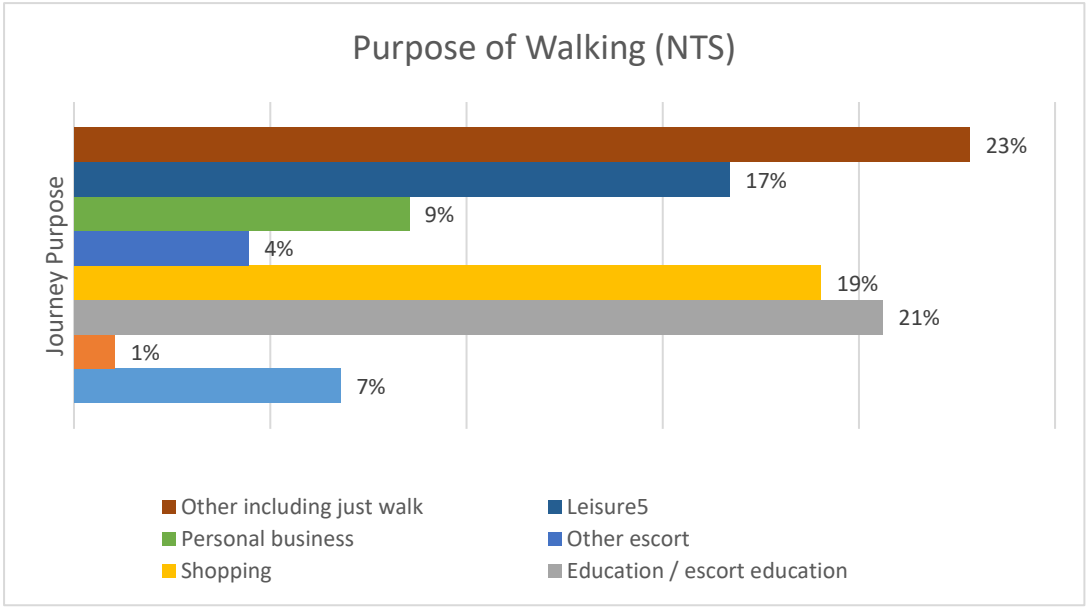


Figure 12.5 – Purpose of Walking (NTS)

12.6 For clarity the journey purposes are defined below;

- **Commuting:-** Trips to / from home to usual place of work
- **Business:-** Personal trips in course of work.
- **Education:-** Trips to school or college.
- **Shopping:-** Trips to the shops or from the shops to home.
- **Personal Business:-**Visits to services, medical consultations etc.
- **Visit friends:-** Trips to visit friends
- **Other leisure:-** Mostly entertainment, sport, holidays and day trips.
- **Escort trips:-** Accompanying someone else (e.g. taking a child to school)

12.7 Based on the above information, the most common reasons people walk are for education (including escorting others), shopping, leisure and for other reasons including 'Just Walking'.

12.8 Just Walking (23%)

12.8.1 This journey purpose would account for 70 trips (two-way) daily. This would include activities such as dog walking, walking / running for exercise etc. It is considered that these activities would predominantly occur outside of typical network peak periods.

12.8.2 With regards to distribution it is difficult to determine in what direction people would travel. As such a 50/50 split is to be assumed northbound / southbound along Manor Road (without the need to cross-over). The northbound proportion will then be evenly split between westbound and northbound movements at Manor Circus.

12.9 Education / Escort Education (21%)

12.9.1 This journey purpose would account for 64 trips (two-way) daily. The outbound journeys would likely occur on a morning during the typical AM peak period of 8am – 9am (with parents / guardians returning home after 9am), and in the afternoon between 3pm – 4pm, prior to the typical PM peak period 5pm – 6pm.

12.9.2 As part of the Health Impact Assessment undertaken for this scheme, the GLA's SPG Play Space Requirement Calculator was used to determine the child yield (aged up to and including 17) from the proposed development. The child yield from the proposed development is as detailed in the table below:-

Age of children	Number of children
Under 5	75
5-11 years	54
12 -17 years	32
Total	161

Table 12.9.2 – Proposed Development Child Yield

12.9.3 It is considered that those children walking (including being escorted) to / from school will be mostly primary school children (54 total). Those at secondary level and above are likely to have to travel further and are therefore included within the public transport user element of trips; the impact of which is still to be considered. On this basis, the estimation of 64 trips (two-way) associated with education appears to be reasonable.

12.9.4 With regards to distribution, schools within walking distance of the site include;

- Holy Trinity Primary School and Nursery (550m to the south)
- Marshgate Primary School (550m to the south)
- Darell Primary & Nursery School (550m to the north)
- Christ's School and Sixth Form (800m to the south)

12.9.5 It is estimated that 75% of journeys to / from school would be to the south of the site; of which 25% would cross Manor Road via the 0.8m wide pedestrian crossing refuge. The remaining 50% could continue along the western flank of Manor Road before utilising the controlled crossing facility at the junction with Sheen Rd (A305).

12.9.6 The 25% travelling northbound would utilise the zebra crossing facilities around the Manor Circus roundabout junction.

12.10 Shopping (19%)

12.10.1 This journey purpose would account for 114 trips (two-way) daily. It is considered that these activities would predominantly occur outside of typical network peak periods, with a small proportion coinciding with journeys home from work in the PM peak. Given the proximity a size of the adjacent supermarket, it is considered that most 'shopping' trips would be generated from there.

12.10.2 People travelling between the site and the supermarket would utilise the existing 2.0m wide pedestrian crossing refuge which is located immediately adjacent the access to the store.

12.11 Leisure (17%)

12.11.1 This journey purpose would account for 52 trips (two-way) daily. Again, it is considered that these trips would predominantly occur outside of typical network peak periods.

12.11.2 Local 'leisure' destinations are considered to include:

- Allotments to the south of North Sheen Station (200m south)
- North Sheen Recreation Ground (550m north)
- Old Deer Park / Kew Gardens (900m – 1.2km north/west)
- Richmond Park (within 1km)

12.11.3 With regards to distribution it is difficult to determine how popular each of the above locations will be. As such a 50 / 50 split is to be assumed northbound / southbound along Manor Road, with 10% crossing via the 0.8m wide pedestrian crossing refuge on Manor Road to access the allotments.

12.12 Personal Business (9%)

12.12.1 This journey purpose would account for 28 trips (two-way) daily. Again, it is considered that these trips would predominantly occur outside of typical network peak periods.

12.12.2 A number of things associated with 'Personal Business' are provided within the adjacent supermarket, including a pharmacy and banking facilities. The nearest Post Office is located approximately 800m to the south-west of the site along Sheen Road.

12.12.3 For the purpose of distribution for this assessment, and to be robust, all personal business trips are to be assigned to / from the supermarket via the 2.0m wide pedestrian crossing refuge adjacent the supermarket access.

12.13 Commuting (7%)

12.13.1 This journey purpose would account for 22 trips (two-way) daily; a material proportion of which would likely occur during network peak periods.

12.13.2 With regards to distribution, the surrounding area is predominantly residential, with the exception of the supermarket and various schools. The main employment areas are likely to be Richmond (west), Kew (north) and North Sheen (east). For the purpose of this assessment a split of 50/25/25 is to be applied, respectively.

12.14 Other including Business and Other Escort (4%)

12.14.1 These journey purposes would account for 12 trips (two-way) daily. There is unlikely to be a fixed or likely destination associated with these journeys as such the assignment of a distribution is difficult. However, it is considered that these trips would likely occur throughout the day (non-peak) or could be linked with a journey home in the PM peak.

12.15 Accessing Public Transport

12.15.1 As previously noted, those utilising public transport modes are expected to generate an additional pedestrian demand in the order of 179 trips (two-way) in the AM, 139 trips (two-way) in the PM and 1,675 trips (two-way) daily.

12.15.2 Pedestrian movements to / from North Sheen Station are expected to be in the order to 68 trips (two-way) in the AM, 53 trips (two-way) in the PM and 636 trips (two-way) daily. These movements would be required to cross Manor Road using the 0.8m wide pedestrian crossing refuge.

12.15.3 Pedestrian movements to / from Richmond Underground Station (via bus services along Lower Mortlake Road) are expected to be in the order of 82 trips (two-way) in the AM, 64 trips (two-way) in the PM and 765 trips (two-way) daily. Given the location of bus stop 'SB', outbound journeys (to Richmond Underground) would not require anybody to cross a road. Inbound journeys (arriving at bus stop 'SA') would require people to cross Lower Mortlake Road using the zebra crossing facilities at the manor Circus roundabout junction.

12.15.4 With regards to pedestrian movements to / from bus stops (specifically for bus journeys) are expected to be in the order of 28 trips (two-way) in the AM, 22 trips (two-way) in the PM and 264 trips (two-way) daily.

12.15.5 As described in Chapter 4 of this report, the majority of bus services operate along Lower Mortlake Road via the aforementioned bus stops 'SA' and 'SB', with a relatively even split between north-eastbound and south-westbound journeys. It is also acknowledged that a frequent service (371) is provided via stop 'SU' located within the adjacent supermarket car park. For the purpose of this assessment, 10% of bus journeys are to be assigned via bus stop 'SU' with the remaining 90% via stops 'SA' and 'SB'.

12.15.6 The total number and distribution of daily pedestrian movements are illustrated within **Appendix P**, and summarised in the following table:

Links

A = Southbound on Manor Road

B = Crossing Manor Road at 0.8m pedestrian crossing refuge

C = Crossing Manor Road at 2.0m pedestrian crossing refuge

D = Westbound on Lower Mortlake Road

E = Crossing Manor Road via Manor Circus zebra crossing facility

F = Crossing Lower Mortlake Road via Manor Circus zebra crossing facility

LINK ID	A	B	C	D	E	F
Daily	104	636	55	545	31	536

Table 12.15.6 – Summary of pedestrian movements

12.16 Review of Crossing Facilities

12.16.1 To determine the suitability of the existing crossing facilities, in particular those provided along Manor Road, guidance set out within Local Transport Note 1/95 'The Assessment of Pedestrian Crossings' has been reviewed.

12.16.2 The purpose of a crossing is to provide pedestrians with a passage across a carriageway. Each type of crossing has advantages and disadvantages; the type chosen should be appropriate to the circumstances of the site and the demand and behaviour of road users.

12.16.3 Details relating to the 'circumstances of the site' and 'behaviour of road users' are provided in the Site Assessment below;

12.17 Highway Description

12.17.1 The B353 Manor Road has one pedestrian crossing refuge approximately 20m south of the mid-point of the main pedestrian access to the site, which is approximately 1.6m wide (not 0.8m wide as stated by LBRuT), and one 12m north of the secondary pedestrian access to the site which is 2m wide. There are chevrons to accommodate both of these established crossing points and maintain a carriageway width of 3m in both directions for vehicular traffic.

12.17.2 There is a carriageway length of 92m between the two crossing refuges and 24m between the smaller refuge and the railway level crossing, which can act as a pedestrian crossing facility when the barriers are down, and the pedestrian footbridge across the railway line on the eastern side of Manor Road.

12.17.3 LBRuT commented that "Current highway design standards state that there should be a carriageway length of at least 90m between signalised pedestrian crossing facilities, and that these should be considered when there is a gap in vehicular traffic to enable able-bodies pedestrians to cross two lanes of traffic of less than 5 seconds and a gap of less than 12 seconds for other groups of pedestrians." Firstly, it is noted that the pedestrian crossing facilities on Manor Road are not signal controlled. However, the distance between the two refuges is still greater than 90m.

12.17.4 The road is surfaced, providing adequate skid resistance for vehicles and street lighting is provided in accordance with standards for built-up areas.

12.17.5 Manor Road has a relatively straight alignment and Traffic Regulation Orders (TROs) in the form of double yellow lines are present on both sides of the carriageway preventing on-street parking. As such, adequate visibility is considered to be available between pedestrians and vehicles in relation to the 30mph speed limit of the road.

12.18 Existing Traffic Flows

12.18.1 Traffic surveys undertaken along Manor Road in October 2018 identified that two-way vehicle flows were in the order of 623 vehicles in the AM peak period and 741 vehicles in the PM. The recorded HGV percentages were 4.2% in the AM and 2.7% in the PM.

12.18.2 As the presence of the pedestrian crossing refuges allows pedestrians to cross the road in two stages, pedestrians must only give-way to one direction of vehicle traffic at a time. Assuming free-flow conditions, the northbound vehicles equate to (358) approximately 1 vehicle every 10 seconds in the AM peak and (442) approximately 1 vehicle every 8 seconds in the PM peak. Meanwhile, southbound vehicles equate to (265) approximately 1 vehicle every 14 seconds in the AM peak and (299) approximately 1 vehicle every 12 seconds in the PM peak.

12.18.3 However, consideration must also be given to the presence of the railway level crossing and its impact on the flow of vehicle traffic.

12.18.4 As set out in Section 5.3 of this report, surveys of the level crossing identified that 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. The typical duration for which the barriers were down was observed to be in the order of 3 to 4 minutes per crossing.

12.18.5 Whilst the operation of the crossing often results in vehicles travelling in platoons (with minimal gaps to allow pedestrians to cross), it also creates extended periods of time whereby pedestrians can cross the road without having to give-way to moving vehicles.

12.18.6 As part of the TA, pedestrian surveys were undertaken identifying crossing movements along Manor Road. The study area and zones are illustrated below:

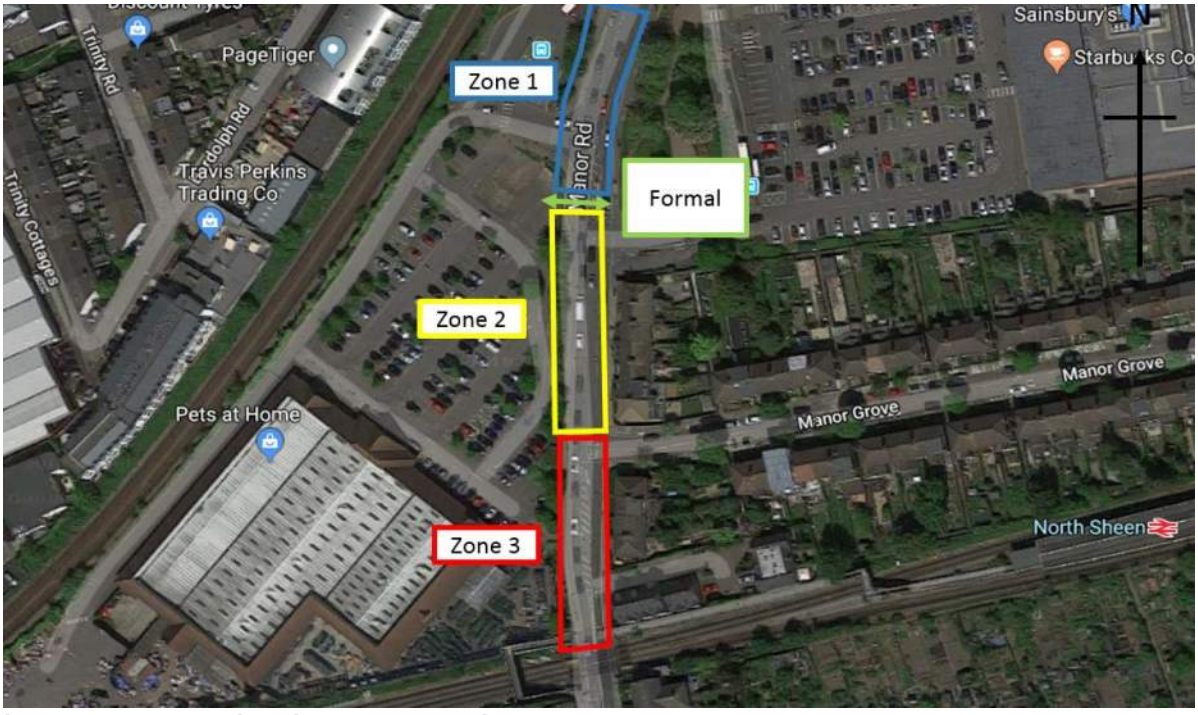


Figure 12.18.6 – Pedestrian survey study area

12.18.7 The results of the pedestrian survey are tabulated below:

TIME	Zone 1		Formal Crossing		Zone 2		Zone 3	
	EB	WB	EB	WB	EB	WB	EB	WB
07:30	5	1	1	5	0	4	16	9
07:45	5	1	3	2	1	5	29	30
08:00	0	1	1	2	1	14	17	34
08:15	0	2	0	6	3	1	19	27
08:30	3	2	4	4	2	8	14	61
08:45	2	1	3	1	4	3	20	19
09:00	2	2	3	3	3	3	39	6
09:15	3	3	2	0	2	5	10	1
P/TOT	**20**	**13**	**17**	**23**	**16**	**43**	**164**	**187**

Table 12.18.7 (a) – AM Pedestrian survey results

TIME	Zone 1		Formal Crossing		Zone 2		Zone 3	
	EB	WB	EB	WB	EB	WB	EB	WB
15:00	5	4	1	4	5	4	17	17
15:15	3	4	17	6	1	3	22	9
15:30	2	2	9	4	5	6	25	2
15:45	1	0	5	2	4	9	21	11
16:00	6	6	5	1	6	2	11	12
16:15	2	3	8	6	1	2	19	9
16:30	6	3	15	5	1	1	16	10
16:45	2	4	5	1	4	4	19	13
17:00	3	1	3	0	4	2	9	5
17:15	2	1	4	3	1	2	12	7
17:30	1	5	1	3	1	3	7	16
17:45	8	2	2	2	5	8	15	10
P/TOT	**41**	**35**	**75**	**37**	**38**	**46**	**193**	**121**

Table 12.18.7 (b) – PM Pedestrian survey results

12.18.8 The survey results identify that during both the AM and PM survey periods, there were significant levels of pedestrian activity. The pedestrian peak hours were 07:45 – 08:45 during which time a total of 302 crossings occurred, and 15:00 – 16:00 during which time a total of 230 crossings occurred. Over the course of the entire AM and PM survey periods, a total of 1,069 crossing movements were recorded.

12.18.9 What is also notable from the survey results is that more people were recorded crossing the road not at a crossing, than those recorded using a crossing. This would suggest that pedestrians typically have the opportunity to cross the full carriageway in one stage, rather than requiring refuge.

12.18.10 Based on the predicted level of pedestrian movements generated by the development set out earlier in this Chapter, the number of additional crossing movements along Manor Road equates to 636 movements daily.

12.19 Accident History

12.19.1 The Crashmap database has been reviewed to investigate the accident history along Manor Road in proximity to the site, specifically relating to incidents involving pedestrians. The following image shows all pedestrian related incidents that have been recorded in the 20 year period between 01/01/1999 and 31/12/2018.

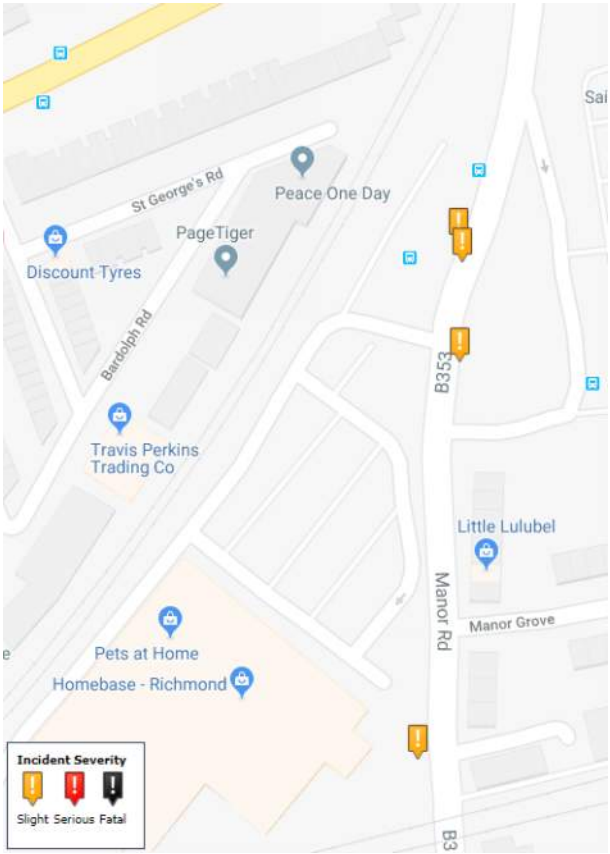


Figure 12.19.1 – Crashmap extract

12.19.2 Crashmap indicates that just 4 pedestrian related incidents (all slight in severity) have been recorded in the last 20 years. Two events occurred approximately 30m north of the existing site entrance, one event occurred at the 2.0m wide pedestrian crossing refuge and one occurred between the 0.8m wide pedestrian crossing refuge and the level crossing.

12.19.3 It is considered that the number of recorded pedestrian related incidents (4) over a period of 20 years is particularly low, especially given the surveyed volume of pedestrian crossing movements. This would indicate that the existing relationship between pedestrian and vehicle movements is a manageable one and that the existing crossing facilities do not require upgrading. Furthermore, the forecast increase in pedestrian movements as a result of the proposed development is unlikely to have a material adverse effect on road safety.

12.19.4 The pedestrian refuge island widths provided on Manor Road (2.0m and 1.6m with hatching to either side) comply with current design standards and are considered satisfactory to accommodate the proposed level of pedestrian activity.

13 Impact of the Development on Local Bus Services

13.1 Based on TfL's assessment methodology, it is identified (in Table 9.4.10) that the additional demand for buses which could potentially be generated by the proposed development equates to around 111 people in the AM peak period, 86 people in the PM peak period and 1,030 people daily. These figures include all those using a bus to access Richmond Underground Station.

13.2 The above estimate is considered robust because (as noted by the Council) there are schools (primary and secondary) and higher education establishments within acceptable walking distance of the site. As such, pupils are unlikely to be dependent upon bus services to access education. Furthermore, the site is located immediately adjacent a supermarket (with Pharmacy); therefore journeys for the purposes of shopping are unlikely to require access to bus services.

13.3 It is our understanding that TfL recently proposed changes to some local bus services. However, due to local objection these changes are no longer proposed to be implemented. A summary of the proposed changes is provided below:

Service Nº	Proposed Change	Approximate change in number of services per hour
H22	Service no longer available	-5
493	Service re-routed via the A305. Stops located approximately 550 - 600m from the site.	-6
419	To be re-numbered to 110. No change to frequency between Hammersmith and Richmond	0
H37	Every 8 minutes instead of every 6 minutes	-3
	Total:	-14

Table 13.3 – Summary of proposed TfL changes to bus services

13.4 It should be noted that amongst the proposed changes to bus services given on the 'Proposed bus service changes in Richmond, Twickenham and Whitton' consultation information webpage TfL state that:

"Through routes 190, 391, 419 and R68, 17 buses per hour are provided which are sufficient to meet demand."

13.5 On this basis, it is understood that the existing demand for bus services in the local area is neither at, nor nearing, full capacity.

13.6 Given the anticipated increase in demand (111 people in the AM peak period, 86 people in the PM peak period and 1,030 people daily) and the number of available bus services per hour (55), the number of additional people using each service would likely be modest; in the order of 1 or 2 people. This is considered unlikely to have a material adverse effect on existing bus capacity.

13.7 With regards to the peak hour direction of travel for bus trips, we have analysed 2011 Census: Origin / Destination statistics which identifies place of work by method of travel to work. Again, it is acknowledged that bus journeys will be undertaken for other journey purposes as well as 'travel to work'. However, for the purpose of distribution, this dataset is considered to be appropriate.

13.8 The figure overleaf depicts the Middle Super Output Area (MSOA) destination of journeys to work by bus from the MSOA of the site and the general direction of travel they would take based on Census data. As can be seen, there is a relatively even distribution between south-westbound and north-eastbound bus journeys to / from work. The split has been calculated as follows:

Direction of travel	Number of Travel to Work Journeys by Bus from 'Richmond 004'	% Split
South-westbound	124	53.7
North-eastbound	107	46.3

Table 13.8 - Direction of bus travel based on 2011 Census: Origin / Destination statistics

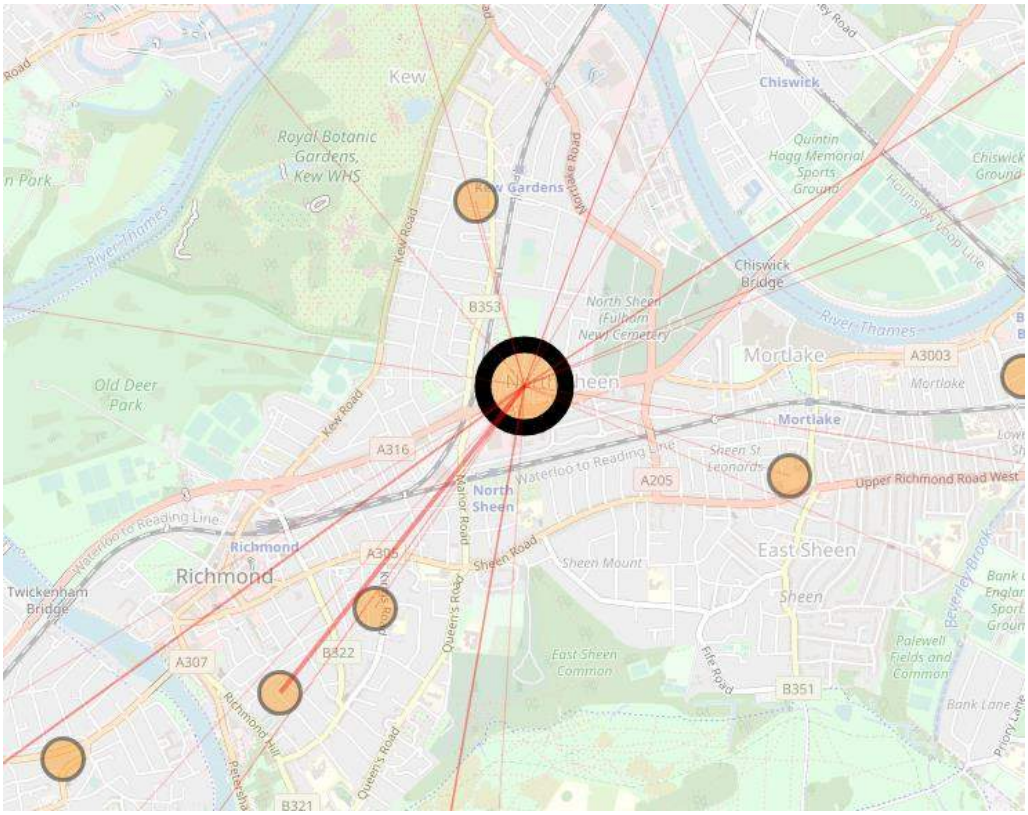


Figure 13.8 - Travel by bus ***(Source: http://commute.datashine.org.uk)***

13.9 It should be noted that for the purpose of this assessment; areas generating less than 6 bus trips have been omitted. This is considered to be appropriate as the impact of these low generating areas on distribution would be minimal. The dataset identifying the percentage draw to each area is included at **Appendix Q.**

13.10 The relatively even distribution of bus journeys to / from work supports the assertion that an excessive demand on a particular bus service is unlikely to occur as a result of the development proposals.

13.11 Block E, which incorporates the bus layover area and associated facility, with residential units above, has been designed to accommodate 4 bus stands to serve services 493 and R70. The layover area, the layout of which can be seen in Section 2, has been designed in accordance with TfL's Operational & Construction Guidelines which sets out the design parameters of facilities such as these in terms of stand sizes, clearance heights and manoeuvring space requirements. In order to comply with the guidelines all four bays can be accessed and egressed independently without any reversing manoeuvres being required.

13.12 Attached at Appendix H is Drawing 11205-009 which shows the swept path analysis of each bus accessing and egressing this area of the site.

13.13 Also attached at Appendix H is Drawing 11205-008 which details the amendments proposed to the white lining on Manor Road to accommodate the manoeuvre of buses exiting the site and pulling up to the northbound boarding bus stop on Manor Road, which is proposed to be moved some 15 metres to the north to enable passengers to board the bus. A southbound alighting only stop is also proposed on Manor Road as a replacement to the existing facility within the existing bus layover area. These works will be secured via a planning condition and associated S278 Agreement (Highways Act 1980).

13.14 Dedicated driver facilities are also incorporated within Block E. The facility will be provided with passive Electric Vehicle Charging capabilities, for all stands, to future proof the operation of the network.

13.15 As previously discussed in Section 3.5 a number of options for the bus layover area were prepared for discussion with TfL, however, the majority of these options were dismissed as they either involved reversing movements or did not provide the requisite number of bus stands.

13.16 During the construction period of Block E, a temporary bus layover area will be provided within the main part of the site. The layout of this area is shown indicatively on **Drawing 11205-010** which is attached at **Appendix H**. the swept path analysis and pedestrian linkages are also shown.

14 Impact of the Development on Local Rail Services

14.1 Given its proximity to the site, it is considered the vast majority of rail users generated by the development will access the rail network via North Sheen Station.

14.2 During the consideration of application 19/0510/FUL, the 'Original Proposed Development', the matters of potential platform congestion and the availability of space on trains to London, particularly during the AM peak were raised.

14.3 In order to be able to consider this in greater detail and to enable a development impact assessment to be undertaken, surveys were undertaken at North Sheen Station on three neutral weekdays; Tuesday 8, Wednesday 9 and Thursday 10 October 2019 between the hours of 07:00-09:30 and 15:00-18:00. Due to camera failure during the 10 October survey Thursday 24 October was surveyed for comparison.

14.4 The results of the surveys (detailed in Section 5.6 and attached at Appendix E) revealed that on a typical neutral weekday the morning "peak" occurs between 07:30 and 08:30 when an average of 262 passengers enter the station.

14.5 As there is only a single point of entry linking to a central platform it is not known for certain which direction passengers are intending to travel in. However, it is noted that trains from North Sheen towards central London (Waterloo) are available on both west and east bound lines with varying journey times and number of stops.

14.6 In this "peak" period 8 trains are scheduled to stop at North Sheen which provide access to London Waterloo and varying station en-route. Some trains provide an option to change at Richmond to catch a faster onward train.

14.7 It is, therefore, considered that typically these 8 services would need to be able to accommodate, on average 33 passengers each. Bearing in mind that the South Western Rail trains on this line usually operate between 8 and 10 carriages during peak times this is not considered to be unreasonable.

14.8 It is identified (in Table 9.4.10) that the additional demand for rail services which could potentially be generated by the proposed development equates to around 69 people in the AM peak period, 53 people in the PM peak period and 638 people daily.

14.9 Based on the above, it is considered the development could result in an increase of circa 6 – 9 people per service, or an additional 1 person per carriage, during the peak periods.

14.10 It is considered that this level of increase would not have a material impact on the capacity of local rail services and in reality the additional demand would not be discernible amongst typical daily fluctuations.

14.11 From analysis of the pedestrian survey which recorded activity at the entrance/exit at North Sheen Station it is considered that existing rail passengers can be accommodated on peak hour services. Further analysis of the predicted uplift also indicates that the station and attending trains will be able to accommodate future passenger levels during peak hours.

14.12 There have been recent rail improvements including the introduction of new trains which has increased the available capacity of the trains on key routes in south-west London. In addition, Network Rail has also improved/realigned the platforms at Waterloo Station which now means that all 24 platforms are able to be used for South Western train services thus increasing the available services and reliability.

15 Summary and Conclusions

15.1 Sanderson Associates (Consulting Engineers) Ltd has been appointed by Avanton Richmond Development Limited to advise on traffic and transportation issues surrounding the proposed redevelopment of Homebase Manor Road, North Sheen.

15.2 The development proposes the demolition of existing buildings and structures and comprehensive phased residential-led redevelopment to provide residential units (Class C3), flexible retail /community / office uses (Classes A1, A2, A3, D2, B1), a police facility (Use Class B1), a bus layover with driver facilities (Sui Generis Use), provision of car and cycle parking, landscaping, public and private open spaces and all other necessary enabling works with vehicular access from Manor Road.

15.3 The residential units are proposed to be a mix of private and affordable units including studios, 1, 2 and 3 bed.

15.4 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 serve the proposed new bus layover area within Block E to the north of the site.

15.5 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 (2019) proposes that all new developments in areas of PTAL 5 – 6 should be car-free.

15.6 Therefore, on-site parking is limited to fourteen (3%) disabled spaces with the capability to increase this to 10% if required. 20% of these spaces will be provided with electric vehicle charging facilities in line with the draft London Plan requirements. Two Electric Car Club vehicles are to be provided within the development. These will be managed by the operators of the scheme who are to be confirmed in due course with the provision being secured via a S106 obligation.

15.7 Cycle parking is proposed in excess of the standards contained within the draft London Plan and in order to increase accessibility for residents and in response to comments from statutory consultees the cycle parking has been relocated from the basement to the ground floor of residential blocks.

15.8 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. Highway related works are also proposed on Manor Road in association with the Block E element of the scheme and the proposed bus layover area. A new egress is proposed along with associated amendments to the road markings, relocation of the northbound bus stop and the introduction of a southbound alighting only bus stop.

15.9 A detailed assessment of the surrounding highway network and public transport infrastructure has been undertaken and it is considered that the site is 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.

15.10 From analysis of the pedestrian survey which recorded activity at the entrance/exit at North Sheen Station it is considered that existing rail passengers can be accommodated on peak hour services. Further analysis of the predicted uplift also indicates that the station and attending trains will be able to accommodate future passenger levels during peak hours.

15.10.1 In line with the strategies incorporated into the Draft London Plan 2019 and additional guidance published by TfL a detailed Active Travel Zone assessment has been undertaken.

15.10.2 The routes assessed, which had been previously agreed with TfL, generally performed well in relation to the Healthy Streets indicators by providing safe places to cross, being well-maintained, not having an accident history of concern and having public and private areas of vegetation that provide interest and variety. In addition, it is considered that the development will enhance the routes along the site frontage by providing improved footways, landscaping, places to rest and overlooking buildings.

15.11 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 LBRuT, and also satisfy the future aspirations of the London Plan.

15.12 Five options for the bus layover facility were put forward to TfL for their consideration following the October 2019 meeting. However, the majority of these options were considered unacceptable by TfL as they either did not provide an appropriate number of bus stands or required buses to undertake reversing movements which is contrary to TfL guidelines.

15.13 A number of financial contributions were previously agreed in relation to the original proposed development and it is understood that these will be similarly applicable to the Amended Proposed Development. These are to be secured by a S106 Agreement and include:-

- Manor Circus Improvement Scheme £130,000
- Railway Safety £ 15,000
- Level Crossing Improvements £ 60,000
- Station Access Feasibility £ 30,000
- Controlled Parking Zone Study £ 50,000
- Controlled Parking Zone Amendments £ 50,000 (if deemed necessary)

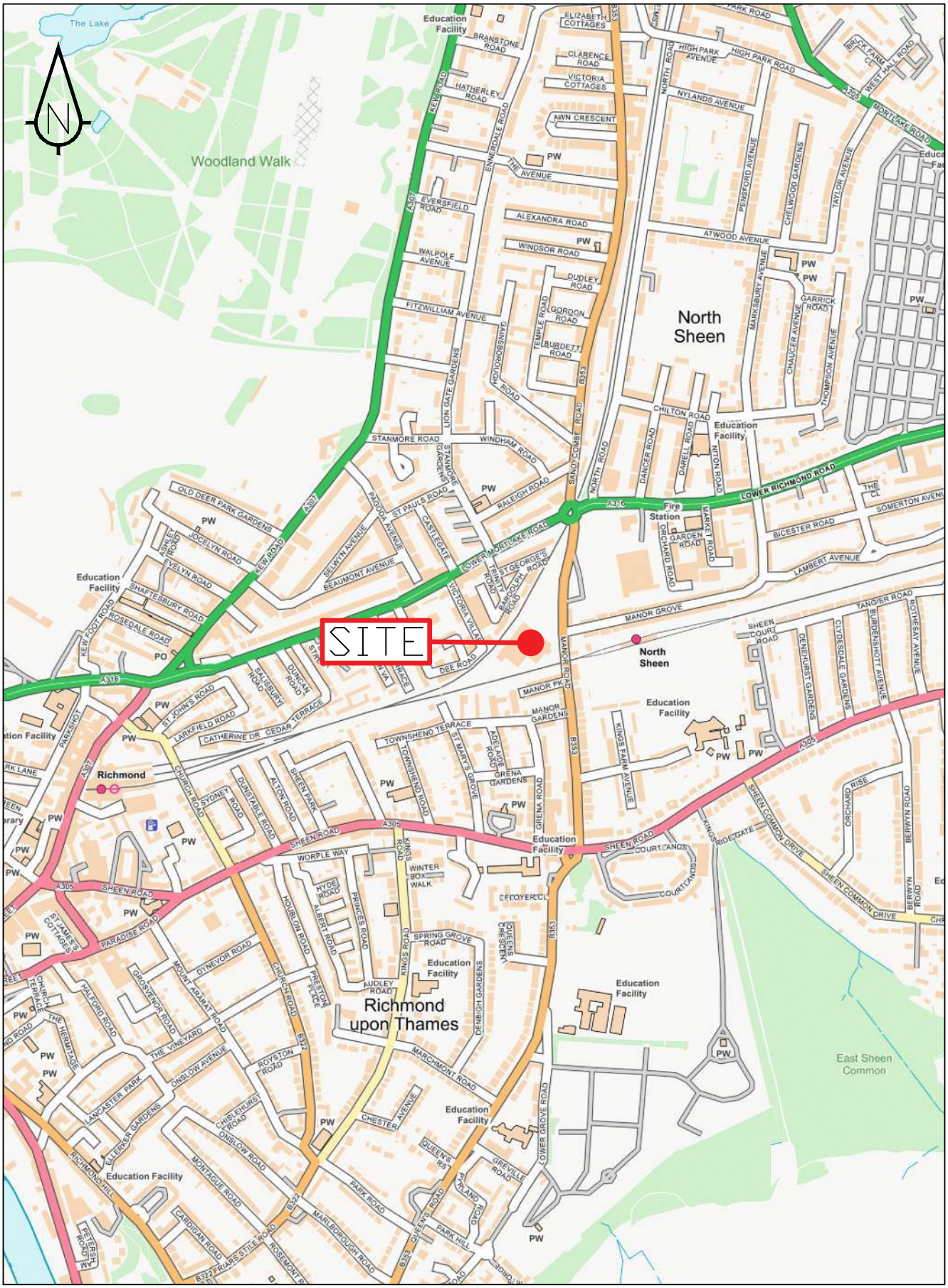
15.14 During more recent pre-application discussions it has been established that the scheme design costs for Manor Circus have risen. Therefore, TfL have requested a revised financial contribution of £380,000 towards the implementation of the Manor Circus scheme and this will be negotiated during the determination of the application.

15.15 A contribution of £40,000.00 was also previously suggested towards improvements within North Sheen station. However, the improvement contribution to North Sheen station was not agreed by the applicant during the determination of the original submission application as the works were due to be covered by the Community Infrastructure Levy list and as such it was considered that the works should be funded from this sum.

15.16 It is, however, acknowledged that the Community Infrastructure Levy regulations have since changed and as such this aspect of the development will likely be the subject of further discussions during the GLA determination period.

15.17 It is therefore, considered that the Amended Proposed Development, complies the current policies adopted by LBRuT, and also satisfies the future aspirations of the London Plan. It is further considered that appropriate mitigation is proposed either within the parameters of the development itself or in the form of financial contributions and that there are no transportation related reasons why the development should not be allowed to proceed.

APPENDIX A



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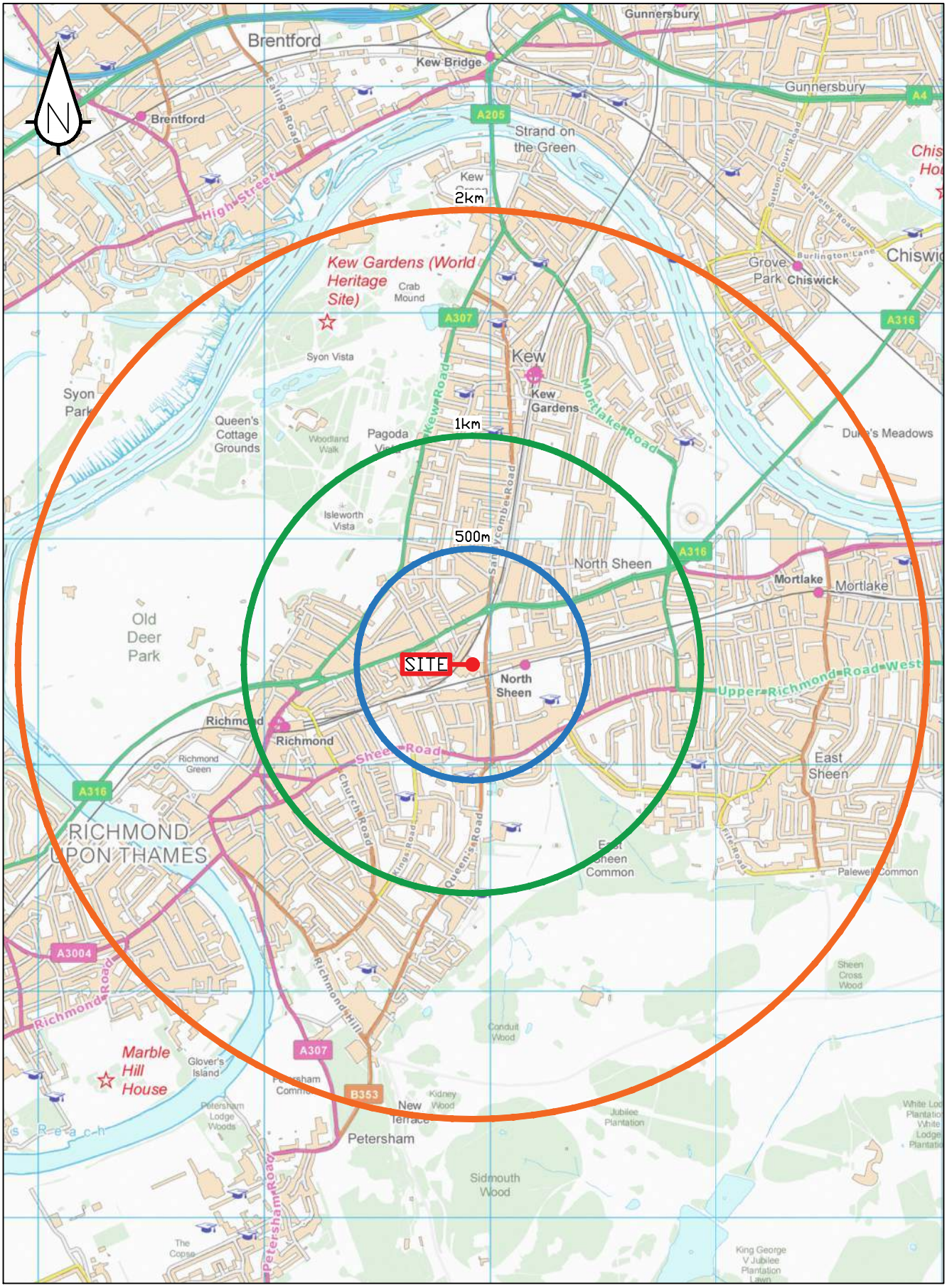
F 01924 844081 www.sandersonassociates.co.uk

Site Location Plan

Redevelopment of Homebase, Manor Road, North Sheen

Drawn	Scale
CH	NTS
Checked	Date
KS	July 2018
Approved	Drawing Number / Size
KS	Figure 1 / A4



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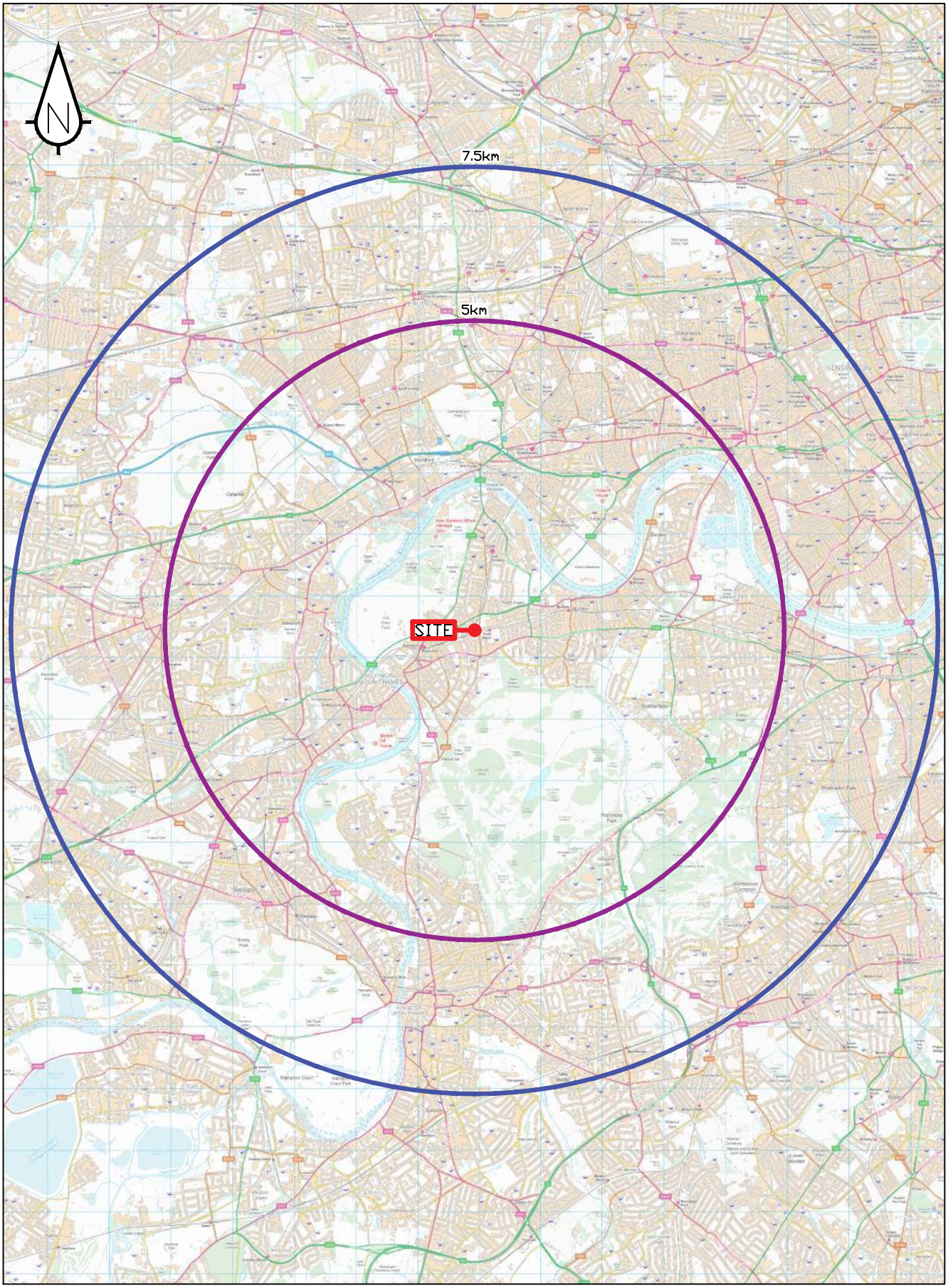
500m, 1km & 2km Indicative Walking Radii

Redevelopment of Homebase, Manor Road, North Sheen

Drawn	Scale
CH	NTS
Checked	Date
KS	July 2018
Approved	Drawing Number / Size
KS	Figure 2 / A4



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5 & 7.5km Indicative Cycling Radii

Redevelopment of Homebase,
Manor Road,
North Sheen

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

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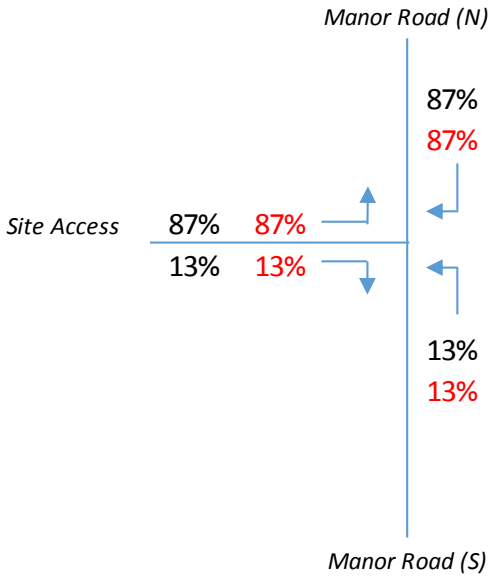
Location of Public Transport

Redevelopment of Homebase, Manor Road, North Sheen

Drawn	Scale
CH	NTS
Checked	Date
KS	July 2018
Approved	Drawing Number / Size
KS	Figure 4 / A4



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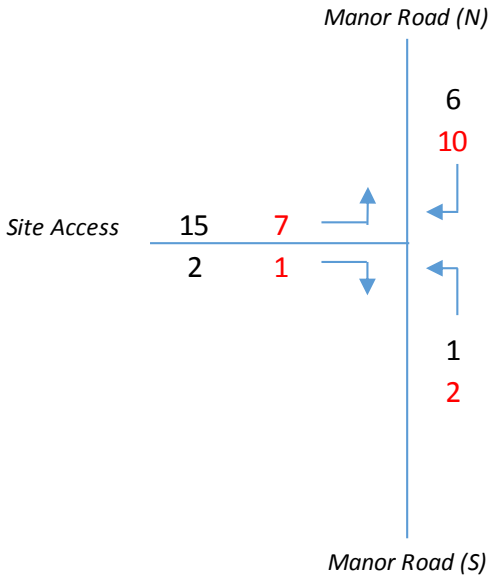
Redevelopment of Homebase,
Manor Road,
North Sheen

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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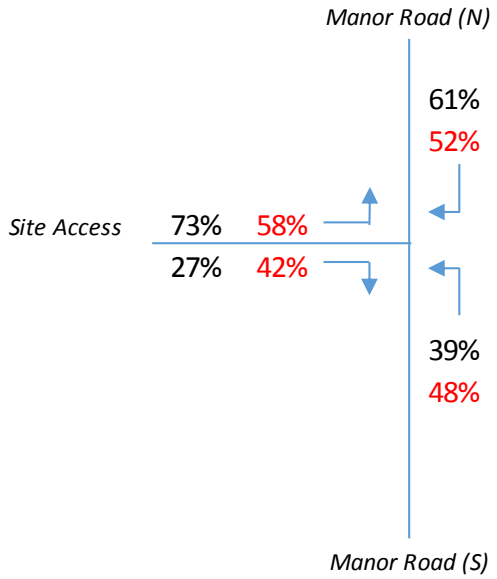
Redevelopment of Homebase,
Manor Road,
North Sheen

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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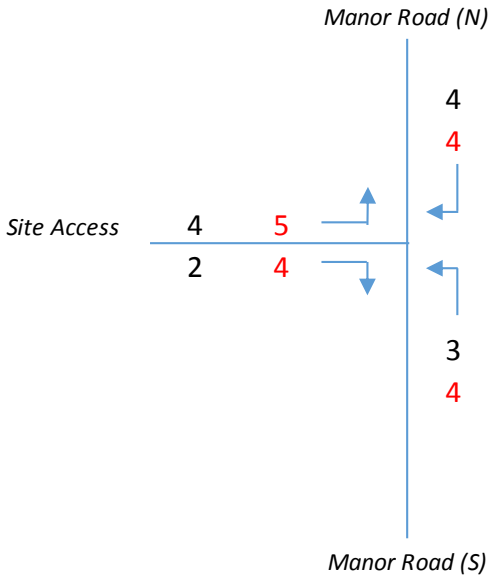
Redevelopment of Homebase,
Manor Road,
North Sheen

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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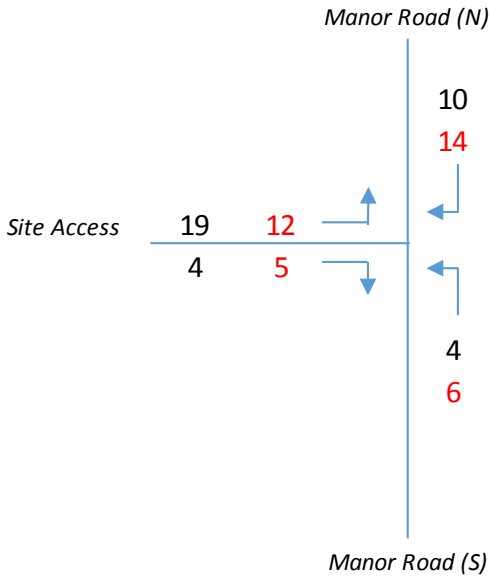
Redevelopment of Homebase,
Manor Road,
North Sheen

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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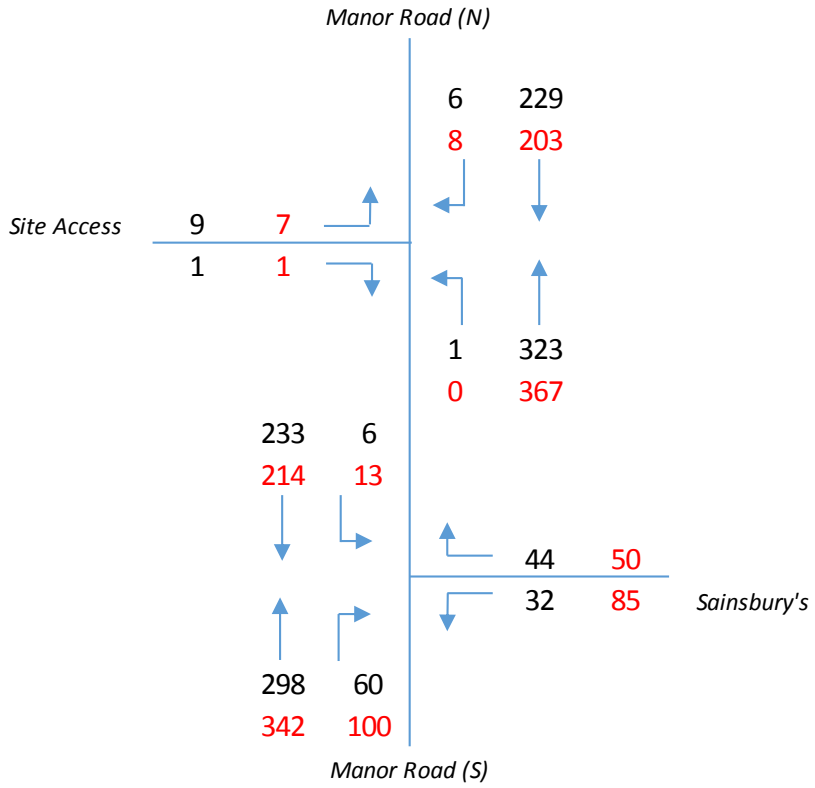
Redevelopment of Homebase,
Manor Road,
North Sheen

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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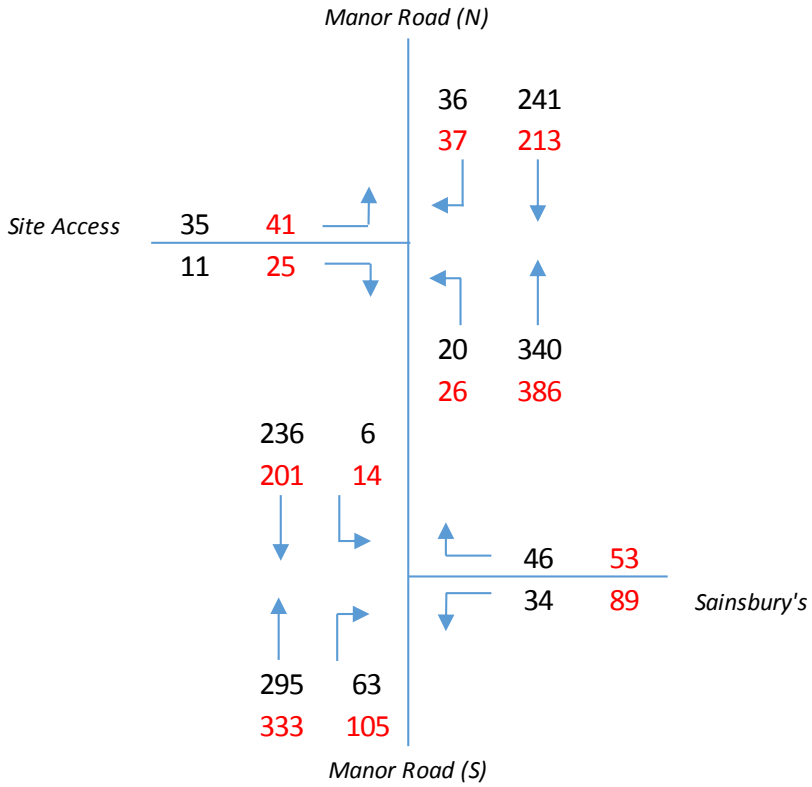
Redevelopment of Homebase, Manor Road, North Sheen

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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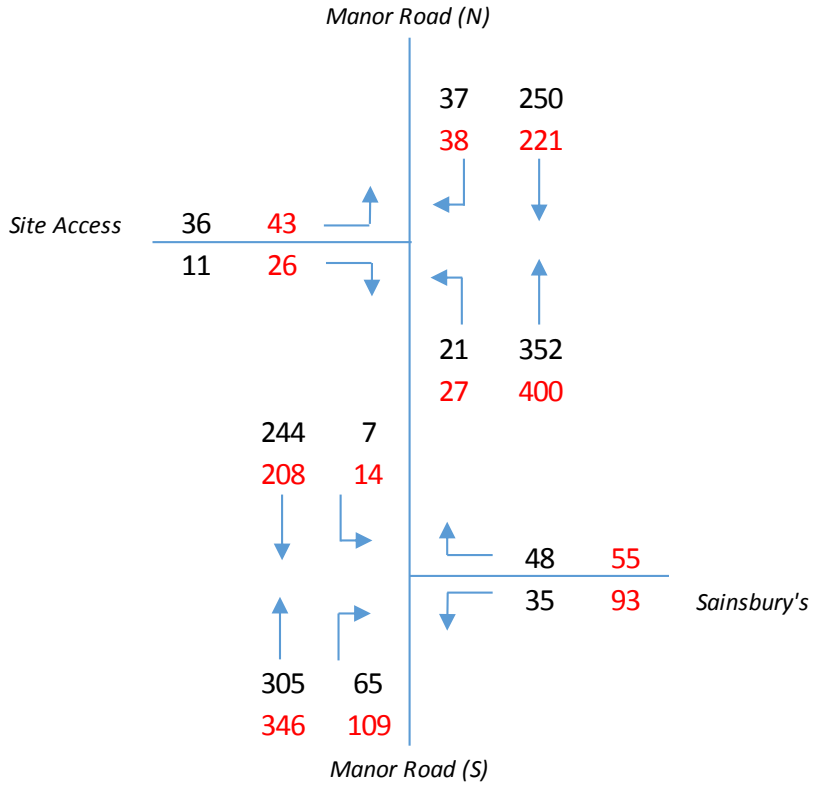
Redevelopment of Homebase,
Manor Road,
North Sheen

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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Redevelopment of Homebase, Manor Road, North Sheen

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.

APPENDIX B

Transport for London – Pre-Application Response

Transport for London

Our ref: RMND/19/138

Karen Smith
Sanderson Associates
Sanderson House
Jubilee Way
Grange Moor
Wakefield
WF4 4TD

Transport for London
City Planning

5 Endeavour Square
Westfield Avenue
Stratford
London E20 1JN

Phone 020 7222 5600
www.tfl.gov.uk

23rd October 2019

Dear Karen

84 Manor Road Homebase, LB Richmond – Stage 3 TfL's pre-application advice

This letter concerns the recent meeting held with TfL on the 9th October 2019, regarding the revised submission for the redevelopment of the Homebase site at 84 Manor Road in the London Borough of Richmond upon Thames (LBRuT). The focus of this meeting was the development of Block E above the North Sheen Bus Terminus.

The following comments are made by Transport for London officers on a 'without prejudice' basis only and are intended to ensure that this development is successful in transport terms and in line with relevant London Plan policies. You should not interpret them as indicating any subsequent Mayoral decision on any planning application based on the proposed scheme. Furthermore, these comments also do not necessarily represent the views of the Greater London Authority.

Proposed Development

Original Scheme

The original proposal included the provision of 385 residential units and 480sqm of flexible retail/community/office uses.

Updated Scheme

The updated proposals include the introduction of Block E on the northern part of the site above the North Sheen Bus Terminus, and 557sqm of flexible retail/community/office uses. The introduction of Block E will increase the total number of residential units on site to circa 440 units.

The meeting was attended by the following:

Karen Smith	Sanderson Associates
Tom Bennett	ICG Longbow
Rachel Crick	Avison Young
Emma Gill	Avison Young
John Lynch	Assael
Lucy Simpson	TfL Spatial Planning
Adam Edwards	TfL Delivery Planning
Ramel Hamilton	TfL PT Service Planning

This Stage 3 pre-application response is based on the key points discussed at our meeting.

Site context
The site is bound by railway lines to the south and west, Manor Road to the east and includes the North Sheen Bus Terminus to the north. The site is located immediately south of the A316 Manor Circus which forms part of the Transport for London Road Network (TLRN). A level crossing is located on Manor Road immediately south of the site's southern boundary.

The entrance to North Sheen rail station is located on the opposite side of Manor Road, near the sites southern boundary; there are also 10 bus routes within an acceptable walk distance. Based on TfL's Webcat toolkit the application site has a public transport access level (PTAL) of 5, on a scale of 0 to 6b where 6b is the most accessible.

North Sheen Bus Terminus
Current Operation
The existing bus terminus has standing for 5 buses. Two stands are provided for bus route 493 and two stands for bus route R70. Whilst the firth stand is currently not allocated to a specific route, it allows for resilience on the network.

Bus standing is required for service reliability. Stand space allows TfL to schedule recovery time which assists with providing a reliable service on routes 493 and R70. It also provides driver welfare. The Homebase terminus has a driver toilet that is accessible 24/7.

The current hours of operation of the terminus are between 04:30 and 00:30. Passengers currently alight at the entrance of the bus terminus and board the services at bus stop (SC) located on Manor Road.

The Sainsbury's site opposite also has formal bus standing for 1 bus, which is currently allocated to bus route 371; however this layout can accommodate a second bus informally.

Bus route 493 has a frequency of 5 buses per hour during the day, and bus routes R70 and 371 both have a frequency of 6 buses per hour. Based on the current frequency of the two bus routes, the standing area accommodates 69 buses per day for the route 493 and a further 99 buses per day for the route R70. Bus layover times vary throughout the weekday day and are detailed below:

- 371 – stands for approximately 15 minutes;
- 493 – stands for approximately 16 minutes; and
- R70 - stands for approximately 10-15 minutes.

Layovers tend to be longer on Sundays, but as the routes run at a lower frequency, they do not require more than 2 stand spaces each.

TfL's requirements
TfL's requirement from a bus operations perspective is that 5 stands are required on the existing site. However, there may be room for compromise (4 as an absolute minimum) if a decent standing arrangement is provided.

TfL would also be happy to look at an option where all bus standing is provided on the Sainsbury's site. However, there would need to be enough standing for 6 buses and TfL would require agreement from the owner of that site that this could be used by TfL in perpetuity. Alternatively TfL would also consider an on-street option, provided it meets our requirements in terms of sufficient capacity, location, has access to a toilet and doesn't incur increased mileage.

There are currently no spare bus stands near to the application site. All are either occupied, or required for rail replacement services. Whilst there are 2 bus stands at Queen's Road East Sheen, the route to access these stands is via the level crossing on Manor Road. The average barrier down time at this level crossing is 40 minutes per hour and 46 minutes per hour in the peaks, which would have a significant impact on bus reliability. Additional time would be required in the schedule to extend either route from Manor Road to Queens Road. It would cost approximately £230,000 per annum on a permanent basis to extend one route to this stand and would require installation of a driver toilet at the stand. Furthermore, these stands are currently used for rail replacement so alternative provision for these rail replacement services would also need to be found.

Any over station development is required to be designed in accordance with TfL guidance, which has already been provided to the applicant; and consideration is required for ventilation, lighting and fire safety. TfL are still to advise if there are any specific requirements in terms of bay sizes and fire safety etc.

Any new standing provided will require passive electric charging provision to all stands.

In terms of the bus driver faculties, the provision of a toilet is a necessary requirement and if space permits then an enhanced facility would be welcomed.

Proposed arrangement
Whilst a new bus standing arrangement for 4 stands, was discussed at the meeting (drawing MNR-ASA-ZZ-XX-SK-A-0919), TfL raised safety concerns with this arrangement which required buses to reverse out into the development sites vehicular access, which would also be used by pedestrians and cyclists. TfL advised the applicant to come up with a number of arrangement options, one of which should include the number of bus stands that can be accommodated on site without requiring buses to reverse.

The applicant also queried the use of the bus standing area for refuse collections. TfL would need to see the tracking for this along with the new bus standing arrangement.

Since the meeting, the applicant has provided five potential bus standing options for the site. TfL are currently reviewing these options internally and will provide a formal response separately.

Once the principle of a new layout is agreed, this will be subject to a Stage 1 Road Safety Audit, prior to any determination.

Agent of Change
Draft London Plan Policy D12 Agent of Change places the responsibility for mitigating the impacts from existing noise-generating activities or uses on proposed new noise-sensitive development with the applicant/developer. The applicant must demonstrate that the scheme is designed to enable existing noise-generating uses and activities to remain operational and viable, and provide details of sufficient mitigation measures.

Vision Zero
The applicant is reminded of the Mayor's Vision Zero ambition which is the elimination of all deaths and serious injuries from London's streets by 2041. The Vision Zero approach requires reducing the dominance of motor vehicles and creating streets safe for active travel. The revised Transport Assessment (TA) is required to demonstrate how the scheme will contribute towards the Vision Zero approach.

Trip generation and mode split
As per TfL's original comments, TfL require the residential trip rate assessment to be based on the total person trip rates detailed in Appendix I of the original TA. TfL also require Census data to be used to establish mode share and

adjusted down to account for the limited car parking provision and the remaining trips reassigned pro-rata to the other modes.

Car parking
The development will remain car free with the exception of disabled person car parking which will be revised to account for the uplift in units, and will accord with the draft London Plan. The provision of Electric Vehicle Charging Points (EVCP) including passive provision should also be revised to account for the uplift in units.

A Parking Design and Management Plan will be required which indicates how the car parking will be designed, managed and monitored. It will also need to demonstrate where the additional 7% of disabled car parking spaces will be provided on site should demand arise. Furthermore, parking spaces are required to be leased rather than sold to ensure the land they take up is used as efficiently as possible over the life of the development.

Buses
As stated above, there are currently 10 bus routes (65, 371, 493, 190, 419, H37, R68, R70, 391 and H22) within an acceptable walking distance of the site with stops on Manor Road and Lower Mortlake Road. The TA will need to provide bus trip generation figures by time and by direction, with the peak hour indicated separately. The trip generation figures by direction should consider the existing bus network. As agreed previously, given the distance to the closest Underground station, all Underground trips should be combined with bus trips given that bus services are predominantly likely to be used to access Underground stations. TfL will use this information to assess the impact of the revised development on the bus network, and will confirm if any bus capacity enhancements are required.

TfL recently consulted on proposed changes to bus services within the Richmond area. Based on the result of this consultation there will be no change implemented to the bus services within the vicinity of the site.

North Sheen Rail Station
North Sheen Station and the trains which serve it are operated by South Western Railway. The TA should include details on the capacity of the trains and existing loads to demonstrate that there is sufficient capacity to accommodate demand at North Sheen. It should also highlight the recent rail improvements, which include the rolling out of new trains to increase the capacity of the trains, and whether this benefitted trains serving North Sheen. In additional, Network Rail has recently realigned platforms at Waterloo, to enable all 24 platforms to be used for South Western train services, which allows for an increase in services and reliability.

Whilst not discussed at the meeting, once the updated trip generation assessment is received, TfL will relook at the Network Rail contribution request for the North Sheen Station upgrades.

Cycle Parking
Cycle parking will be provided in accordance with draft London Plan standards. TfL raised concerns with the original application, which included all of the long-stay cycle parking located in one residential block only. Since the meeting, TfL have been advised that it is now proposed to divide up the central cycle store so that long-stay cycle parking is provided in each residential block.

The quantum and location of the cycle parking needs to be clarified in the revised TA. All cycle parking is required to be designed and laid out in accordance with the guidance contained in Chapter 8 of the London Cycling Design Standards (LCDS). The TA should also take into consideration how cycle parking facilities will cater for larger cycles, including adapted cycles for disabled people.

Shower and locker facilities should be provided for the non-residential uses on site.

Manor Circus
The development will generate a significant uplift in pedestrian and cycle trips within the area and a significant proportion of these will use Manor Circus. TfL's Manor Circus improvements scheme will provide residents improved pedestrian and cycle safety at this junction and better links to the cycle networks. TfL previously requested a contribution of £330,000 towards this scheme which was 15% of the estimated final scheme costs. This was considered to be a reasonable request given the uplift in users generated by this development at Manor Circus.

Since this time, the scheme design costs have risen. TfL won't have a more accurate cost estimate until the end of concept design at the beginning of 2020 but is likely to be an uplift of at least £50,000. Therefore TfL request a revised financial contribution of £380,000 towards the implementation of the Manor Circus scheme.

Supporting material
The latest version of the draft London Plan – Consolidated Suggested Changes version was published July 2019 and sets out an integrated economic, environmental, transport and social framework for the development of London over the next 20-25 years. TfL expects all revised proposals to consider the policies set out within this document.

The applicant is advised that the revised TA will need to be produced, in accordance with the latest TfL guidance on Transport Assessments available from: https://tfl.gov.uk/info-for/urban-planning-and-construction/guidance-for-applicants

In addition, the applicant is reminded that the revised scheme should reflect the Healthy Streets approach. Guidance on Healthy Streets can be found here: https://tfl.gov.uk/corporate/about-tfl/how-we-work/planning-for-the-future/healthy-streets

Community Infrastructure Levy
The development will be liable to Mayoral Community Infrastructure Levy 2 (MCIL2) which came into force on 1st April 2019, as well as borough CIL. The MCIL2 rate for the London Borough of Richmond is £80 per square metre of floorspace.

Summary
As discussed at our meeting and recorded herein there are a number of issues which require further discussions and action. TfL will welcome further involvement and discussion with the applicant and GLA in order to ensure agreement on as many issues as possible prior to the revised scheme being formally submitted.

I hope this provides a useful basis upon which to progress the preparation of the revised scheme and supporting TA and look forward to hearing from you shortly.

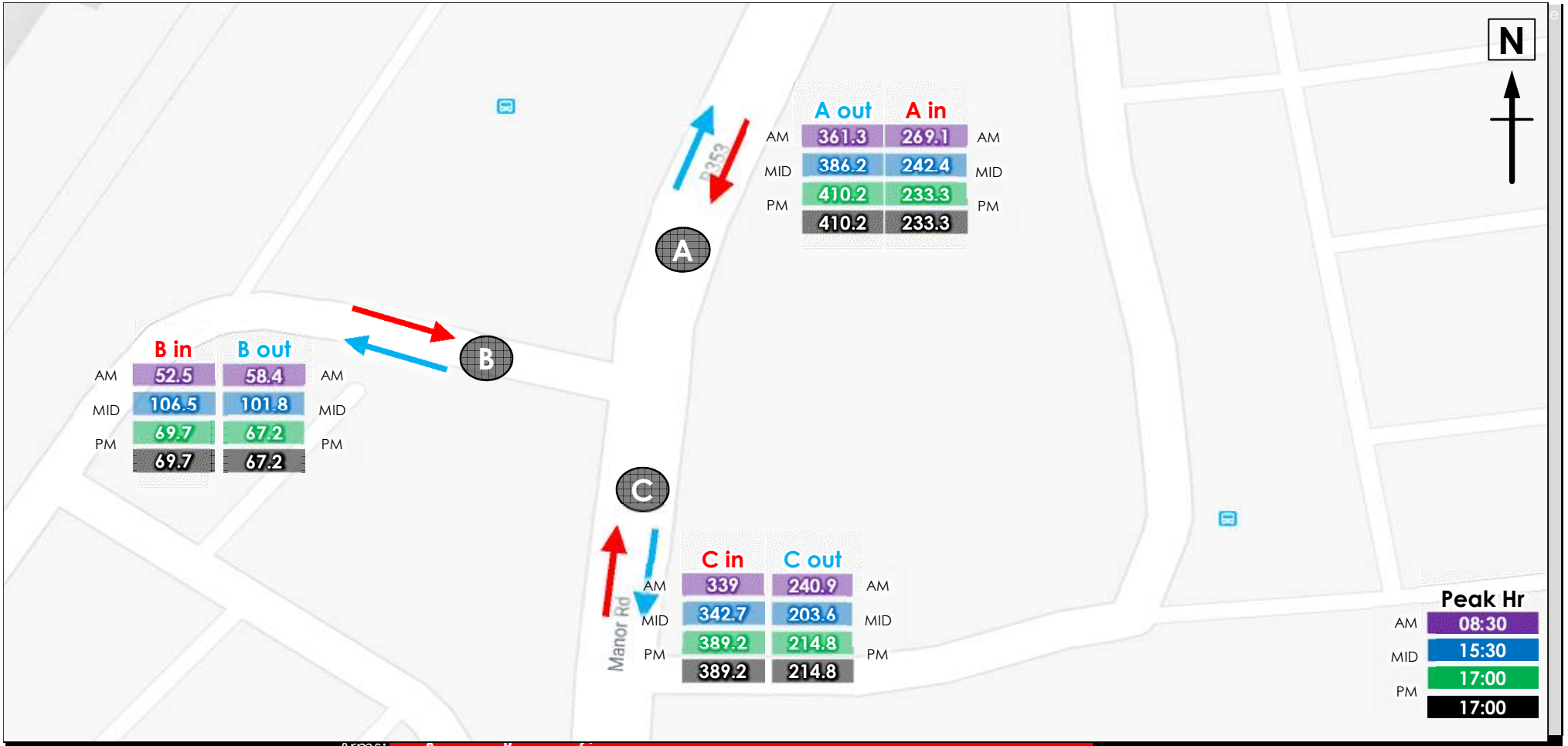
Should you wish to discuss any part of this letter, please contact myself or Lucy Simpson (lucysimpson@tfl.gov.uk - 020 3054 7039).

Yours sincerely

Lucinda Turner
Director of spatial Planning
Email: lucindaturner@tfl.gov.uk
Direct line: 020 3054 7133

APPENDIX C

Traffic Count Data



Arms:	A	B	C

NDC NATIONWIDE DATA COLLECTION	**Site / Location:**	1	Manor Road / Retail Park Access	**Project No:**	9256	**Drawing No:**	9256 - 01	**Drawn By:** MB
	Survey Date:	02/10/2018		**Project Name:**	MANOR ROAD, RICHMOND			
	Survey Times:	from: 07:30 15:00 to: 09:30 18:00		**Drawing Title:**	Junction Labels and Peak Hr PCU's			

SITE: **1**
LOCATION: Manor Road / Retail Park Access
TOTAL ARMS: A B C

from arm: **A**
to arm: **A**

period I period II
from: 07:30 15:00
to: 09:30 18:00

DATE: 02/10/2018
DAY: Tuesday

per quarter of an hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
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07:30	**07:45**	0	0	0	0	0	0	0			**0**	0
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17:00	17:15	0	0	0	0	0	0	0			**0**	0
17:15	17:30	0	0	0	0	0	0	0			**0**	0
17:30	**17:45**	0	0	0	0	0	0	0			**0**	0
17:45	18:00	0	0	0	0	0	0	0			**0**	0
	P/TOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Period I Total:		0	0	0	0	0	0	0	0	0	**0**	0
Period II Total:		0	0	0	0	0	0	0	0	0	**0**	0

per hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU.h
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		01:00	01:00	01:00	01:00	01:00	01:00	01:00			01:00	01:00
07:30	**08:30**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			**0**	0
07:45	08:45	0	0	0	0	0	0	0			**0**	0
08:00	09:00	0	0	0	0	0	0	0			**0**	0
08:15	09:15	0	0	0	0	0	0	0			**0**	0
08:30	**09:30**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			**0**	**0**
08:45	09:45	0	0	0	0	0	0	0			**0**	0
09:00	10:00	0	0	0	0	0	0	0			**0**	0
09:15	10:15	0	0	0	0	0	0	0			**0**	0
15:00	16:00	0	0	0	0	0	0	0			**0**	0
15:15	16:15	0	0	0	0	0	0	0			**0**	0
15:30	**16:30**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			**0**	**0**
15:45	16:45	0	0	0	0	0	0	0			**0**	0
16:00	17:00	0	0	0	0	0	0	0			**0**	0
16:15	17:15	0	0	0	0	0	0	0			**0**	0
16:30	**17:30**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			**0**	0
16:45	17:45	0	0	0	0	0	0	0			**0**	0
17:00	18:00	0	0	0	0	0	0	0			**0**	**0**
17:15	18:15	0	0	0	0	0	0	0			**0**	0
17:30	**18:30**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			**0**	0
17:45	18:45	0	0	0	0	0	0	0			**0**	0
	P/TOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

SITE: **1**
LOCATION: Manor Road / Retail Park Access
TOTAL ARMS: A B C

from arm: **A**
to arm: **B**

period I period II
from: 07:30 15:00
to: 09:30 18:00

DATE: 02/10/2018
DAY: Tuesday

per quarter of an hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		00:15	00:15	00:15	00:15	00:15	00:15	00:15			00:15	00:15
07:30	**07:45**	1	0	1	0	1	0	0			**3**	4.5
07:45	08:00	3	1	0	0	3	0	0			**7**	10
08:00	08:15	2	1	0	0	2	0	0			**5**	7
08:15	08:30	8	1	0	0	3	0	0			**12**	15
08:30	**08:45**	4	0	0	0	2	0	0			**6**	8
08:45	09:00	4	1	0	0	0	0	1			**6**	5.2
09:00	09:15	6	0	0	0	2	0	0			**8**	10
09:15	09:30	6	5	0	0	2	0	1			**14**	15.2
15:00	15:15	10	0	0	0	2	0	0			**12**	14
15:15	15:30	12	0	0	0	3	1	0			**16**	18.4
15:30	**15:45**	15	1	0	0	3	1	1			**21**	22.6
15:45	16:00	9	0	0	0	3	0	1			**13**	15.2
16:00	16:15	16	0	0	0	1	0	0			**17**	18
16:15	16:30	2	2	0	0	4	0	0			**8**	12
16:30	**16:45**	9	2	1	0	3	0	0			**15**	18.5
16:45	17:00	5	1	0	0	0	0	0			**6**	6
17:00	17:15	7	0	0	0	3	0	0			**10**	13
17:15	17:30	6	0	0	0	2	0	0			**8**	10
17:30	**17:45**	6	0	0	0	1	0	0			**7**	8
17:45	18:00	8	0	0	0	2	0	0			**10**	12
	P/TOT	**139**	**15**	**2**	**0**	**42**	**2**	**4**	**0**	**0**	**204**	**242.6**
Period I Total:		34	9	1	0	15	0	2	0	0	**61**	74.9
Period II Total:		105	6	1	0	27	2	2	0	0	**143**	167.7

per hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU.h
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		01:00	01:00	01:00	01:00	01:00	01:00	01:00			01:00	01:00
07:30	**08:30**	**14**	**3**	**1**	**0**	**9**	**0**	**0**			**27**	36.5
07:45	08:45	17	3	0	0	10	0	0			**30**	40
08:00	09:00	18	3	0	0	7	0	1			**29**	35.2
08:15	09:15	22	2	0	0	7	0	1			**32**	38.2
08:30	**09:30**	**20**	**6**	**0**	**0**	**6**	**0**	**2**			**34**	**38.4**
08:45	09:45	16	6	0	0	4	0	2			**28**	30.4
09:00	10:00	12	5	0	0	4	0	1			**22**	25.2
09:15	10:15	6	5	0	0	2	0	1			**14**	15.2
15:00	16:00	46	1	0	0	11	2	2			**62**	70.2
15:15	16:15	52	1	0	0	10	2	2			**67**	74.2
15:30	**16:30**	**42**	**3**	**0**	**0**	**11**	**1**	**2**			**59**	**67.8**
15:45	16:45	36	4	1	0	11	0	1			**53**	63.7
16:00	17:00	32	5	1	0	8	0	0			**46**	54.5
16:15	17:15	23	5	1	0	10	0	0			**39**	49.5
16:30	**17:30**	**27**	**3**	**1**	**0**	**8**	**0**	**0**			**39**	47.5
16:45	17:45	24	1	0	0	6	0	0			**31**	37
17:00	18:00	27	0	0	0	8	0	0			**35**	**43**
17:15	18:15	20	0	0	0	5	0	0			**25**	30
17:30	**18:30**	**14**	**0**	**0**	**0**	**3**	**0**	**0**			**17**	20
17:45	18:45	8	0	0	0	2	0	0			**10**	12
	P/TOT	**139**	**15**	**2**	**0**	**42**	**2**	**4**	**0**	**0**	**204**	**242.6**

SITE: **1**
LOCATION: Manor Road / Retail Park Access
TOTAL ARMS: A B C

from arm: **A**
to arm: **C**

period I period II
from: 07:30 15:00
to: 09:30 18:00

DATE: 02/10/2018
DAY: Tuesday

per quarter of an hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		00:15	00:15	00:15	00:15	00:15	00:15	00:15			00:15	00:15
07:30	**07:45**	30	15	4	0	2	0	2			**53**	55.4
07:45	08:00	38	12	3	1	0	0	1			**55**	57
08:00	08:15	29	6	4	0	1	1	3			**44**	44
08:15	08:30	36	8	2	0	0	2	4			**52**	48.6
08:30	**08:45**	56	8	3	0	0	1	3			**71**	69.5
08:45	09:00	58	9	2	0	1	1	0			**71**	72.4
09:00	09:15	27	7	5	0	0	0	3			**42**	42.1
09:15	09:30	34	6	3	0	1	0	1			**45**	46.7
15:00	15:15	46	9	1	0	1	3	2			**62**	60.1
15:15	15:30	27	6	3	0	1	0	1			**38**	39.7
15:30	**15:45**	39	7	2	0	0	2	3			**53**	50.4
15:45	16:00	33	8	0	0	0	0	1			**42**	41.2
16:00	16:15	32	5	1	0	1	1	1			**41**	41.1
16:15	16:30	34	5	1	0	0	3	1			**44**	41.9
16:30	**16:45**	35	6	1	0	1	1	0			**44**	44.9
16:45	17:00	37	6	0	0	0	0	1			**44**	43.2
17:00	17:15	41	5	2	0	1	2	1			**52**	52
17:15	17:30	39	6	1	0	0	3	4			**53**	48.5
17:30	**17:45**	40	4	0	0	0	1	4			**49**	45.2
17:45	18:00	38	5	0	0	0	2	4			**49**	44.6
	P/TOT	**749**	**143**	**38**	**1**	**10**	**23**	**40**	**0**	**0**	**1004**	**988.5**
Period I Total:		308	71	26	1	5	5	17	0	0	**433**	435.7
Period II Total:		441	72	12	0	5	18	23	0	0	**571**	552.8

per hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU.h
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		01:00	01:00	01:00	01:00	01:00	01:00	01:00			01:00	01:00
07:30	**08:30**	**133**	**41**	**13**	**1**	**3**	**3**	**10**			**204**	205
07:45	08:45	159	34	12	1	1	4	11			**222**	219.1
08:00	09:00	179	31	11	0	2	5	10			**238**	234.5
08:15	09:15	177	32	12	0	1	4	10			**236**	232.6
08:30	**09:30**	**175**	**30**	**13**	**0**	**2**	**2**	**7**			**229**	**230.7**
08:45	09:45	119	22	10	0	2	1	4			**158**	161.2
09:00	10:00	61	13	8	0	1	0	4			**87**	88.8
09:15	10:15	34	6	3	0	1	0	1			**45**	46.7
15:00	16:00	145	30	6	0	2	5	7			**195**	191.4
15:15	16:15	131	26	6	0	2	3	6			**174**	172.4
15:30	**16:30**	**138**	**25**	**4**	**0**	**1**	**6**	**6**			**180**	**174.6**
15:45	16:45	134	24	3	0	2	5	3			**171**	169.1
16:00	17:00	138	22	3	0	2	5	3			**173**	171.1
16:15	17:15	147	22	4	0	2	6	3			**184**	182
16:30	**17:30**	**152**	**23**	**4**	**0**	**2**	**6**	**6**			**193**	188.6
16:45	17:45	157	21	3	0	1	6	10			**198**	188.9
17:00	18:00	158	20	3	0	1	8	13			**203**	**190.3**
17:15	18:15	117	15	1	0	0	6	12			**151**	138.3
17:30	**18:30**	**78**	**9**	**0**	**0**	**0**	**3**	**8**			**98**	89.8
17:45	18:45	38	5	0	0	0	2	4			**49**	44.6
	P/TOT	**749**	**143**	**38**	**1**	**10**	**23**	**40**	**0**	**0**	**1004**	**988.5**

SITE: **1**
LOCATION: Manor Road / Retail Park Access
TOTAL ARMS: A B C

from arm: **A**
to arm: **all**

period I period II
from: 07:30 15:00
to: 09:30 18:00

DATE: 02/10/2018
DAY: Tuesday

per quarter of an hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		00:15	00:15	00:15	00:15	00:15	00:15	00:15			00:15	00:15
07:30	**07:45**	31	15	5	0	3	0	2			**56**	59.9
07:45	08:00	41	13	3	1	3	0	1			**62**	67
08:00	08:15	31	7	4	0	3	1	3			**49**	51
08:15	08:30	44	9	2	0	3	2	4			**64**	63.6
08:30	**08:45**	60	8	3	0	2	1	3			**77**	77.5
08:45	09:00	62	10	2	0	1	1	1			**77**	77.6
09:00	09:15	33	7	5	0	2	0	3			**50**	52.1
09:15	09:30	40	11	3	0	3	0	2			**59**	61.9
15:00	15:15	56	9	1	0	3	3	2			**74**	74.1
15:15	15:30	39	6	3	0	4	1	1			**54**	58.1
15:30	**15:45**	54	8	2	0	3	3	4			**74**	73
15:45	16:00	42	8	0	0	3	0	2			**55**	56.4
16:00	16:15	48	5	1	0	2	1	1			**58**	59.1
16:15	16:30	36	7	1	0	4	3	1			**52**	53.9
16:30	**16:45**	44	8	2	0	4	1	0			**59**	63.4
16:45	17:00	42	7	0	0	0	0	1			**50**	49.2
17:00	17:15	48	5	2	0	4	2	1			**62**	65
17:15	17:30	45	6	1	0	2	3	4			**61**	58.5
17:30	**17:45**	46	4	0	0	1	1	4			**56**	53.2
17:45	18:00	46	5	0	0	2	2	4			**59**	56.6
	P/TOT	**888**	**158**	**40**	**1**	**52**	**25**	**44**	**0**	**0**	**1208**	**1231**
Period I Total:		342	80	27	1	20	5	19	0	0	**494**	510.6
Period II Total:		546	78	13	0	32	20	25	0	0	**714**	720.5

per hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU.h
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		01:00	01:00	01:00	01:00	01:00	01:00	01:00			01:00	01:00
07:30	**08:30**	**147**	**44**	**14**	**1**	**12**	**3**	**10**			**231**	241.5
07:45	08:45	176	37	12	1	11	4	11			**252**	259.1
08:00	09:00	197	34	11	0	9	5	11			**267**	269.7
08:15	09:15	199	34	12	0	8	4	11			**268**	270.8
08:30	**09:30**	**195**	**36**	**13**	**0**	**8**	**2**	**9**			**263**	**269.1**
08:45	09:45	135	28	10	0	6	1	6			**186**	191.6
09:00	10:00	73	18	8	0	5	0	5			**109**	114
09:15	10:15	40	11	3	0	3	0	2			**59**	61.9
15:00	16:00	191	31	6	0	13	7	9			**257**	261.6
15:15	16:15	183	27	6	0	12	5	8			**241**	246.6
15:30	**16:30**	**180**	**28**	**4**	**0**	**12**	**7**	**8**			**239**	**242.4**
15:45	16:45	170	28	4	0	13	5	4			**224**	232.8
16:00	17:00	170	27	4	0	10	5	3			**219**	225.6
16:15	17:15	170	27	5	0	12	6	3			**223**	231.5
16:30	**17:30**	**179**	**26**	**5**	**0**	**10**	**6**	**6**			**232**	236.1
16:45	17:45	181	22	3	0	7	6	10			**229**	225.9
17:00	18:00	185	20	3	0	9	8	13			**238**	**233.3**
17:15	18:15	137	15	1	0	5	6	12			**176**	168.3
17:30	**18:30**	**92**	**9**	**0**	**0**	**3**	**3**	**8**			**115**	109.8
17:45	18:45	46	5	0	0	2	2	4			**59**	56.6
	P/TOT	**888**	**158**	**40**	**1**	**52**	**25**	**44**	**0**	**0**	**1208**	**1231**

SITE: **1**
LOCATION: Manor Road / Retail Park Access
TOTAL ARMS: A B C

from arm: **all**
to arm: **A**

period I period II
from: 07:30 15:00
to: 09:30 18:00

DATE: 02/10/2018
DAY: Tuesday

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		00:15	00:15	00:15	00:15	00:15	00:15	00:15			00:15	00:15
07:30	**07:45**	79	13	4	0	7	4	2			**109**	114
07:45	08:00	48	8	1	0	8	1	2			**68**	74.3
08:00	08:15	63	11	1	1	3	5	5			**89**	86.8
08:15	08:30	63	13	2	1	4	1	4			**88**	90.5
08:30	**08:45**	64	11	1	0	3	4	3			**86**	84.7
08:45	09:00	80	13	1	1	1	1	3			**100**	99.8
09:00	09:15	65	6	2	0	2	1	1			**77**	78.6
09:15	09:30	74	12	1	1	4	1	0			**93**	98.2
15:00	15:15	64	8	3	0	3	1	4			**83**	83.7
15:15	15:30	47	13	5	1	6	1	1			**74**	82.4
15:30	**15:45**	87	11	1	2	4	3	2			**110**	113.7
15:45	16:00	53	12	3	0	5	1	0			**74**	79.9
16:00	16:15	70	12	3	1	4	1	1			**92**	97.4
16:15	16:30	70	13	1	1	4	0	2			**91**	95.2
16:30	**16:45**	69	10	3	0	5	1	4			**92**	94.7
16:45	17:00	61	14	1	0	3	1	1			**81**	83.1
17:00	17:15	62	19	0	0	6	1	3			**91**	94
17:15	17:30	88	16	1	0	3	1	4			**113**	112.7
17:30	**17:45**	81	9	5	0	3	4	2			**104**	105.5
17:45	18:00	81	12	0	0	2	2	1			**98**	98
	P/TOT	**1369**	**236**	**39**	**9**	**80**	**35**	**45**	**0**	**0**	**1813**	**1867**
Period I Total:		536	87	13	4	32	18	20	0	0	**710**	726.9
Period II Total:		833	149	26	5	48	17	25	0	0	**1103**	1140

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU.h
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		01:00	01:00	01:00	01:00	01:00	01:00	01:00			01:00	01:00
07:30	**08:30**	**253**	**45**	**8**	**2**	**22**	**11**	**13**			**354**	365.6
07:45	08:45	238	43	5	2	18	11	14			**331**	336.3
08:00	09:00	270	48	5	3	11	11	15			**363**	361.8
08:15	09:15	272	43	6	2	10	7	11			**351**	353.6
08:30	**09:30**	**283**	**42**	**5**	**2**	**10**	**7**	**7**			**356**	**361.3**
08:45	09:45	219	31	4	2	7	3	4			**270**	276.6
09:00	10:00	139	18	3	1	6	2	1			**170**	176.8
09:15	10:15	74	12	1	1	4	1	0			**93**	98.2
15:00	16:00	251	44	12	3	18	6	7			**341**	359.7
15:15	16:15	257	48	12	4	19	6	4			**350**	373.4
15:30	**16:30**	**280**	**48**	**8**	**4**	**17**	**5**	**5**			**367**	**386.2**
15:45	16:45	262	47	10	2	18	3	7			**349**	367.2
16:00	17:00	270	49	8	2	16	3	8			**356**	370.4
16:15	17:15	262	56	5	1	18	3	10			**355**	367
16:30	**17:30**	**280**	**59**	**5**	**0**	**17**	**4**	**12**			**377**	384.5
16:45	17:45	292	58	7	0	15	7	10			**389**	395.3
17:00	18:00	312	56	6	0	14	8	10			**406**	**410.2**
17:15	18:15	250	37	6	0	8	7	7			**315**	316.2
17:30	**18:30**	**162**	**21**	**5**	**0**	**5**	**6**	**3**			**202**	203.5
17:45	18:45	81	12	0	0	2	2	1			**98**	98
	P/TOT	**1369**	**236**	**39**	**9**	**80**	**35**	**45**	**0**	**0**	**1813**	**1867**

SITE: **1**
LOCATION: Manor Road / Retail Park Access
TOTAL ARMS:

from arm: **B**
to arm: **A**

period I period II
from: 07:30 15:00
to: 09:30 18:00

DATE: 02/10/2018
DAY: Tuesday

per quarter of an hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		00:15	00:15	00:15	00:15	00:15	00:15	00:15			00:15	00:15
07:30	**07:45**	2	0	1	0	2	0	0			**5**	7.5
07:45	08:00	1	0	0	0	3	0	0			**4**	7
08:00	08:15	2	1	0	0	2	0	0			**5**	7
08:15	08:30	5	3	0	0	2	0	0			**10**	12
08:30	**08:45**	3	0	0	0	3	0	0			**6**	9
08:45	09:00	2	0	0	0	1	0	0			**3**	4
09:00	09:15	4	2	0	0	2	0	0			**8**	10
09:15	09:30	11	2	0	1	2	0	0			**16**	19.3
15:00	15:15	9	0	0	0	2	0	0			**11**	13
15:15	15:30	8	2	0	0	3	0	0			**13**	16
15:30	**15:45**	15	0	0	0	3	2	1			**21**	22
15:45	16:00	7	1	0	0	2	0	0			**10**	12
16:00	16:15	17	1	1	0	3	0	0			**22**	25.5
16:15	16:30	13	1	0	0	2	0	0			**16**	18
16:30	**16:45**	16	0	0	0	4	0	1			**21**	24.2
16:45	17:00	7	1	0	0	1	0	0			**9**	10
17:00	17:15	6	1	0	0	3	0	1			**11**	13.2
17:15	17:30	8	1	0	0	2	0	0			**11**	13
17:30	**17:45**	6	1	0	0	2	0	0			**9**	11
17:45	18:00	8	0	0	0	0	0	0			**8**	8
	P/TOT	**150**	**17**	**2**	**1**	**44**	**2**	**3**	**0**	**0**	**219**	**261.7**
Period I Total:		30	8	1	1	17	0	0	0	0	**57**	75.8
Period II Total:		120	9	1	0	27	2	3	0	0	**162**	185.9

per hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU.h
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		01:00	01:00	01:00	01:00	01:00	01:00	01:00			01:00	01:00
07:30	**08:30**	**10**	**4**	**1**	**0**	**9**	**0**	**0**			**24**	33.5
07:45	08:45	11	4	0	0	10	0	0			**25**	35
08:00	09:00	12	4	0	0	8	0	0			**24**	32
08:15	09:15	14	5	0	0	8	0	0			**27**	35
08:30	**09:30**	**20**	**4**	**0**	**1**	**8**	**0**	**0**			**33**	**42.3**
08:45	09:45	17	4	0	1	5	0	0			**27**	33.3
09:00	10:00	15	4	0	1	4	0	0			**24**	29.3
09:15	10:15	11	2	0	1	2	0	0			**16**	19.3
15:00	16:00	39	3	0	0	10	2	1			**55**	63
15:15	16:15	47	4	1	0	11	2	1			**66**	75.5
15:30	**16:30**	**52**	**3**	**1**	**0**	**10**	**2**	**1**			**69**	**77.5**
15:45	16:45	53	3	1	0	11	0	1			**69**	79.7
16:00	17:00	53	3	1	0	10	0	1			**68**	77.7
16:15	17:15	42	3	0	0	10	0	2			**57**	65.4
16:30	**17:30**	**37**	**3**	**0**	**0**	**10**	**0**	**2**			**52**	60.4
16:45	17:45	27	4	0	0	8	0	1			**40**	47.2
17:00	18:00	28	3	0	0	7	0	1			**39**	**45.2**
17:15	18:15	22	2	0	0	4	0	0			**28**	32
17:30	**18:30**	**14**	**1**	**0**	**0**	**2**	**0**	**0**			**17**	19
17:45	18:45	8	0	0	0	0	0	0			**8**	8
	P/TOT	**150**	**17**	**2**	**1**	**44**	**2**	**3**	**0**	**0**	**219**	**261.7**

SITE: **1**
LOCATION: Manor Road / Retail Park Access
TOTAL ARMS: A B C

from arm: **B**
to arm: **B**

period I period II
from: 07:30 15:00
to: 09:30 18:00

DATE: 02/10/2018
DAY: Tuesday

per quarter of an hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		00:15	00:15	00:15	00:15	00:15	00:15	00:15			00:15	00:15
07:30	**07:45**	0	0	0	0	0	0	0			**0**	0
07:45	08:00	0	0	0	0	0	0	0			**0**	0
08:00	08:15	0	0	0	0	0	0	0			**0**	0
08:15	08:30	0	0	0	0	0	0	0			**0**	0
08:30	**08:45**	0	0	0	0	0	0	0			**0**	0
08:45	09:00	0	0	0	0	0	0	0			**0**	0
09:00	09:15	0	0	0	0	0	0	0			**0**	0
09:15	09:30	0	0	0	0	0	0	0			**0**	0
15:00	15:15	0	0	0	0	0	0	0			**0**	0
15:15	15:30	0	0	0	0	0	0	0			**0**	0
15:30	**15:45**	0	0	0	0	0	0	0			**0**	0
15:45	16:00	0	0	0	0	0	0	0			**0**	0
16:00	16:15	0	0	0	0	0	0	0			**0**	0
16:15	16:30	0	0	0	0	0	0	0			**0**	0
16:30	**16:45**	0	0	0	0	0	0	0			**0**	0
16:45	17:00	0	0	0	0	0	0	0			**0**	0
17:00	17:15	0	0	0	0	0	0	0			**0**	0
17:15	17:30	0	0	0	0	0	0	0			**0**	0
17:30	**17:45**	0	0	0	0	0	0	0			**0**	0
17:45	18:00	0	0	0	0	0	0	0			**0**	0
	P/TOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Period I Total:		0	0	0	0	0	0	0	0	0	**0**	0
Period II Total:		0	0	0	0	0	0	0	0	0	**0**	0

per hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU.h
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		01:00	01:00	01:00	01:00	01:00	01:00	01:00			01:00	01:00
07:30	**08:30**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			**0**	0
07:45	08:45	0	0	0	0	0	0	0			**0**	0
08:00	09:00	0	0	0	0	0	0	0			**0**	0
08:15	09:15	0	0	0	0	0	0	0			**0**	0
08:30	**09:30**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			**0**	**0**
08:45	09:45	0	0	0	0	0	0	0			**0**	0
09:00	10:00	0	0	0	0	0	0	0			**0**	0
09:15	10:15	0	0	0	0	0	0	0			**0**	0
15:00	16:00	0	0	0	0	0	0	0			**0**	0
15:15	16:15	0	0	0	0	0	0	0			**0**	0
15:30	**16:30**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			**0**	**0**
15:45	16:45	0	0	0	0	0	0	0			**0**	0
16:00	17:00	0	0	0	0	0	0	0			**0**	0
16:15	17:15	0	0	0	0	0	0	0			**0**	0
16:30	**17:30**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			**0**	0
16:45	17:45	0	0	0	0	0	0	0			**0**	0
17:00	18:00	0	0	0	0	0	0	0			**0**	**0**
17:15	18:15	0	0	0	0	0	0	0			**0**	0
17:30	**18:30**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			**0**	0
17:45	18:45	0	0	0	0	0	0	0			**0**	0
	P/TOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

SITE: **1**
LOCATION: Manor Road / Retail Park Access
TOTAL ARMS: A B C

from arm: **B**
to arm: **C**

period I period II
from: 07:30 15:00
to: 09:30 18:00

DATE: 02/10/2018
DAY: Tuesday

per quarter of an hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		00:15	00:15	00:15	00:15	00:15	00:15	00:15			00:15	00:15
07:30	**07:45**	0	0	0	0	0	0	0			**0**	0
07:45	08:00	1	0	0	0	0	0	0			**1**	1
08:00	08:15	0	0	0	0	0	0	0			**0**	0
08:15	08:30	2	0	0	0	0	0	0			**2**	2
08:30	**08:45**	0	0	0	0	0	0	0			**0**	0
08:45	09:00	1	0	0	0	0	0	1			**2**	1.2
09:00	09:15	3	0	0	0	0	0	0			**3**	3
09:15	09:30	4	0	0	0	1	0	0			**5**	6
15:00	15:15	6	1	0	0	0	0	0			**7**	7
15:15	15:30	9	1	0	0	0	0	0			**10**	10
15:30	**15:45**	7	1	0	0	0	0	0			**8**	8
15:45	16:00	8	0	0	0	0	0	0			**8**	8
16:00	16:15	6	0	0	0	0	0	0			**6**	6
16:15	16:30	6	1	0	0	0	0	0			**7**	7
16:30	**16:45**	7	2	0	0	0	0	0			**9**	9
16:45	17:00	6	1	0	0	0	0	0			**7**	7
17:00	17:15	7	1	0	0	0	0	0			**8**	8
17:15	17:30	6	0	1	0	0	0	0			**7**	7.5
17:30	**17:45**	4	0	0	0	0	0	0			**4**	4
17:45	18:00	5	0	0	0	0	0	0			**5**	5
	P/TOT	**88**	**8**	**1**	**0**	**1**	**0**	**1**	**0**	**0**	**99**	**99.7**
Period I Total:		11	0	0	0	1	0	1	0	0	**13**	13.2
Period II Total:		77	8	1	0	0	0	0	0	0	**86**	86.5

per hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU.h
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		01:00	01:00	01:00	01:00	01:00	01:00	01:00			01:00	01:00
07:30	**08:30**	**3**	**0**	**0**	**0**	**0**	**0**	**0**			**3**	3
07:45	08:45	3	0	0	0	0	0	0			**3**	3
08:00	09:00	3	0	0	0	0	0	1			**4**	3.2
08:15	09:15	6	0	0	0	0	0	1			**7**	6.2
08:30	**09:30**	**8**	**0**	**0**	**0**	**1**	**0**	**1**			**10**	**10.2**
08:45	09:45	8	0	0	0	1	0	1			**10**	10.2
09:00	10:00	7	0	0	0	1	0	0			**8**	9
09:15	10:15	4	0	0	0	1	0	0			**5**	6
15:00	16:00	30	3	0	0	0	0	0			**33**	33
15:15	16:15	30	2	0	0	0	0	0			**32**	32
15:30	**16:30**	**27**	**2**	**0**	**0**	**0**	**0**	**0**			**29**	**29**
15:45	16:45	27	3	0	0	0	0	0			**30**	30
16:00	17:00	25	4	0	0	0	0	0			**29**	29
16:15	17:15	26	5	0	0	0	0	0			**31**	31
16:30	**17:30**	**26**	**4**	**1**	**0**	**0**	**0**	**0**			**31**	31.5
16:45	17:45	23	2	1	0	0	0	0			**26**	26.5
17:00	18:00	22	1	1	0	0	0	0			**24**	**24.5**
17:15	18:15	15	0	1	0	0	0	0			**16**	16.5
17:30	**18:30**	**9**	**0**	**0**	**0**	**0**	**0**	**0**			**9**	9
17:45	18:45	5	0	0	0	0	0	0			**5**	5
	P/TOT	**88**	**8**	**1**	**0**	**1**	**0**	**1**	**0**	**0**	**99**	**99.7**

SITE: **1**
LOCATION: Manor Road / Retail Park Access
TOTAL ARMS: A B C

from arm: **B**
to arm: **all**

period I period II
from: 07:30 15:00
to: 09:30 18:00

DATE: 02/10/2018
DAY: Tuesday

per quarter of an hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		00:15	00:15	00:15	00:15	00:15	00:15	00:15			00:15	00:15
07:30	**07:45**	2	0	1	0	2	0	0			**5**	7.5
07:45	08:00	2	0	0	0	3	0	0			**5**	8
08:00	08:15	2	1	0	0	2	0	0			**5**	7
08:15	08:30	7	3	0	0	2	0	0			**12**	14
08:30	**08:45**	3	0	0	0	3	0	0			**6**	9
08:45	09:00	3	0	0	0	1	0	1			**5**	5.2
09:00	09:15	7	2	0	0	2	0	0			**11**	13
09:15	09:30	15	2	0	1	3	0	0			**21**	25.3
15:00	15:15	15	1	0	0	2	0	0			**18**	20
15:15	15:30	17	3	0	0	3	0	0			**23**	26
15:30	**15:45**	22	1	0	0	3	2	1			**29**	30
15:45	16:00	15	1	0	0	2	0	0			**18**	20
16:00	16:15	23	1	1	0	3	0	0			**28**	31.5
16:15	16:30	19	2	0	0	2	0	0			**23**	25
16:30	**16:45**	23	2	0	0	4	0	1			**30**	33.2
16:45	17:00	13	2	0	0	1	0	0			**16**	17
17:00	17:15	13	2	0	0	3	0	1			**19**	21.2
17:15	17:30	14	1	1	0	2	0	0			**18**	20.5
17:30	**17:45**	10	1	0	0	2	0	0			**13**	15
17:45	18:00	13	0	0	0	0	0	0			**13**	13
	P/TOT	**238**	**25**	**3**	**1**	**45**	**2**	**4**	**0**	**0**	**318**	**361.4**
Period I Total:		41	8	1	1	18	0	1	0	0	**70**	89
Period II Total:		197	17	2	0	27	2	3	0	0	**248**	272.4

per hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU.h
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		01:00	01:00	01:00	01:00	01:00	01:00	01:00			01:00	01:00
07:30	**08:30**	**13**	**4**	**1**	**0**	**9**	**0**	**0**			**27**	36.5
07:45	08:45	14	4	0	0	10	0	0			**28**	38
08:00	09:00	15	4	0	0	8	0	1			**28**	35.2
08:15	09:15	20	5	0	0	8	0	1			**34**	41.2
08:30	**09:30**	**28**	**4**	**0**	**1**	**9**	**0**	**1**			**43**	**52.5**
08:45	09:45	25	4	0	1	6	0	1			**37**	43.5
09:00	10:00	22	4	0	1	5	0	0			**32**	38.3
09:15	10:15	15	2	0	1	3	0	0			**21**	25.3
15:00	16:00	69	6	0	0	10	2	1			**88**	96
15:15	16:15	77	6	1	0	11	2	1			**98**	107.5
15:30	**16:30**	**79**	**5**	**1**	**0**	**10**	**2**	**1**			**98**	**106.5**
15:45	16:45	80	6	1	0	11	0	1			**99**	109.7
16:00	17:00	78	7	1	0	10	0	1			**97**	106.7
16:15	17:15	68	8	0	0	10	0	2			**88**	96.4
16:30	**17:30**	**63**	**7**	**1**	**0**	**10**	**0**	**2**			**83**	91.9
16:45	17:45	50	6	1	0	8	0	1			**66**	73.7
17:00	18:00	50	4	1	0	7	0	1			**63**	**69.7**
17:15	18:15	37	2	1	0	4	0	0			**44**	48.5
17:30	**18:30**	**23**	**1**	**0**	**0**	**2**	**0**	**0**			**26**	28
17:45	18:45	13	0	0	0	0	0	0			**13**	13
	P/TOT	**238**	**25**	**3**	**1**	**45**	**2**	**4**	**0**	**0**	**318**	**361.4**

SITE: **1**
LOCATION: Manor Road / Retail Park Access
TOTAL ARMS: A B C

from arm: **all**
to arm: **B**

period I period II
from: 07:30 15:00
to: 09:30 18:00

DATE: 02/10/2018
DAY: Tuesday

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		00:15	00:15	00:15	00:15	00:15	00:15	00:15			00:15	00:15
07:30	**07:45**	1	0	1	0	1	0	0			**3**	4.5
07:45	08:00	4	1	0	0	3	0	0			**8**	11
08:00	08:15	2	1	0	0	2	0	0			**5**	7
08:15	08:30	9	1	0	0	3	0	0			**13**	16
08:30	**08:45**	5	0	0	0	2	0	0			**7**	9
08:45	09:00	8	2	0	0	0	0	1			**11**	10.2
09:00	09:15	13	0	0	0	2	0	0			**15**	17
09:15	09:30	11	5	0	0	3	0	1			**20**	22.2
15:00	15:15	19	0	0	0	2	0	0			**21**	23
15:15	15:30	18	1	0	0	3	1	0			**23**	25.4
15:30	**15:45**	17	2	0	0	3	1	1			**24**	25.6
15:45	16:00	16	0	0	0	3	0	1			**20**	22.2
16:00	16:15	29	1	0	0	1	0	0			**31**	32
16:15	16:30	11	3	0	0	4	0	0			**18**	22
16:30	**16:45**	15	2	1	0	3	0	1			**22**	24.7
16:45	17:00	13	2	0	0	0	0	0			**15**	15
17:00	17:15	11	0	0	0	3	0	0			**14**	17
17:15	17:30	15	1	0	0	2	0	0			**18**	20
17:30	**17:45**	12	0	0	0	1	0	0			**13**	14
17:45	18:00	12	0	0	0	2	0	1			**15**	16.2
	P/TOT	**241**	**22**	**2**	**0**	**43**	**2**	**6**	**0**	**0**	**316**	**354**
Period I Total:		53	10	1	0	16	0	2	0	0	**82**	96.9
Period II Total:		188	12	1	0	27	2	4	0	0	**234**	257.1

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU.h
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		01:00	01:00	01:00	01:00	01:00	01:00	01:00			01:00	01:00
07:30	**08:30**	**16**	**3**	**1**	**0**	**9**	**0**	**0**			**29**	38.5
07:45	08:45	20	3	0	0	10	0	0			**33**	43
08:00	09:00	24	4	0	0	7	0	1			**36**	42.2
08:15	09:15	35	3	0	0	7	0	1			**46**	52.2
08:30	**09:30**	**37**	**7**	**0**	**0**	**7**	**0**	**2**			**53**	**58.4**
08:45	09:45	32	7	0	0	5	0	2			**46**	49.4
09:00	10:00	24	5	0	0	5	0	1			**35**	39.2
09:15	10:15	11	5	0	0	3	0	1			**20**	22.2
15:00	16:00	70	3	0	0	11	2	2			**88**	96.2
15:15	16:15	80	4	0	0	10	2	2			**98**	105.2
15:30	**16:30**	**73**	**6**	**0**	**0**	**11**	**1**	**2**			**93**	**101.8**
15:45	16:45	71	6	1	0	11	0	2			**91**	100.9
16:00	17:00	68	8	1	0	8	0	1			**86**	93.7
16:15	17:15	50	7	1	0	10	0	1			**69**	78.7
16:30	**17:30**	**54**	**5**	**1**	**0**	**8**	**0**	**1**			**69**	76.7
16:45	17:45	51	3	0	0	6	0	0			**60**	66
17:00	18:00	50	1	0	0	8	0	1			**60**	**67.2**
17:15	18:15	39	1	0	0	5	0	1			**46**	50.2
17:30	**18:30**	**24**	**0**	**0**	**0**	**3**	**0**	**1**			**28**	30.2
17:45	18:45	12	0	0	0	2	0	1			**15**	16.2
	P/TOT	**241**	**22**	**2**	**0**	**43**	**2**	**6**	**0**	**0**	**316**	**354**

SITE: **1**
LOCATION: Manor Road / Retail Park Access
TOTAL ARMS:

from arm: **C**
to arm: **A**

period I period II
from: 07:30 15:00
to: 09:30 18:00

DATE: 02/10/2018
DAY: Tuesday

per quarter of an hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		00:15	00:15	00:15	00:15	00:15	00:15	00:15			00:15	00:15
07:30	**07:45**	77	13	3	0	5	4	2			**104**	106.5
07:45	08:00	47	8	1	0	5	1	2			**64**	67.3
08:00	08:15	61	10	1	1	1	5	5			**84**	79.8
08:15	08:30	58	10	2	1	2	1	4			**78**	78.5
08:30	**08:45**	61	11	1	0	0	4	3			**80**	75.7
08:45	09:00	78	13	1	1	0	1	3			**97**	95.8
09:00	09:15	61	4	2	0	0	1	1			**69**	68.6
09:15	09:30	63	10	1	0	2	1	0			**77**	78.9
15:00	15:15	55	8	3	0	1	1	4			**72**	70.7
15:15	15:30	39	11	5	1	3	1	1			**61**	66.4
15:30	**15:45**	72	11	1	2	1	1	1			**89**	91.7
15:45	16:00	46	11	3	0	3	1	0			**64**	67.9
16:00	16:15	53	11	2	1	1	1	1			**70**	71.9
16:15	16:30	57	12	1	1	2	0	2			**75**	77.2
16:30	**16:45**	53	10	3	0	1	1	3			**71**	70.5
16:45	17:00	54	13	1	0	2	1	1			**72**	73.1
17:00	17:15	56	18	0	0	3	1	2			**80**	80.8
17:15	17:30	80	15	1	0	1	1	4			**102**	99.7
17:30	**17:45**	75	8	5	0	1	4	2			**95**	94.5
17:45	18:00	73	12	0	0	2	2	1			**90**	90
	P/TOT	**1219**	**219**	**37**	**8**	**36**	**33**	**42**	**0**	**0**	**1594**	**1606**
Period I Total:		506	79	12	3	15	18	20	0	0	**653**	651.1
Period II Total:		713	140	25	5	21	15	22	0	0	**941**	954.4

per hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU.h
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		01:00	01:00	01:00	01:00	01:00	01:00	01:00			01:00	01:00
07:30	**08:30**	**243**	**41**	**7**	**2**	**13**	**11**	**13**			**330**	332.1
07:45	08:45	227	39	5	2	8	11	14			**306**	301.3
08:00	09:00	258	44	5	3	3	11	15			**339**	329.8
08:15	09:15	258	38	6	2	2	7	11			**324**	318.6
08:30	**09:30**	**263**	**38**	**5**	**1**	**2**	**7**	**7**			**323**	**319**
08:45	09:45	202	27	4	1	2	3	4			**243**	243.3
09:00	10:00	124	14	3	0	2	2	1			**146**	147.5
09:15	10:15	63	10	1	0	2	1	0			**77**	78.9
15:00	16:00	212	41	12	3	8	4	6			**286**	296.7
15:15	16:15	210	44	11	4	8	4	3			**284**	297.9
15:30	**16:30**	**228**	**45**	**7**	**4**	**7**	**3**	**4**			**298**	**308.7**
15:45	16:45	209	44	9	2	7	3	6			**280**	287.5
16:00	17:00	217	46	7	2	6	3	7			**288**	292.7
16:15	17:15	220	53	5	1	8	3	8			**298**	301.6
16:30	**17:30**	**243**	**56**	**5**	**0**	**7**	**4**	**10**			**325**	324.1
16:45	17:45	265	54	7	0	7	7	9			**349**	348.1
17:00	18:00	284	53	6	0	7	8	9			**367**	**365**
17:15	18:15	228	35	6	0	4	7	7			**287**	284.2
17:30	**18:30**	**148**	**20**	**5**	**0**	**3**	**6**	**3**			**185**	184.5
17:45	18:45	73	12	0	0	2	2	1			**90**	90
	P/TOT	**1219**	**219**	**37**	**8**	**36**	**33**	**42**	**0**	**0**	**1594**	**1606**

SITE: **1**
LOCATION: Manor Road / Retail Park Access
TOTAL ARMS: A B C

from arm: **C**
to arm: **B**

period I period II
from: 07:30 15:00
to: 09:30 18:00

DATE: 02/10/2018
DAY: Tuesday

per quarter of an hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		00:15	00:15	00:15	00:15	00:15	00:15	00:15			00:15	00:15
07:30	**07:45**	0	0	0	0	0	0	0			**0**	0
07:45	08:00	1	0	0	0	0	0	0			**1**	1
08:00	08:15	0	0	0	0	0	0	0			**0**	0
08:15	08:30	1	0	0	0	0	0	0			**1**	1
08:30	**08:45**	1	0	0	0	0	0	0			**1**	1
08:45	09:00	4	1	0	0	0	0	0			**5**	5
09:00	09:15	7	0	0	0	0	0	0			**7**	7
09:15	09:30	5	0	0	0	1	0	0			**6**	7
15:00	15:15	9	0	0	0	0	0	0			**9**	9
15:15	15:30	6	1	0	0	0	0	0			**7**	7
15:30	**15:45**	2	1	0	0	0	0	0			**3**	3
15:45	16:00	7	0	0	0	0	0	0			**7**	7
16:00	16:15	13	1	0	0	0	0	0			**14**	14
16:15	16:30	9	1	0	0	0	0	0			**10**	10
16:30	**16:45**	6	0	0	0	0	0	1			**7**	6.2
16:45	17:00	8	1	0	0	0	0	0			**9**	9
17:00	17:15	4	0	0	0	0	0	0			**4**	4
17:15	17:30	9	1	0	0	0	0	0			**10**	10
17:30	**17:45**	6	0	0	0	0	0	0			**6**	6
17:45	18:00	4	0	0	0	0	0	1			**5**	4.2
	P/TOT	**102**	**7**	**0**	**0**	**1**	**0**	**2**	**0**	**0**	**112**	**111.4**
Period I Total:		19	1	0	0	1	0	0	0	0	**21**	22
Period II Total:		83	6	0	0	0	0	2	0	0	**91**	89.4

per hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU.h
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		01:00	01:00	01:00	01:00	01:00	01:00	01:00			01:00	01:00
07:30	**08:30**	**2**	**0**	**0**	**0**	**0**	**0**	**0**			**2**	2
07:45	08:45	3	0	0	0	0	0	0			**3**	3
08:00	09:00	6	1	0	0	0	0	0			**7**	7
08:15	09:15	13	1	0	0	0	0	0			**14**	14
08:30	**09:30**	**17**	**1**	**0**	**0**	**1**	**0**	**0**			**19**	**20**
08:45	09:45	16	1	0	0	1	0	0			**18**	19
09:00	10:00	12	0	0	0	1	0	0			**13**	14
09:15	10:15	5	0	0	0	1	0	0			**6**	7
15:00	16:00	24	2	0	0	0	0	0			**26**	26
15:15	16:15	28	3	0	0	0	0	0			**31**	31
15:30	**16:30**	**31**	**3**	**0**	**0**	**0**	**0**	**0**			**34**	**34**
15:45	16:45	35	2	0	0	0	0	1			**38**	37.2
16:00	17:00	36	3	0	0	0	0	1			**40**	39.2
16:15	17:15	27	2	0	0	0	0	1			**30**	29.2
16:30	**17:30**	**27**	**2**	**0**	**0**	**0**	**0**	**1**			**30**	29.2
16:45	17:45	27	2	0	0	0	0	0			**29**	29
17:00	18:00	23	1	0	0	0	0	1			**25**	**24.2**
17:15	18:15	19	1	0	0	0	0	1			**21**	20.2
17:30	**18:30**	**10**	**0**	**0**	**0**	**0**	**0**	**1**			**11**	10.2
17:45	18:45	4	0	0	0	0	0	1			**5**	4.2
	P/TOT	**102**	**7**	**0**	**0**	**1**	**0**	**2**	**0**	**0**	**112**	**111.4**

SITE: **1**
LOCATION: Manor Road / Retail Park Access
TOTAL ARMS: A B C

from arm: **C**
to arm: **C**

period I period II
from: 07:30 15:00
to: 09:30 18:00

DATE: 02/10/2018
DAY: Tuesday

per quarter of an hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		00:15	00:15	00:15	00:15	00:15	00:15	00:15			00:15	00:15
07:30	**07:45**	0	0	0	0	0	0	0			**0**	0
07:45	08:00	0	0	0	0	0	0	0			**0**	0
08:00	08:15	0	0	0	0	0	0	0			**0**	0
08:15	08:30	0	0	0	0	0	0	0			**0**	0
08:30	**08:45**	0	0	0	0	0	0	0			**0**	0
08:45	09:00	0	0	0	0	0	0	0			**0**	0
09:00	09:15	0	0	0	0	0	0	0			**0**	0
09:15	09:30	0	0	0	0	0	0	0			**0**	0
15:00	15:15	0	0	0	0	0	0	0			**0**	0
15:15	15:30	0	0	0	0	0	0	0			**0**	0
15:30	**15:45**	0	0	0	0	0	0	0			**0**	0
15:45	16:00	0	0	0	0	0	0	0			**0**	0
16:00	16:15	0	0	0	0	0	0	0			**0**	0
16:15	16:30	0	0	0	0	0	0	0			**0**	0
16:30	**16:45**	0	0	0	0	0	0	0			**0**	0
16:45	17:00	0	0	0	0	0	0	0			**0**	0
17:00	17:15	0	0	0	0	0	0	0			**0**	0
17:15	17:30	0	0	0	0	0	0	0			**0**	0
17:30	**17:45**	0	0	0	0	0	0	0			**0**	0
17:45	18:00	0	0	0	0	0	0	0			**0**	0
	P/TOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Period I Total:		0	0	0	0	0	0	0	0	0	**0**	0
Period II Total:		0	0	0	0	0	0	0	0	0	**0**	0

per hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU.h
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		01:00	01:00	01:00	01:00	01:00	01:00	01:00			01:00	01:00
07:30	**08:30**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			**0**	0
07:45	08:45	0	0	0	0	0	0	0			**0**	0
08:00	09:00	0	0	0	0	0	0	0			**0**	0
08:15	09:15	0	0	0	0	0	0	0			**0**	0
08:30	**09:30**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			**0**	**0**
08:45	09:45	0	0	0	0	0	0	0			**0**	0
09:00	10:00	0	0	0	0	0	0	0			**0**	0
09:15	10:15	0	0	0	0	0	0	0			**0**	0
15:00	16:00	0	0	0	0	0	0	0			**0**	0
15:15	16:15	0	0	0	0	0	0	0			**0**	0
15:30	**16:30**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			**0**	**0**
15:45	16:45	0	0	0	0	0	0	0			**0**	0
16:00	17:00	0	0	0	0	0	0	0			**0**	0
16:15	17:15	0	0	0	0	0	0	0			**0**	0
16:30	**17:30**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			**0**	0
16:45	17:45	0	0	0	0	0	0	0			**0**	0
17:00	18:00	0	0	0	0	0	0	0			**0**	**0**
17:15	18:15	0	0	0	0	0	0	0			**0**	0
17:30	**18:30**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			**0**	0
17:45	18:45	0	0	0	0	0	0	0			**0**	0
	P/TOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

SITE: **1**
LOCATION: Manor Road / Retail Park Access
TOTAL ARMS: A B C

from arm: **C**
to arm: **all**

period I period II
from: 07:30 15:00
to: 09:30 18:00

DATE: 02/10/2018
DAY: Tuesday

per quarter of an hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		00:15	00:15	00:15	00:15	00:15	00:15	00:15			00:15	00:15
07:30	**07:45**	77	13	3	0	5	4	2			**104**	106.5
07:45	08:00	48	8	1	0	5	1	2			**65**	68.3
08:00	08:15	61	10	1	1	1	5	5			**84**	79.8
08:15	08:30	59	10	2	1	2	1	4			**79**	79.5
08:30	**08:45**	62	11	1	0	0	4	3			**81**	76.7
08:45	09:00	82	14	1	1	0	1	3			**102**	100.8
09:00	09:15	68	4	2	0	0	1	1			**76**	75.6
09:15	09:30	68	10	1	0	3	1	0			**83**	85.9
15:00	15:15	64	8	3	0	1	1	4			**81**	79.7
15:15	15:30	45	12	5	1	3	1	1			**68**	73.4
15:30	**15:45**	74	12	1	2	1	1	1			**92**	94.7
15:45	16:00	53	11	3	0	3	1	0			**71**	74.9
16:00	16:15	66	12	2	1	1	1	1			**84**	85.9
16:15	16:30	66	13	1	1	2	0	2			**85**	87.2
16:30	**16:45**	59	10	3	0	1	1	4			**78**	76.7
16:45	17:00	62	14	1	0	2	1	1			**81**	82.1
17:00	17:15	60	18	0	0	3	1	2			**84**	84.8
17:15	17:30	89	16	1	0	1	1	4			**112**	109.7
17:30	**17:45**	81	8	5	0	1	4	2			**101**	100.5
17:45	18:00	77	12	0	0	2	2	2			**95**	94.2
	P/TOT	**1321**	**226**	**37**	**8**	**37**	**33**	**44**	**0**	**0**	**1706**	**1717**
Period I Total:		525	80	12	3	16	18	20	0	0	**674**	673.1
Period II Total:		796	146	25	5	21	15	24	0	0	**1032**	1044

per hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU.h
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		01:00	01:00	01:00	01:00	01:00	01:00	01:00			01:00	01:00
07:30	**08:30**	**245**	**41**	**7**	**2**	**13**	**11**	**13**			**332**	334.1
07:45	08:45	230	39	5	2	8	11	14			**309**	304.3
08:00	09:00	264	45	5	3	3	11	15			**346**	336.8
08:15	09:15	271	39	6	2	2	7	11			**338**	332.6
08:30	**09:30**	**280**	**39**	**5**	**1**	**3**	**7**	**7**			**342**	**339**
08:45	09:45	218	28	4	1	3	3	4			**261**	262.3
09:00	10:00	136	14	3	0	3	2	1			**159**	161.5
09:15	10:15	68	10	1	0	3	1	0			**83**	85.9
15:00	16:00	236	43	12	3	8	4	6			**312**	322.7
15:15	16:15	238	47	11	4	8	4	3			**315**	328.9
15:30	**16:30**	**259**	**48**	**7**	**4**	**7**	**3**	**4**			**332**	**342.7**
15:45	16:45	244	46	9	2	7	3	7			**318**	324.7
16:00	17:00	253	49	7	2	6	3	8			**328**	331.9
16:15	17:15	247	55	5	1	8	3	9			**328**	330.8
16:30	**17:30**	**270**	**58**	**5**	**0**	**7**	**4**	**11**			**355**	353.3
16:45	17:45	292	56	7	0	7	7	9			**378**	377.1
17:00	18:00	307	54	6	0	7	8	10			**392**	**389.2**
17:15	18:15	247	36	6	0	4	7	8			**308**	304.4
17:30	**18:30**	**158**	**20**	**5**	**0**	**3**	**6**	**4**			**196**	194.7
17:45	18:45	77	12	0	0	2	2	2			**95**	94.2
	P/TOT	**1321**	**226**	**37**	**8**	**37**	**33**	**44**	**0**	**0**	**1706**	**1717**

SITE: **1**
LOCATION: Manor Road / Retail Park Access
TOTAL ARMS: A B C

from arm: **all**
to arm: **C**

period I period II
from: 07:30 15:00
to: 09:30 18:00

DATE: 02/10/2018
DAY: Tuesday

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		00:15	00:15	00:15	00:15	00:15	00:15	00:15			00:15	00:15
07:30	**07:45**	30	15	4	0	2	0	2			**53**	55.4
07:45	08:00	39	12	3	1	0	0	1			**56**	58
08:00	08:15	29	6	4	0	1	1	3			**44**	44
08:15	08:30	38	8	2	0	0	2	4			**54**	50.6
08:30	**08:45**	56	8	3	0	0	1	3			**71**	69.5
08:45	09:00	59	9	2	0	1	1	1			**73**	73.6
09:00	09:15	30	7	5	0	0	0	3			**45**	45.1
09:15	09:30	38	6	3	0	2	0	1			**50**	52.7
15:00	15:15	52	10	1	0	1	3	2			**69**	67.1
15:15	15:30	36	7	3	0	1	0	1			**48**	49.7
15:30	**15:45**	46	8	2	0	0	2	3			**61**	58.4
15:45	16:00	41	8	0	0	0	0	1			**50**	49.2
16:00	16:15	38	5	1	0	1	1	1			**47**	47.1
16:15	16:30	40	6	1	0	0	3	1			**51**	48.9
16:30	**16:45**	42	8	1	0	1	1	0			**53**	53.9
16:45	17:00	43	7	0	0	0	0	1			**51**	50.2
17:00	17:15	48	6	2	0	1	2	1			**60**	60
17:15	17:30	45	6	2	0	0	3	4			**60**	56
17:30	**17:45**	44	4	0	0	0	1	4			**53**	49.2
17:45	18:00	43	5	0	0	0	2	4			**54**	49.6
	P/TOT	**837**	**151**	**39**	**1**	**11**	**23**	**41**	**0**	**0**	**1103**	**1088**
Period I Total:		319	71	26	1	6	5	18	0	0	**446**	448.9
Period II Total:		518	80	13	0	5	18	23	0	0	**657**	639.3

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU.h
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		01:00	01:00	01:00	01:00	01:00	01:00	01:00			01:00	01:00
07:30	**08:30**	**136**	**41**	**13**	**1**	**3**	**3**	**10**			**207**	208
07:45	08:45	162	34	12	1	1	4	11			**225**	222.1
08:00	09:00	182	31	11	0	2	5	11			**242**	237.7
08:15	09:15	183	32	12	0	1	4	11			**243**	238.8
08:30	**09:30**	**183**	**30**	**13**	**0**	**3**	**2**	**8**			**239**	**240.9**
08:45	09:45	127	22	10	0	3	1	5			**168**	171.4
09:00	10:00	68	13	8	0	2	0	4			**95**	97.8
09:15	10:15	38	6	3	0	2	0	1			**50**	52.7
15:00	16:00	175	33	6	0	2	5	7			**228**	224.4
15:15	16:15	161	28	6	0	2	3	6			**206**	204.4
15:30	**16:30**	**165**	**27**	**4**	**0**	**1**	**6**	**6**			**209**	**203.6**
15:45	16:45	161	27	3	0	2	5	3			**201**	199.1
16:00	17:00	163	26	3	0	2	5	3			**202**	200.1
16:15	17:15	173	27	4	0	2	6	3			**215**	213
16:30	**17:30**	**178**	**27**	**5**	**0**	**2**	**6**	**6**			**224**	220.1
16:45	17:45	180	23	4	0	1	6	10			**224**	215.4
17:00	18:00	180	21	4	0	1	8	13			**227**	**214.8**
17:15	18:15	132	15	2	0	0	6	12			**167**	154.8
17:30	**18:30**	**87**	**9**	**0**	**0**	**0**	**3**	**8**			**107**	98.8
17:45	18:45	43	5	0	0	0	2	4			**54**	49.6
	P/TOT	**837**	**151**	**39**	**1**	**11**	**23**	**41**	**0**	**0**	**1103**	**1088**

9256 / MANOR ROAD, RICHMOND
October 2018
Classified Turning Count

SITE: **1**
LOCATION: Manor Road / Retail Park Access
TOTAL ARMS: A B C

from arm: **all**
to arm: **all**

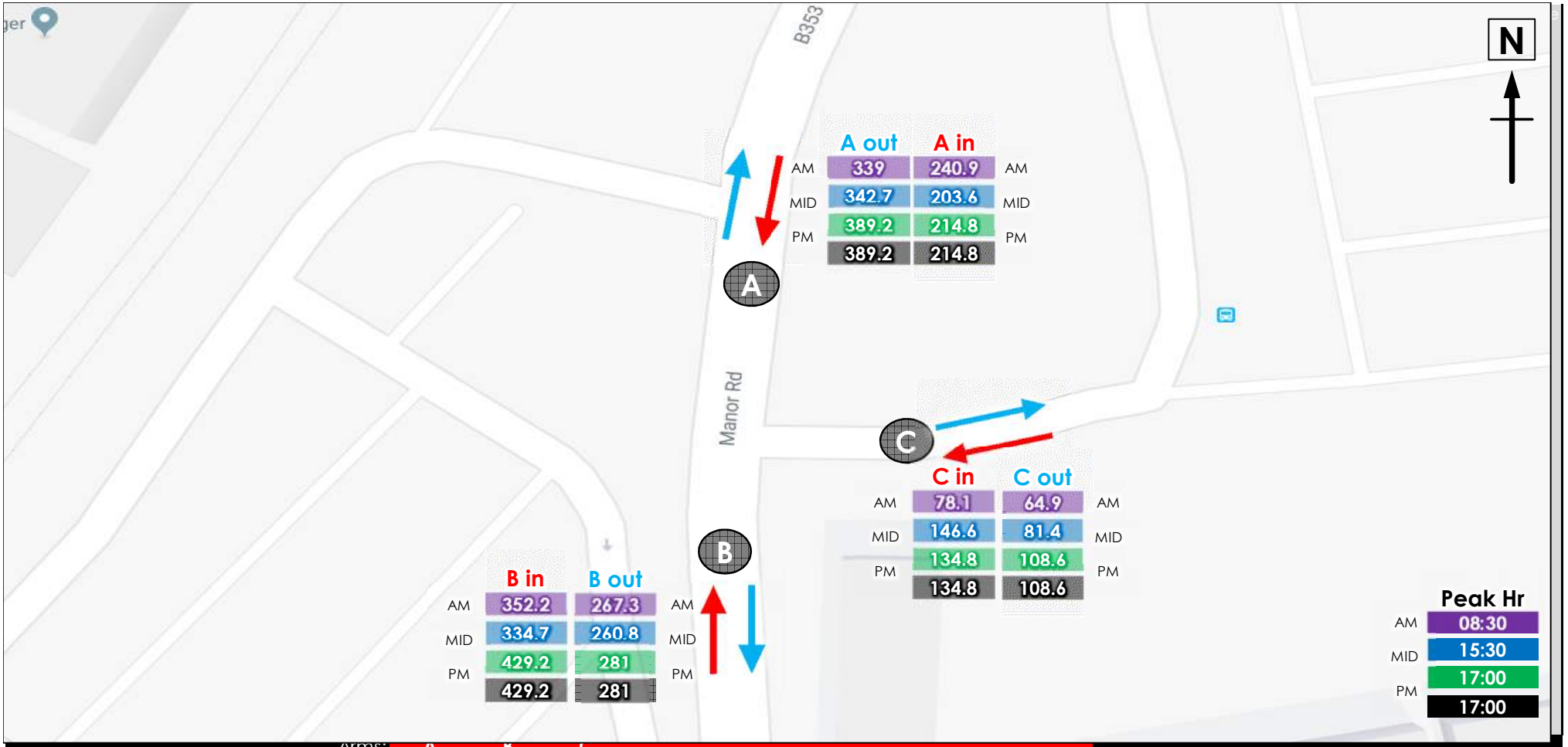
period I period II
from: 07:30 15:00
to: 09:30 18:00

DATE: 02/10/2018
DAY: Tuesday

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU		from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU.h
PCU factor		1	1	1.5	2.3	2	0.4	0.2						PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		00:15	00:15	00:15	00:15	00:15	00:15	00:15			00:15	00:15		INTERVAL		01:00	01:00	01:00	01:00	01:00	01:00	01:00			01:00	01:00
07:30	**07:45**	110	28	9	0	10	4	4			**165**	173.9	AM	**07:30**	**08:30**	**405**	**89**	**22**	**3**	**34**	**14**	**23**			**590**	612.1
07:45	08:00	91	21	4	1	11	1	3			**132**	143.3	AM	07:45	08:45	420	80	17	3	29	15	25			**589**	601.4
08:00	08:15	94	18	5	1	6	6	8			**138**	137.8	AM	08:00	09:00	476	83	16	3	20	16	27			**641**	641.7
08:15	08:30	110	22	4	1	7	3	8			**155**	157.1	AM	08:15	09:15	490	78	18	2	18	11	23			**640**	644.6
08:30	**08:45**	125	19	4	0	5	5	6			**164**	163.2	AM	**08:30**	**09:30**	**503**	**79**	**18**	**2**	**20**	**9**	**17**			**648**	**660.6**
08:45	09:00	147	24	3	1	2	2	5			**184**	183.6	AM	08:45	09:45	378	60	14	2	15	4	11			**484**	497.4
09:00	09:15	108	13	7	0	4	1	4			**137**	140.7	AM	09:00	10:00	231	36	11	1	13	2	6			**300**	313.8
09:15	09:30	123	23	4	1	9	1	2			**163**	173.1	AM	09:15	10:15	123	23	4	1	9	1	2			**163**	173.1
15:00	15:15	135	18	4	0	6	4	6			**173**	173.8	MID	15:00	16:00	496	80	18	3	31	13	16			**657**	680.3
15:15	15:30	101	21	8	1	10	2	2			**145**	157.5	MID	15:15	16:15	498	80	18	4	31	11	12			**654**	683
15:30	**15:45**	150	21	3	2	7	6	6			**195**	197.7	MID	**15:30**	**16:30**	**518**	**81**	**12**	**4**	**29**	**12**	**13**			**669**	**691.6**
15:45	16:00	110	20	3	0	8	1	2			**144**	151.3	MID	15:45	16:45	494	80	14	2	31	8	12			**641**	667.2
16:00	16:15	137	18	4	1	6	2	2			**170**	176.5	PM	16:00	17:00	501	83	12	2	26	8	12			**644**	664.2
16:15	16:30	121	22	2	1	8	3	3			**160**	166.1	PM	16:15	17:15	485	90	10	1	30	9	14			**639**	658.7
16:30	**16:45**	126	20	5	0	9	2	5			**167**	173.3	PM	**16:30**	**17:30**	**512**	**91**	**11**	**0**	**27**	**10**	**19**			**670**	681.3
16:45	17:00	117	23	1	0	3	1	2			**147**	148.3	PM	16:45	17:45	523	84	11	0	22	13	20			**673**	676.7
17:00	17:15	121	25	2	0	10	3	4			**165**	171	PM	17:00	18:00	542	78	10	0	23	16	24			**693**	**692.2**
17:15	17:30	148	23	3	0	5	4	8			**191**	188.7	PM	17:15	18:15	421	53	8	0	13	13	20			**528**	521.2
17:30	**17:45**	137	13	5	0	4	5	6			**170**	168.7	PM	**17:30**	**18:30**	**273**	**30**	**5**	**0**	**8**	**9**	**12**			**337**	332.5
17:45	18:00	136	17	0	0	4	4	6			**167**	163.8	PM	17:45	18:45	136	17	0	0	4	4	6			**167**	163.8
	P/TOT	**2447**	**409**	**80**	**10**	**134**	**60**	**92**	**0**	**0**	**3232**	**3309**			**P/TOT**	**2447**	**409**	**80**	**10**	**134**	**60**	**92**	**0**	**0**	**3232**	**3309**

Period I Total:	908	168	40	5	54	23	40	0	0	**1238**	1273
Period II Total:	1539	241	40	5	80	37	52	0	0	**1994**	2037

				from:	to:	
08:30	**09:30**	AM Peak Hour	AM	07:00	10:00	AM Peak PCU **660.6**
15:30	**16:30**	MID Peak Hour	MID	10:00	16:00	MID Peak PCU **691.6**
17:00	**18:00**	PM Peak Hour	PM	16:00	19:00	PM Peak PCU **692.2**
17:00	**18:00**	TOT Peak Hour				TOT Peak PCU **692.2**



Arms:	A	B	C

NDC NATIONWIDE DATA COLLECTION	**Site / Location:**	2	Manor Road / Sainsbury's Access	**Project No:**	9256	**Drawing No:**	9256 - 02	**Drawn By:** MB
	Survey Date:	02/10/2018		**Project Name:**	MANOR ROAD, RICHMOND			
	Survey Times:	from: 07:30 15:00 to: 09:30 18:00		**Drawing Title:**	Junction Labels and Peak Hr PCU's			

SITE: **2**
LOCATION: Manor Road / Sainsbury's Access
TOTAL ARMS: A B C

from arm: **A**
to arm: **A**

period I period II
from: 07:30 15:00
to: 09:30 18:00

DATE: 02/10/2018
DAY: Tuesday

per quarter of an hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		00:15	00:15	00:15	00:15	00:15	00:15	00:15			00:15	00:15
07:30	**07:45**	0	0	0	0	0	0	0			**0**	0
07:45	08:00	0	0	0	0	0	0	0			**0**	0
08:00	08:15	0	0	0	0	0	0	0			**0**	0
08:15	08:30	0	0	0	0	0	0	0			**0**	0
08:30	**08:45**	0	0	0	0	0	0	0			**0**	0
08:45	09:00	0	0	0	0	0	0	0			**0**	0
09:00	09:15	0	0	0	0	0	0	0			**0**	0
09:15	09:30	0	0	0	0	0	0	0			**0**	0
15:00	15:15	0	0	0	0	0	0	0			**0**	0
15:15	15:30	0	0	0	0	0	0	0			**0**	0
15:30	**15:45**	0	0	0	0	0	0	0			**0**	0
15:45	16:00	0	0	0	0	0	0	0			**0**	0
16:00	16:15	0	0	0	0	0	0	0			**0**	0
16:15	16:30	0	0	0	0	0	0	0			**0**	0
16:30	**16:45**	0	0	0	0	0	0	0			**0**	0
16:45	17:00	0	0	0	0	0	0	0			**0**	0
17:00	17:15	0	0	0	0	0	0	0			**0**	0
17:15	17:30	0	0	0	0	0	0	0			**0**	0
17:30	**17:45**	0	0	0	0	0	0	0			**0**	0
17:45	18:00	0	0	0	0	0	0	0			**0**	0
	P/TOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Period I Total:		0	0	0	0	0	0	0	0	0	**0**	0
Period II Total:		0	0	0	0	0	0	0	0	0	**0**	0

per hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU.h
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		01:00	01:00	01:00	01:00	01:00	01:00	01:00			01:00	01:00
07:30	**08:30**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			**0**	0
07:45	08:45	0	0	0	0	0	0	0			**0**	0
08:00	09:00	0	0	0	0	0	0	0			**0**	0
08:15	09:15	0	0	0	0	0	0	0			**0**	0
08:30	**09:30**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			**0**	**0**
08:45	09:45	0	0	0	0	0	0	0			**0**	0
09:00	10:00	0	0	0	0	0	0	0			**0**	0
09:15	10:15	0	0	0	0	0	0	0			**0**	0
15:00	16:00	0	0	0	0	0	0	0			**0**	0
15:15	16:15	0	0	0	0	0	0	0			**0**	0
15:30	**16:30**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			**0**	**0**
15:45	16:45	0	0	0	0	0	0	0			**0**	0
16:00	17:00	0	0	0	0	0	0	0			**0**	0
16:15	17:15	0	0	0	0	0	0	0			**0**	0
16:30	**17:30**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			**0**	0
16:45	17:45	0	0	0	0	0	0	0			**0**	0
17:00	18:00	0	0	0	0	0	0	0			**0**	**0**
17:15	18:15	0	0	0	0	0	0	0			**0**	0
17:30	**18:30**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			**0**	0
17:45	18:45	0	0	0	0	0	0	0			**0**	0
	P/TOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

SITE: **2**
LOCATION: Manor Road / Sainsbury's Access
TOTAL ARMS: A B C

from arm: **A**
to arm: **B**

period I period II
from: 07:30 15:00
to: 09:30 18:00

DATE: 02/10/2018
DAY: Tuesday

per quarter of an hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		00:15	00:15	00:15	00:15	00:15	00:15	00:15			00:15	00:15
07:30	**07:45**	28	15	4	0	2	0	2			**51**	53.4
07:45	08:00	39	12	3	1	0	0	1			**56**	58
08:00	08:15	28	6	4	0	1	1	3			**43**	43
08:15	08:30	37	8	2	0	0	2	4			**53**	49.6
08:30	**08:45**	54	8	3	0	0	1	3			**69**	67.5
08:45	09:00	59	8	2	0	1	1	0			**71**	72.4
09:00	09:15	30	7	5	0	0	0	3			**45**	45.1
09:15	09:30	36	6	3	0	2	0	1			**48**	50.7
15:00	15:15	50	10	1	0	1	3	2			**67**	65.1
15:15	15:30	29	7	3	0	1	0	1			**41**	42.7
15:30	**15:45**	44	7	2	0	0	2	3			**58**	55.4
15:45	16:00	34	8	0	0	0	0	0			**42**	42
16:00	16:15	36	5	1	0	1	1	1			**45**	45.1
16:15	16:30	34	6	1	0	0	3	1			**45**	42.9
16:30	**16:45**	37	8	1	0	1	1	0			**48**	48.9
16:45	17:00	40	7	0	0	0	0	1			**48**	47.2
17:00	17:15	44	5	2	0	1	2	1			**55**	55
17:15	17:30	42	6	1	0	0	3	4			**56**	51.5
17:30	**17:45**	40	4	0	0	0	1	4			**49**	45.2
17:45	18:00	43	5	0	0	0	2	4			**54**	49.6
	P/TOT	**784**	**148**	**38**	**1**	**11**	**23**	**39**	**0**	**0**	**1044**	**1030**
Period I Total:		311	70	26	1	6	5	17	0	0	**436**	439.7
Period II Total:		473	78	12	0	5	18	22	0	0	**608**	590.6

per hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU.h
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		01:00	01:00	01:00	01:00	01:00	01:00	01:00			01:00	01:00
07:30	**08:30**	**132**	**41**	**13**	**1**	**3**	**3**	**10**			**203**	204
07:45	08:45	158	34	12	1	1	4	11			**221**	218.1
08:00	09:00	178	30	11	0	2	5	10			**236**	232.5
08:15	09:15	180	31	12	0	1	4	10			**238**	234.6
08:30	**09:30**	**179**	**29**	**13**	**0**	**3**	**2**	**7**			**233**	**235.7**
08:45	09:45	125	21	10	0	3	1	4			**164**	168.2
09:00	10:00	66	13	8	0	2	0	4			**93**	95.8
09:15	10:15	36	6	3	0	2	0	1			**48**	50.7
15:00	16:00	157	32	6	0	2	5	6			**208**	205.2
15:15	16:15	143	27	6	0	2	3	5			**186**	185.2
15:30	**16:30**	**148**	**26**	**4**	**0**	**1**	**6**	**5**			**190**	**185.4**
15:45	16:45	141	27	3	0	2	5	2			**180**	178.9
16:00	17:00	147	26	3	0	2	5	3			**186**	184.1
16:15	17:15	155	26	4	0	2	6	3			**196**	194
16:30	**17:30**	**163**	**26**	**4**	**0**	**2**	**6**	**6**			**207**	202.6
16:45	17:45	166	22	3	0	1	6	10			**208**	198.9
17:00	18:00	169	20	3	0	1	8	13			**214**	**201.3**
17:15	18:15	125	15	1	0	0	6	12			**159**	146.3
17:30	**18:30**	**83**	**9**	**0**	**0**	**0**	**3**	**8**			**103**	94.8
17:45	18:45	43	5	0	0	0	2	4			**54**	49.6
	P/TOT	**784**	**148**	**38**	**1**	**11**	**23**	**39**	**0**	**0**	**1044**	**1030**

SITE: **2**
LOCATION: Manor Road / Sainsbury's Access
TOTAL ARMS: A B C

from arm: **A**
to arm: **C**

period I period II
from: 07:30 15:00
to: 09:30 18:00

DATE: 02/10/2018
DAY: Tuesday

per quarter of an hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		00:15	00:15	00:15	00:15	00:15	00:15	00:15			00:15	00:15
07:30	**07:45**	2	0	0	0	0	0	0			**2**	2
07:45	08:00	0	0	0	0	0	0	0			**0**	0
08:00	08:15	1	0	0	0	0	0	0			**1**	1
08:15	08:30	1	0	0	0	0	0	0			**1**	1
08:30	**08:45**	2	0	0	0	0	0	0			**2**	2
08:45	09:00	0	1	0	0	0	0	1			**2**	1.2
09:00	09:15	0	0	0	0	0	0	0			**0**	0
09:15	09:30	2	0	0	0	0	0	0			**2**	2
15:00	15:15	2	0	0	0	0	0	0			**2**	2
15:15	15:30	7	0	0	0	0	0	0			**7**	7
15:30	**15:45**	2	1	0	0	0	0	0			**3**	3
15:45	16:00	7	0	0	0	0	0	1			**8**	7.2
16:00	16:15	2	0	0	0	0	0	0			**2**	2
16:15	16:30	6	0	0	0	0	0	0			**6**	6
16:30	**16:45**	5	0	0	0	0	0	0			**5**	5
16:45	17:00	3	0	0	0	0	0	0			**3**	3
17:00	17:15	4	1	0	0	0	0	0			**5**	5
17:15	17:30	3	0	1	0	0	0	0			**4**	4.5
17:30	**17:45**	4	0	0	0	0	0	0			**4**	4
17:45	18:00	0	0	0	0	0	0	0			**0**	0
	P/TOT	**53**	**3**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**59**	**57.9**
Period I Total:		8	1	0	0	0	0	1	0	0	**10**	9.2
Period II Total:		45	2	1	0	0	0	1	0	0	**49**	48.7

per hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU.h
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		01:00	01:00	01:00	01:00	01:00	01:00	01:00			01:00	01:00
07:30	**08:30**	**4**	**0**	**0**	**0**	**0**	**0**	**0**			**4**	4
07:45	08:45	4	0	0	0	0	0	0			**4**	4
08:00	09:00	4	1	0	0	0	0	1			**6**	5.2
08:15	09:15	3	1	0	0	0	0	1			**5**	4.2
08:30	**09:30**	**4**	**1**	**0**	**0**	**0**	**0**	**1**			**6**	**5.2**
08:45	09:45	2	1	0	0	0	0	1			**4**	3.2
09:00	10:00	2	0	0	0	0	0	0			**2**	2
09:15	10:15	2	0	0	0	0	0	0			**2**	2
15:00	16:00	18	1	0	0	0	0	1			**20**	19.2
15:15	16:15	18	1	0	0	0	0	1			**20**	19.2
15:30	**16:30**	**17**	**1**	**0**	**0**	**0**	**0**	**1**			**19**	**18.2**
15:45	16:45	20	0	0	0	0	0	1			**21**	20.2
16:00	17:00	16	0	0	0	0	0	0			**16**	16
16:15	17:15	18	1	0	0	0	0	0			**19**	19
16:30	**17:30**	**15**	**1**	**1**	**0**	**0**	**0**	**0**			**17**	17.5
16:45	17:45	14	1	1	0	0	0	0			**16**	16.5
17:00	18:00	11	1	1	0	0	0	0			**13**	**13.5**
17:15	18:15	7	0	1	0	0	0	0			**8**	8.5
17:30	**18:30**	**4**	**0**	**0**	**0**	**0**	**0**	**0**			**4**	4
17:45	18:45	0	0	0	0	0	0	0			**0**	0
	P/TOT	**53**	**3**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**59**	**57.9**

SITE: **2**
LOCATION: Manor Road / Sainsbury's Access
TOTAL ARMS: A B C

from arm: **A**
to arm: **all**

period I period II
from: 07:30 15:00
to: 09:30 18:00

DATE: 02/10/2018
DAY: Tuesday

per quarter of an hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		00:15	00:15	00:15	00:15	00:15	00:15	00:15			00:15	00:15
07:30	**07:45**	30	15	4	0	2	0	2			**53**	55.4
07:45	08:00	39	12	3	1	0	0	1			**56**	58
08:00	08:15	29	6	4	0	1	1	3			**44**	44
08:15	08:30	38	8	2	0	0	2	4			**54**	50.6
08:30	**08:45**	56	8	3	0	0	1	3			**71**	69.5
08:45	09:00	59	9	2	0	1	1	1			**73**	73.6
09:00	09:15	30	7	5	0	0	0	3			**45**	45.1
09:15	09:30	38	6	3	0	2	0	1			**50**	52.7
15:00	15:15	52	10	1	0	1	3	2			**69**	67.1
15:15	15:30	36	7	3	0	1	0	1			**48**	49.7
15:30	**15:45**	46	8	2	0	0	2	3			**61**	58.4
15:45	16:00	41	8	0	0	0	0	1			**50**	49.2
16:00	16:15	38	5	1	0	1	1	1			**47**	47.1
16:15	16:30	40	6	1	0	0	3	1			**51**	48.9
16:30	**16:45**	42	8	1	0	1	1	0			**53**	53.9
16:45	17:00	43	7	0	0	0	0	1			**51**	50.2
17:00	17:15	48	6	2	0	1	2	1			**60**	60
17:15	17:30	45	6	2	0	0	3	4			**60**	56
17:30	**17:45**	44	4	0	0	0	1	4			**53**	49.2
17:45	18:00	43	5	0	0	0	2	4			**54**	49.6
	P/TOT	**837**	**151**	**39**	**1**	**11**	**23**	**41**	**0**	**0**	**1103**	**1088**
Period I Total:		319	71	26	1	6	5	18	0	0	**446**	448.9
Period II Total:		518	80	13	0	5	18	23	0	0	**657**	639.3

per hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU.h
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		01:00	01:00	01:00	01:00	01:00	01:00	01:00			01:00	01:00
07:30	**08:30**	**136**	**41**	**13**	**1**	**3**	**3**	**10**			**207**	208
07:45	08:45	162	34	12	1	1	4	11			**225**	222.1
08:00	09:00	182	31	11	0	2	5	11			**242**	237.7
08:15	09:15	183	32	12	0	1	4	11			**243**	238.8
08:30	**09:30**	**183**	**30**	**13**	**0**	**3**	**2**	**8**			**239**	**240.9**
08:45	09:45	127	22	10	0	3	1	5			**168**	171.4
09:00	10:00	68	13	8	0	2	0	4			**95**	97.8
09:15	10:15	38	6	3	0	2	0	1			**50**	52.7
15:00	16:00	175	33	6	0	2	5	7			**228**	224.4
15:15	16:15	161	28	6	0	2	3	6			**206**	204.4
15:30	**16:30**	**165**	**27**	**4**	**0**	**1**	**6**	**6**			**209**	**203.6**
15:45	16:45	161	27	3	0	2	5	3			**201**	199.1
16:00	17:00	163	26	3	0	2	5	3			**202**	200.1
16:15	17:15	173	27	4	0	2	6	3			**215**	213
16:30	**17:30**	**178**	**27**	**5**	**0**	**2**	**6**	**6**			**224**	220.1
16:45	17:45	180	23	4	0	1	6	10			**224**	215.4
17:00	18:00	180	21	4	0	1	8	13			**227**	**214.8**
17:15	18:15	132	15	2	0	0	6	12			**167**	154.8
17:30	**18:30**	**87**	**9**	**0**	**0**	**0**	**3**	**8**			**107**	98.8
17:45	18:45	43	5	0	0	0	2	4			**54**	49.6
	P/TOT	**837**	**151**	**39**	**1**	**11**	**23**	**41**	**0**	**0**	**1103**	**1088**

SITE: **2**
LOCATION: Manor Road / Sainsbury's Access
TOTAL ARMS: A B C

from arm: **all**
to arm: **A**

period I period II
from: 07:30 15:00
to: 09:30 18:00

DATE: 02/10/2018
DAY: Tuesday

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		00:15	00:15	00:15	00:15	00:15	00:15	00:15			00:15	00:15
07:30	**07:45**	77	13	3	0	5	4	2			**104**	106.5
07:45	08:00	48	8	1	0	5	1	2			**65**	68.3
08:00	08:15	61	10	1	1	1	5	5			**84**	79.8
08:15	08:30	59	10	2	1	2	1	4			**79**	79.5
08:30	**08:45**	62	11	1	0	0	4	3			**81**	76.7
08:45	09:00	82	14	1	1	0	1	3			**102**	100.8
09:00	09:15	68	4	2	0	0	1	1			**76**	75.6
09:15	09:30	68	10	1	0	3	1	0			**83**	85.9
15:00	15:15	64	8	3	0	1	1	4			**81**	79.7
15:15	15:30	45	12	5	1	3	1	1			**68**	73.4
15:30	**15:45**	74	12	1	2	1	1	1			**92**	94.7
15:45	16:00	53	11	3	0	3	1	0			**71**	74.9
16:00	16:15	66	12	2	1	1	1	1			**84**	85.9
16:15	16:30	66	13	1	1	2	0	2			**85**	87.2
16:30	**16:45**	59	10	3	0	1	1	4			**78**	76.7
16:45	17:00	62	14	1	0	2	1	1			**81**	82.1
17:00	17:15	60	18	0	0	3	1	2			**84**	84.8
17:15	17:30	89	16	1	0	1	1	4			**112**	109.7
17:30	**17:45**	81	8	5	0	1	4	2			**101**	100.5
17:45	18:00	77	12	0	0	2	2	2			**95**	94.2
	P/TOT	**1321**	**226**	**37**	**8**	**37**	**33**	**44**	**0**	**0**	**1706**	**1717**
Period I Total:		525	80	12	3	16	18	20	0	0	**674**	673.1
Period II Total:		796	146	25	5	21	15	24	0	0	**1032**	1044

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU.h
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		01:00	01:00	01:00	01:00	01:00	01:00	01:00			01:00	01:00
07:30	**08:30**	**245**	**41**	**7**	**2**	**13**	**11**	**13**			**332**	334.1
07:45	08:45	230	39	5	2	8	11	14			**309**	304.3
08:00	09:00	264	45	5	3	3	11	15			**346**	336.8
08:15	09:15	271	39	6	2	2	7	11			**338**	332.6
08:30	**09:30**	**280**	**39**	**5**	**1**	**3**	**7**	**7**			**342**	**339**
08:45	09:45	218	28	4	1	3	3	4			**261**	262.3
09:00	10:00	136	14	3	0	3	2	1			**159**	161.5
09:15	10:15	68	10	1	0	3	1	0			**83**	85.9
15:00	16:00	236	43	12	3	8	4	6			**312**	322.7
15:15	16:15	238	47	11	4	8	4	3			**315**	328.9
15:30	**16:30**	**259**	**48**	**7**	**4**	**7**	**3**	**4**			**332**	**342.7**
15:45	16:45	244	46	9	2	7	3	7			**318**	324.7
16:00	17:00	253	49	7	2	6	3	8			**328**	331.9
16:15	17:15	247	55	5	1	8	3	9			**328**	330.8
16:30	**17:30**	**270**	**58**	**5**	**0**	**7**	**4**	**11**			**355**	353.3
16:45	17:45	292	56	7	0	7	7	9			**378**	377.1
17:00	18:00	307	54	6	0	7	8	10			**392**	**389.2**
17:15	18:15	247	36	6	0	4	7	8			**308**	304.4
17:30	**18:30**	**158**	**20**	**5**	**0**	**3**	**6**	**4**			**196**	194.7
17:45	18:45	77	12	0	0	2	2	2			**95**	94.2
	P/TOT	**1321**	**226**	**37**	**8**	**37**	**33**	**44**	**0**	**0**	**1706**	**1717**

SITE: **2**
LOCATION: Manor Road / Sainsbury's Access
TOTAL ARMS:

from arm: **B**
to arm: **A**

period I period II
from: 07:30 15:00
to: 09:30 18:00

DATE: 02/10/2018
DAY: Tuesday

per quarter of an hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		00:15	00:15	00:15	00:15	00:15	00:15	00:15			00:15	00:15
07:30	**07:45**	69	12	3	0	3	4	2			**93**	93.5
07:45	08:00	45	5	1	0	2	1	2			**56**	56.3
08:00	08:15	53	9	1	1	0	4	5			**73**	68.4
08:15	08:30	54	7	2	1	0	1	4			**69**	67.5
08:30	**08:45**	57	9	1	0	0	4	3			**74**	69.7
08:45	09:00	76	13	0	1	0	1	3			**94**	92.3
09:00	09:15	54	3	2	0	0	1	1			**61**	60.6
09:15	09:30	57	9	1	0	1	1	0			**69**	69.9
15:00	15:15	51	7	3	0	0	1	4			**66**	63.7
15:15	15:30	36	11	5	1	1	1	1			**56**	59.4
15:30	**15:45**	65	12	1	2	0	1	1			**82**	83.7
15:45	16:00	40	9	3	0	1	1	0			**54**	55.9
16:00	16:15	51	11	2	1	0	1	0			**66**	67.7
16:15	16:30	49	11	1	1	0	0	2			**64**	64.2
16:30	**16:45**	51	10	3	0	0	1	3			**68**	66.5
16:45	17:00	50	11	1	0	1	1	1			**65**	65.1
17:00	17:15	48	17	0	0	1	1	2			**69**	67.8
17:15	17:30	84	15	1	0	0	1	4			**105**	101.7
17:30	**17:45**	64	8	4	0	0	4	1			**81**	79.8
17:45	18:00	72	12	0	0	0	1	2			**87**	84.8
	P/TOT	**1126**	**201**	**35**	**8**	**10**	**31**	**41**	**0**	**0**	**1452**	**1439**
Period I Total:		465	67	11	3	6	17	20	0	0	**589**	578.2
Period II Total:		661	134	24	5	4	14	21	0	0	**863**	860.3

per hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU.h
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		01:00	01:00	01:00	01:00	01:00	01:00	01:00			01:00	01:00
07:30	**08:30**	**221**	**33**	**7**	**2**	**5**	**10**	**13**			**291**	285.7
07:45	08:45	209	30	5	2	2	10	14			**272**	261.9
08:00	09:00	240	38	4	3	0	10	15			**310**	297.9
08:15	09:15	241	32	5	2	0	7	11			**298**	290.1
08:30	**09:30**	**244**	**34**	**4**	**1**	**1**	**7**	**7**			**298**	**292.5**
08:45	09:45	187	25	3	1	1	3	4			**224**	222.8
09:00	10:00	111	12	3	0	1	2	1			**130**	130.5
09:15	10:15	57	9	1	0	1	1	0			**69**	69.9
15:00	16:00	192	39	12	3	2	4	6			**258**	262.7
15:15	16:15	192	43	11	4	2	4	2			**258**	266.7
15:30	**16:30**	**205**	**43**	**7**	**4**	**1**	**3**	**3**			**266**	**271.5**
15:45	16:45	191	41	9	2	1	3	5			**252**	254.3
16:00	17:00	201	43	7	2	1	3	6			**263**	263.5
16:15	17:15	198	49	5	1	2	3	8			**266**	263.6
16:30	**17:30**	**233**	**53**	**5**	**0**	**2**	**4**	**10**			**307**	301.1
16:45	17:45	246	51	6	0	2	7	8			**320**	314.4
17:00	18:00	268	52	5	0	1	7	9			**342**	**334.1**
17:15	18:15	220	35	5	0	0	6	7			**273**	266.3
17:30	**18:30**	**136**	**20**	**4**	**0**	**0**	**5**	**3**			**168**	164.6
17:45	18:45	72	12	0	0	0	1	2			**87**	84.8
	P/TOT	**1126**	**201**	**35**	**8**	**10**	**31**	**41**	**0**	**0**	**1452**	**1439**

SITE: **2**
LOCATION: Manor Road / Sainsbury's Access
TOTAL ARMS: A B C

from arm: **B**
to arm: **B**

period I period II
from: 07:30 15:00
to: 09:30 18:00

DATE: 02/10/2018
DAY: Tuesday

per quarter of an hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		00:15	00:15	00:15	00:15	00:15	00:15	00:15			00:15	00:15
07:30	**07:45**	0	0	0	0	0	0	0			**0**	0
07:45	08:00	0	0	0	0	0	0	0			**0**	0
08:00	08:15	0	0	0	0	0	0	0			**0**	0
08:15	08:30	0	0	0	0	0	0	0			**0**	0
08:30	**08:45**	0	0	0	0	0	0	0			**0**	0
08:45	09:00	0	0	0	0	0	0	0			**0**	0
09:00	09:15	0	0	0	0	0	0	0			**0**	0
09:15	09:30	0	0	0	0	0	0	0			**0**	0
15:00	15:15	0	0	0	0	0	0	0			**0**	0
15:15	15:30	0	0	0	0	0	0	0			**0**	0
15:30	**15:45**	0	0	0	0	0	0	0			**0**	0
15:45	16:00	0	0	0	0	0	0	0			**0**	0
16:00	16:15	0	0	0	0	0	0	0			**0**	0
16:15	16:30	0	0	0	0	0	0	0			**0**	0
16:30	**16:45**	0	0	0	0	0	0	0			**0**	0
16:45	17:00	0	0	0	0	0	0	0			**0**	0
17:00	17:15	0	0	0	0	0	0	0			**0**	0
17:15	17:30	0	0	0	0	0	0	0			**0**	0
17:30	**17:45**	0	0	0	0	0	0	0			**0**	0
17:45	18:00	0	0	0	0	0	0	0			**0**	0
	P/TOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Period I Total:		0	0	0	0	0	0	0	0	0	**0**	0
Period II Total:		0	0	0	0	0	0	0	0	0	**0**	0

per hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU.h
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		01:00	01:00	01:00	01:00	01:00	01:00	01:00			01:00	01:00
07:30	**08:30**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			**0**	0
07:45	08:45	0	0	0	0	0	0	0			**0**	0
08:00	09:00	0	0	0	0	0	0	0			**0**	0
08:15	09:15	0	0	0	0	0	0	0			**0**	0
08:30	**09:30**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			**0**	**0**
08:45	09:45	0	0	0	0	0	0	0			**0**	0
09:00	10:00	0	0	0	0	0	0	0			**0**	0
09:15	10:15	0	0	0	0	0	0	0			**0**	0
15:00	16:00	0	0	0	0	0	0	0			**0**	0
15:15	16:15	0	0	0	0	0	0	0			**0**	0
15:30	**16:30**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			**0**	**0**
15:45	16:45	0	0	0	0	0	0	0			**0**	0
16:00	17:00	0	0	0	0	0	0	0			**0**	0
16:15	17:15	0	0	0	0	0	0	0			**0**	0
16:30	**17:30**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			**0**	0
16:45	17:45	0	0	0	0	0	0	0			**0**	0
17:00	18:00	0	0	0	0	0	0	0			**0**	**0**
17:15	18:15	0	0	0	0	0	0	0			**0**	0
17:30	**18:30**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			**0**	0
17:45	18:45	0	0	0	0	0	0	0			**0**	0
	P/TOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

SITE: **2**
LOCATION: Manor Road / Sainsbury's Access
TOTAL ARMS: A B C

from arm: **B**
to arm: **C**

period I period II
from: 07:30 15:00
to: 09:30 18:00

DATE: 02/10/2018
DAY: Tuesday

per quarter of an hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		00:15	00:15	00:15	00:15	00:15	00:15	00:15			00:15	00:15
07:30	**07:45**	11	2	1	0	0	1	0			**15**	14.9
07:45	08:00	4	1	0	0	0	1	0			**6**	5.4
08:00	08:15	10	1	0	0	0	0	0			**11**	11
08:15	08:30	5	1	0	0	0	0	1			**7**	6.2
08:30	**08:45**	11	1	0	0	0	0	0			**12**	12
08:45	09:00	9	1	0	0	0	0	0			**10**	10
09:00	09:15	16	3	0	0	0	0	1			**20**	19.2
09:15	09:30	17	0	1	0	0	0	0			**18**	18.5
15:00	15:15	9	1	0	0	0	0	1			**11**	10.2
15:15	15:30	11	1	0	0	0	0	0			**12**	12
15:30	**15:45**	17	1	0	0	0	0	0			**18**	18
15:45	16:00	15	1	0	0	0	0	1			**17**	16.2
16:00	16:15	21	0	0	0	0	2	1			**24**	22
16:15	16:30	7	0	0	0	0	0	0			**7**	7
16:30	**16:45**	22	1	0	0	0	0	0			**23**	23
16:45	17:00	9	0	0	0	0	0	2			**11**	9.4
17:00	17:15	17	0	0	0	0	0	2			**19**	17.4
17:15	17:30	31	3	0	0	0	0	1			**35**	34.2
17:30	**17:45**	23	1	0	0	0	1	2			**27**	24.8
17:45	18:00	15	2	1	0	0	0	1			**19**	18.7
	P/TOT	**280**	**21**	**3**	**0**	**0**	**5**	**13**	**0**	**0**	**322**	**310.1**
Period I Total:		83	10	2	0	0	2	2	0	0	**99**	97.2
Period II Total:		197	11	1	0	0	3	11	0	0	**223**	212.9

per hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU.h
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		01:00	01:00	01:00	01:00	01:00	01:00	01:00			01:00	01:00
07:30	**08:30**	**30**	**5**	**1**	**0**	**0**	**2**	**1**			**39**	37.5
07:45	08:45	30	4	0	0	0	1	1			**36**	34.6
08:00	09:00	35	4	0	0	0	0	1			**40**	39.2
08:15	09:15	41	6	0	0	0	0	2			**49**	47.4
08:30	**09:30**	**53**	**5**	**1**	**0**	**0**	**0**	**1**			**60**	**59.7**
08:45	09:45	42	4	1	0	0	0	1			**48**	47.7
09:00	10:00	33	3	1	0	0	0	1			**38**	37.7
09:15	10:15	17	0	1	0	0	0	0			**18**	18.5
15:00	16:00	52	4	0	0	0	0	2			**58**	56.4
15:15	16:15	64	3	0	0	0	2	2			**71**	68.2
15:30	**16:30**	**60**	**2**	**0**	**0**	**0**	**2**	**2**			**66**	**63.2**
15:45	16:45	65	2	0	0	0	2	2			**71**	68.2
16:00	17:00	59	1	0	0	0	2	3			**65**	61.4
16:15	17:15	55	1	0	0	0	0	4			**60**	56.8
16:30	**17:30**	**79**	**4**	**0**	**0**	**0**	**0**	**5**			**88**	84
16:45	17:45	80	4	0	0	0	1	7			**92**	85.8
17:00	18:00	86	6	1	0	0	1	6			**100**	**95.1**
17:15	18:15	69	6	1	0	0	1	4			**81**	77.7
17:30	**18:30**	**38**	**3**	**1**	**0**	**0**	**1**	**3**			**46**	43.5
17:45	18:45	15	2	1	0	0	0	1			**19**	18.7
	P/TOT	**280**	**21**	**3**	**0**	**0**	**5**	**13**	**0**	**0**	**322**	**310.1**

SITE: **2**
LOCATION: Manor Road / Sainsbury's Access
TOTAL ARMS: A B C

from arm: **B**
to arm: **all**

period I period II
from: 07:30 15:00
to: 09:30 18:00

DATE: 02/10/2018
DAY: Tuesday

per quarter of an hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		00:15	00:15	00:15	00:15	00:15	00:15	00:15			00:15	00:15
07:30	**07:45**	80	14	4	0	3	5	2			**108**	108.4
07:45	08:00	49	6	1	0	2	2	2			**62**	61.7
08:00	08:15	63	10	1	1	0	4	5			**84**	79.4
08:15	08:30	59	8	2	1	0	1	5			**76**	73.7
08:30	**08:45**	68	10	1	0	0	4	3			**86**	81.7
08:45	09:00	85	14	0	1	0	1	3			**104**	102.3
09:00	09:15	70	6	2	0	0	1	2			**81**	79.8
09:15	09:30	74	9	2	0	1	1	0			**87**	88.4
15:00	15:15	60	8	3	0	0	1	5			**77**	73.9
15:15	15:30	47	12	5	1	1	1	1			**68**	71.4
15:30	**15:45**	82	13	1	2	0	1	1			**100**	101.7
15:45	16:00	55	10	3	0	1	1	1			**71**	72.1
16:00	16:15	72	11	2	1	0	3	1			**90**	89.7
16:15	16:30	56	11	1	1	0	0	2			**71**	71.2
16:30	**16:45**	73	11	3	0	0	1	3			**91**	89.5
16:45	17:00	59	11	1	0	1	1	3			**76**	74.5
17:00	17:15	65	17	0	0	1	1	4			**88**	85.2
17:15	17:30	115	18	1	0	0	1	5			**140**	135.9
17:30	**17:45**	87	9	4	0	0	5	3			**108**	104.6
17:45	18:00	87	14	1	0	0	1	3			**106**	103.5
	P/TOT	**1406**	**222**	**38**	**8**	**10**	**36**	**54**	**0**	**0**	**1774**	**1749**
Period I Total:		548	77	13	3	6	19	22	0	0	**688**	675.4
Period II Total:		858	145	25	5	4	17	32	0	0	**1086**	1073

per hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU.h
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		01:00	01:00	01:00	01:00	01:00	01:00	01:00			01:00	01:00
07:30	**08:30**	**251**	**38**	**8**	**2**	**5**	**12**	**14**			**330**	323.2
07:45	08:45	239	34	5	2	2	11	15			**308**	296.5
08:00	09:00	275	42	4	3	0	10	16			**350**	337.1
08:15	09:15	282	38	5	2	0	7	13			**347**	337.5
08:30	**09:30**	**297**	**39**	**5**	**1**	**1**	**7**	**8**			**358**	**352.2**
08:45	09:45	229	29	4	1	1	3	5			**272**	270.5
09:00	10:00	144	15	4	0	1	2	2			**168**	168.2
09:15	10:15	74	9	2	0	1	1	0			**87**	88.4
15:00	16:00	244	43	12	3	2	4	8			**316**	319.1
15:15	16:15	256	46	11	4	2	6	4			**329**	334.9
15:30	**16:30**	**265**	**45**	**7**	**4**	**1**	**5**	**5**			**332**	**334.7**
15:45	16:45	256	43	9	2	1	5	7			**323**	322.5
16:00	17:00	260	44	7	2	1	5	9			**328**	324.9
16:15	17:15	253	50	5	1	2	3	12			**326**	320.4
16:30	**17:30**	**312**	**57**	**5**	**0**	**2**	**4**	**15**			**395**	385.1
16:45	17:45	326	55	6	0	2	8	15			**412**	400.2
17:00	18:00	354	58	6	0	1	8	15			**442**	**429.2**
17:15	18:15	289	41	6	0	0	7	11			**354**	344
17:30	**18:30**	**174**	**23**	**5**	**0**	**0**	**6**	**6**			**214**	208.1
17:45	18:45	87	14	1	0	0	1	3			**106**	103.5
	P/TOT	**1406**	**222**	**38**	**8**	**10**	**36**	**54**	**0**	**0**	**1774**	**1749**

SITE: **2**
LOCATION: Manor Road / Sainsbury's Access
TOTAL ARMS: A B C

from arm: **all**
to arm: **B**

period I period II
from: 07:30 15:00
to: 09:30 18:00

DATE: 02/10/2018
DAY: Tuesday

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		00:15	00:15	00:15	00:15	00:15	00:15	00:15			00:15	00:15
07:30	**07:45**	33	16	4	0	2	0	2			**57**	59.4
07:45	08:00	44	14	4	1	0	0	1			**64**	66.5
08:00	08:15	38	8	4	0	1	1	3			**55**	55
08:15	08:30	42	9	3	0	0	2	6			**62**	57.5
08:30	**08:45**	60	9	4	0	0	1	3			**77**	76
08:45	09:00	67	8	2	0	1	2	0			**80**	80.8
09:00	09:15	38	7	5	0	0	0	3			**53**	53.1
09:15	09:30	39	8	4	0	2	0	2			**55**	57.4
15:00	15:15	66	11	1	0	1	3	2			**84**	82.1
15:15	15:30	48	8	3	0	1	0	4			**64**	63.3
15:30	**15:45**	64	7	3	0	0	2	7			**83**	77.7
15:45	16:00	45	10	0	0	0	0	1			**56**	55.2
16:00	16:15	49	7	2	0	1	1	1			**61**	61.6
16:15	16:30	55	7	1	0	0	4	6			**73**	66.3
16:30	**16:45**	50	10	1	0	1	1	0			**63**	63.9
16:45	17:00	57	8	0	0	0	0	1			**66**	65.2
17:00	17:15	60	6	2	0	1	3	3			**75**	72.8
17:15	17:30	59	7	3	0	0	3	7			**79**	73.1
17:30	**17:45**	62	6	1	0	0	2	6			**77**	71.5
17:45	18:00	57	5	0	0	0	2	4			**68**	63.6
	P/TOT	**1033**	**171**	**47**	**1**	**11**	**27**	**62**	**0**	**0**	**1352**	**1322**
Period I Total:		361	79	30	1	6	6	20	0	0	**503**	505.7
Period II Total:		672	92	17	0	5	21	42	0	0	**849**	816.3

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU.h
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		01:00	01:00	01:00	01:00	01:00	01:00	01:00			01:00	01:00
07:30	**08:30**	**157**	**47**	**15**	**1**	**3**	**3**	**12**			**238**	238.4
07:45	08:45	184	40	15	1	1	4	13			**258**	255
08:00	09:00	207	34	13	0	2	6	12			**274**	269.3
08:15	09:15	207	33	14	0	1	5	12			**272**	267.4
08:30	**09:30**	**204**	**32**	**15**	**0**	**3**	**3**	**8**			**265**	**267.3**
08:45	09:45	144	23	11	0	3	2	5			**188**	191.3
09:00	10:00	77	15	9	0	2	0	5			**108**	110.5
09:15	10:15	39	8	4	0	2	0	2			**55**	57.4
15:00	16:00	223	36	7	0	2	5	14			**287**	278.3
15:15	16:15	206	32	8	0	2	3	13			**264**	257.8
15:30	**16:30**	**213**	**31**	**6**	**0**	**1**	**7**	**15**			**273**	**260.8**
15:45	16:45	199	34	4	0	2	6	8			**253**	247
16:00	17:00	211	32	4	0	2	6	8			**263**	257
16:15	17:15	222	31	4	0	2	8	10			**277**	268.2
16:30	**17:30**	**226**	**31**	**6**	**0**	**2**	**7**	**11**			**283**	275
16:45	17:45	238	27	6	0	1	8	17			**297**	282.6
17:00	18:00	238	24	6	0	1	10	20			**299**	**281**
17:15	18:15	178	18	4	0	0	7	17			**224**	208.2
17:30	**18:30**	**119**	**11**	**1**	**0**	**0**	**4**	**10**			**145**	135.1
17:45	18:45	57	5	0	0	0	2	4			**68**	63.6
	P/TOT	**1033**	**171**	**47**	**1**	**11**	**27**	**62**	**0**	**0**	**1352**	**1322**

SITE: **2**
LOCATION: Manor Road / Sainsbury's Access
TOTAL ARMS:

from arm: **C**
to arm: **A**

period I period II
from: 07:30 15:00
to: 09:30 18:00

DATE: 02/10/2018
DAY: Tuesday

per quarter of an hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		00:15	00:15	00:15	00:15	00:15	00:15	00:15			00:15	00:15
07:30	**07:45**	8	1	0	0	2	0	0			**11**	13
07:45	08:00	3	3	0	0	3	0	0			**9**	12
08:00	08:15	8	1	0	0	1	1	0			**11**	11.4
08:15	08:30	5	3	0	0	2	0	0			**10**	12
08:30	**08:45**	5	2	0	0	0	0	0			**7**	7
08:45	09:00	6	1	1	0	0	0	0			**8**	8.5
09:00	09:15	14	1	0	0	0	0	0			**15**	15
09:15	09:30	11	1	0	0	2	0	0			**14**	16
15:00	15:15	13	1	0	0	1	0	0			**15**	16
15:15	15:30	9	1	0	0	2	0	0			**12**	14
15:30	**15:45**	9	0	0	0	1	0	0			**10**	11
15:45	16:00	13	2	0	0	2	0	0			**17**	19
16:00	16:15	15	1	0	0	1	0	1			**18**	18.2
16:15	16:30	17	2	0	0	2	0	0			**21**	23
16:30	**16:45**	8	0	0	0	1	0	1			**10**	10.2
16:45	17:00	12	3	0	0	1	0	0			**16**	17
17:00	17:15	12	1	0	0	2	0	0			**15**	17
17:15	17:30	5	1	0	0	1	0	0			**7**	8
17:30	**17:45**	17	0	1	0	1	0	1			**20**	20.7
17:45	18:00	5	0	0	0	2	1	0			**8**	9.4
	P/TOT	**195**	**25**	**2**	**0**	**27**	**2**	**3**	**0**	**0**	**254**	**278.4**
Period I Total:		60	13	1	0	10	1	0	0	0	**85**	94.9
Period II Total:		135	12	1	0	17	1	3	0	0	**169**	183.5

per hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU.h
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		01:00	01:00	01:00	01:00	01:00	01:00	01:00			01:00	01:00
07:30	**08:30**	**24**	**8**	**0**	**0**	**8**	**1**	**0**			**41**	48.4
07:45	08:45	21	9	0	0	6	1	0			**37**	42.4
08:00	09:00	24	7	1	0	3	1	0			**36**	38.9
08:15	09:15	30	7	1	0	2	0	0			**40**	42.5
08:30	**09:30**	**36**	**5**	**1**	**0**	**2**	**0**	**0**			**44**	**46.5**
08:45	09:45	31	3	1	0	2	0	0			**37**	39.5
09:00	10:00	25	2	0	0	2	0	0			**29**	31
09:15	10:15	11	1	0	0	2	0	0			**14**	16
15:00	16:00	44	4	0	0	6	0	0			**54**	60
15:15	16:15	46	4	0	0	6	0	1			**57**	62.2
15:30	**16:30**	**54**	**5**	**0**	**0**	**6**	**0**	**1**			**66**	**71.2**
15:45	16:45	53	5	0	0	6	0	2			**66**	70.4
16:00	17:00	52	6	0	0	5	0	2			**65**	68.4
16:15	17:15	49	6	0	0	6	0	1			**62**	67.2
16:30	**17:30**	**37**	**5**	**0**	**0**	**5**	**0**	**1**			**48**	52.2
16:45	17:45	46	5	1	0	5	0	1			**58**	62.7
17:00	18:00	39	2	1	0	6	1	1			**50**	**55.1**
17:15	18:15	27	1	1	0	4	1	1			**35**	38.1
17:30	**18:30**	**22**	**0**	**1**	**0**	**3**	**1**	**1**			**28**	30.1
17:45	18:45	5	0	0	0	2	1	0			**8**	9.4
	P/TOT	**195**	**25**	**2**	**0**	**27**	**2**	**3**	**0**	**0**	**254**	**278.4**

SITE: **2**
LOCATION: Manor Road / Sainsbury's Access
TOTAL ARMS: A B C

from arm: **C**
to arm: **B**

period I period II
from: 07:30 15:00
to: 09:30 18:00

DATE: 02/10/2018
DAY: Tuesday

per quarter of an hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		00:15	00:15	00:15	00:15	00:15	00:15	00:15			00:15	00:15
07:30	**07:45**	5	1	0	0	0	0	0			**6**	6
07:45	08:00	5	2	1	0	0	0	0			**8**	8.5
08:00	08:15	10	2	0	0	0	0	0			**12**	12
08:15	08:30	5	1	1	0	0	0	2			**9**	7.9
08:30	**08:45**	6	1	1	0	0	0	0			**8**	8.5
08:45	09:00	8	0	0	0	0	1	0			**9**	8.4
09:00	09:15	8	0	0	0	0	0	0			**8**	8
09:15	09:30	3	2	1	0	0	0	1			**7**	6.7
15:00	15:15	16	1	0	0	0	0	0			**17**	17
15:15	15:30	19	1	0	0	0	0	3			**23**	20.6
15:30	**15:45**	20	0	1	0	0	0	4			**25**	22.3
15:45	16:00	11	2	0	0	0	0	1			**14**	13.2
16:00	16:15	13	2	1	0	0	0	0			**16**	16.5
16:15	16:30	21	1	0	0	0	1	5			**28**	23.4
16:30	**16:45**	13	2	0	0	0	0	0			**15**	15
16:45	17:00	17	1	0	0	0	0	0			**18**	18
17:00	17:15	16	1	0	0	0	1	2			**20**	17.8
17:15	17:30	17	1	2	0	0	0	3			**23**	21.6
17:30	**17:45**	22	2	1	0	0	1	2			**28**	26.3
17:45	18:00	14	0	0	0	0	0	0			**14**	14
	P/TOT	**249**	**23**	**9**	**0**	**0**	**4**	**23**	**0**	**0**	**308**	**291.7**
Period I Total:		50	9	4	0	0	1	3	0	0	**67**	66
Period II Total:		199	14	5	0	0	3	20	0	0	**241**	225.7

per hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU.h
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		01:00	01:00	01:00	01:00	01:00	01:00	01:00			01:00	01:00
07:30	**08:30**	**25**	**6**	**2**	**0**	**0**	**0**	**2**			**35**	34.4
07:45	08:45	26	6	3	0	0	0	2			**37**	36.9
08:00	09:00	29	4	2	0	0	1	2			**38**	36.8
08:15	09:15	27	2	2	0	0	1	2			**34**	32.8
08:30	**09:30**	**25**	**3**	**2**	**0**	**0**	**1**	**1**			**32**	**31.6**
08:45	09:45	19	2	1	0	0	1	1			**24**	23.1
09:00	10:00	11	2	1	0	0	0	1			**15**	14.7
09:15	10:15	3	2	1	0	0	0	1			**7**	6.7
15:00	16:00	66	4	1	0	0	0	8			**79**	73.1
15:15	16:15	63	5	2	0	0	0	8			**78**	72.6
15:30	**16:30**	**65**	**5**	**2**	**0**	**0**	**1**	**10**			**83**	**75.4**
15:45	16:45	58	7	1	0	0	1	6			**73**	68.1
16:00	17:00	64	6	1	0	0	1	5			**77**	72.9
16:15	17:15	67	5	0	0	0	2	7			**81**	74.2
16:30	**17:30**	**63**	**5**	**2**	**0**	**0**	**1**	**5**			**76**	72.4
16:45	17:45	72	5	3	0	0	2	7			**89**	83.7
17:00	18:00	69	4	3	0	0	2	7			**85**	**79.7**
17:15	18:15	53	3	3	0	0	1	5			**65**	61.9
17:30	**18:30**	**36**	**2**	**1**	**0**	**0**	**1**	**2**			**42**	40.3
17:45	18:45	14	0	0	0	0	0	0			**14**	14
	P/TOT	**249**	**23**	**9**	**0**	**0**	**4**	**23**	**0**	**0**	**308**	**291.7**

SITE: **2**
LOCATION: Manor Road / Sainsbury's Access
TOTAL ARMS: A B C

from arm: **C**
to arm: **C**

period I period II
from: 07:30 15:00
to: 09:30 18:00

DATE: 02/10/2018
DAY: Tuesday

per quarter of an hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		00:15	00:15	00:15	00:15	00:15	00:15	00:15			00:15	00:15
07:30	**07:45**	0	0	0	0	0	0	0			**0**	0
07:45	08:00	0	0	0	0	0	0	0			**0**	0
08:00	08:15	0	0	0	0	0	0	0			**0**	0
08:15	08:30	0	0	0	0	0	0	0			**0**	0
08:30	**08:45**	0	0	0	0	0	0	0			**0**	0
08:45	09:00	0	0	0	0	0	0	0			**0**	0
09:00	09:15	0	0	0	0	0	0	0			**0**	0
09:15	09:30	0	0	0	0	0	0	0			**0**	0
15:00	15:15	0	0	0	0	0	0	0			**0**	0
15:15	15:30	0	0	0	0	0	0	0			**0**	0
15:30	**15:45**	0	0	0	0	0	0	0			**0**	0
15:45	16:00	0	0	0	0	0	0	0			**0**	0
16:00	16:15	0	0	0	0	0	0	0			**0**	0
16:15	16:30	0	0	0	0	0	0	0			**0**	0
16:30	**16:45**	0	0	0	0	0	0	0			**0**	0
16:45	17:00	0	0	0	0	0	0	0			**0**	0
17:00	17:15	0	0	0	0	0	0	0			**0**	0
17:15	17:30	0	0	0	0	0	0	0			**0**	0
17:30	**17:45**	0	0	0	0	0	0	0			**0**	0
17:45	18:00	0	0	0	0	0	0	0			**0**	0
	P/TOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Period I Total:		0	0	0	0	0	0	0	0	0	**0**	0
Period II Total:		0	0	0	0	0	0	0	0	0	**0**	0

per hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU.h
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		01:00	01:00	01:00	01:00	01:00	01:00	01:00			01:00	01:00
07:30	**08:30**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			**0**	0
07:45	08:45	0	0	0	0	0	0	0			**0**	0
08:00	09:00	0	0	0	0	0	0	0			**0**	0
08:15	09:15	0	0	0	0	0	0	0			**0**	0
08:30	**09:30**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			**0**	**0**
08:45	09:45	0	0	0	0	0	0	0			**0**	0
09:00	10:00	0	0	0	0	0	0	0			**0**	0
09:15	10:15	0	0	0	0	0	0	0			**0**	0
15:00	16:00	0	0	0	0	0	0	0			**0**	0
15:15	16:15	0	0	0	0	0	0	0			**0**	0
15:30	**16:30**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			**0**	**0**
15:45	16:45	0	0	0	0	0	0	0			**0**	0
16:00	17:00	0	0	0	0	0	0	0			**0**	0
16:15	17:15	0	0	0	0	0	0	0			**0**	0
16:30	**17:30**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			**0**	0
16:45	17:45	0	0	0	0	0	0	0			**0**	0
17:00	18:00	0	0	0	0	0	0	0			**0**	**0**
17:15	18:15	0	0	0	0	0	0	0			**0**	0
17:30	**18:30**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			**0**	0
17:45	18:45	0	0	0	0	0	0	0			**0**	0
	P/TOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

SITE: **2**
LOCATION: Manor Road / Sainsbury's Access
TOTAL ARMS: A B C

from arm: **C**
to arm: **all**

period I period II
from: 07:30 15:00
to: 09:30 18:00

DATE: 02/10/2018
DAY: Tuesday

per quarter of an hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		00:15	00:15	00:15	00:15	00:15	00:15	00:15			00:15	00:15
07:30	**07:45**	13	2	0	0	2	0	0			**17**	19
07:45	08:00	8	5	1	0	3	0	0			**17**	20.5
08:00	08:15	18	3	0	0	1	1	0			**23**	23.4
08:15	08:30	10	4	1	0	2	0	2			**19**	19.9
08:30	**08:45**	11	3	1	0	0	0	0			**15**	15.5
08:45	09:00	14	1	1	0	0	1	0			**17**	16.9
09:00	09:15	22	1	0	0	0	0	0			**23**	23
09:15	09:30	14	3	1	0	2	0	1			**21**	22.7
15:00	15:15	29	2	0	0	1	0	0			**32**	33
15:15	15:30	28	2	0	0	2	0	3			**35**	34.6
15:30	**15:45**	29	0	1	0	1	0	4			**35**	33.3
15:45	16:00	24	4	0	0	2	0	1			**31**	32.2
16:00	16:15	28	3	1	0	1	0	1			**34**	34.7
16:15	16:30	38	3	0	0	2	1	5			**49**	46.4
16:30	**16:45**	21	2	0	0	1	0	1			**25**	25.2
16:45	17:00	29	4	0	0	1	0	0			**34**	35
17:00	17:15	28	2	0	0	2	1	2			**35**	34.8
17:15	17:30	22	2	2	0	1	0	3			**30**	29.6
17:30	**17:45**	39	2	2	0	1	1	3			**48**	47
17:45	18:00	19	0	0	0	2	1	0			**22**	23.4
	P/TOT	**444**	**48**	**11**	**0**	**27**	**6**	**26**	**0**	**0**	**562**	**570.1**
Period I Total:		110	22	5	0	10	2	3	0	0	**152**	160.9
Period II Total:		334	26	6	0	17	4	23	0	0	**410**	409.2

per hour

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU.h
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		01:00	01:00	01:00	01:00	01:00	01:00	01:00			01:00	01:00
07:30	**08:30**	**49**	**14**	**2**	**0**	**8**	**1**	**2**			**76**	82.8
07:45	08:45	47	15	3	0	6	1	2			**74**	79.3
08:00	09:00	53	11	3	0	3	2	2			**74**	75.7
08:15	09:15	57	9	3	0	2	1	2			**74**	75.3
08:30	**09:30**	**61**	**8**	**3**	**0**	**2**	**1**	**1**			**76**	**78.1**
08:45	09:45	50	5	2	0	2	1	1			**61**	62.6
09:00	10:00	36	4	1	0	2	0	1			**44**	45.7
09:15	10:15	14	3	1	0	2	0	1			**21**	22.7
15:00	16:00	110	8	1	0	6	0	8			**133**	133.1
15:15	16:15	109	9	2	0	6	0	9			**135**	134.8
15:30	**16:30**	**119**	**10**	**2**	**0**	**6**	**1**	**11**			**149**	**146.6**
15:45	16:45	111	12	1	0	6	1	8			**139**	138.5
16:00	17:00	116	12	1	0	5	1	7			**142**	141.3
16:15	17:15	116	11	0	0	6	2	8			**143**	141.4
16:30	**17:30**	**100**	**10**	**2**	**0**	**5**	**1**	**6**			**124**	124.6
16:45	17:45	118	10	4	0	5	2	8			**147**	146.4
17:00	18:00	108	6	4	0	6	3	8			**135**	**134.8**
17:15	18:15	80	4	4	0	4	2	6			**100**	100
17:30	**18:30**	**58**	**2**	**2**	**0**	**3**	**2**	**3**			**70**	70.4
17:45	18:45	19	0	0	0	2	1	0			**22**	23.4
	P/TOT	**444**	**48**	**11**	**0**	**27**	**6**	**26**	**0**	**0**	**562**	**570.1**

SITE: **2**
LOCATION: Manor Road / Sainsbury's Access
TOTAL ARMS: A B C

from arm: **all**
to arm: **C**

period I period II
from: 07:30 15:00
to: 09:30 18:00

DATE: 02/10/2018
DAY: Tuesday

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		00:15	00:15	00:15	00:15	00:15	00:15	00:15			00:15	00:15
07:30	**07:45**	13	2	1	0	0	1	0			**17**	16.9
07:45	08:00	4	1	0	0	0	1	0			**6**	5.4
08:00	08:15	11	1	0	0	0	0	0			**12**	12
08:15	08:30	6	1	0	0	0	0	1			**8**	7.2
08:30	**08:45**	13	1	0	0	0	0	0			**14**	14
08:45	09:00	9	2	0	0	0	0	1			**12**	11.2
09:00	09:15	16	3	0	0	0	0	1			**20**	19.2
09:15	09:30	19	0	1	0	0	0	0			**20**	20.5
15:00	15:15	11	1	0	0	0	0	1			**13**	12.2
15:15	15:30	18	1	0	0	0	0	0			**19**	19
15:30	**15:45**	19	2	0	0	0	0	0			**21**	21
15:45	16:00	22	1	0	0	0	0	2			**25**	23.4
16:00	16:15	23	0	0	0	0	2	1			**26**	24
16:15	16:30	13	0	0	0	0	0	0			**13**	13
16:30	**16:45**	27	1	0	0	0	0	0			**28**	28
16:45	17:00	12	0	0	0	0	0	2			**14**	12.4
17:00	17:15	21	1	0	0	0	0	2			**24**	22.4
17:15	17:30	34	3	1	0	0	0	1			**39**	38.7
17:30	**17:45**	27	1	0	0	0	1	2			**31**	28.8
17:45	18:00	15	2	1	0	0	0	1			**19**	18.7
	P/TOT	**333**	**24**	**4**	**0**	**0**	**5**	**15**	**0**	**0**	**381**	**368**
Period I Total:		91	11	2	0	0	2	3	0	0	**109**	106.4
Period II Total:		242	13	2	0	0	3	12	0	0	**272**	261.6

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU.h
PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		01:00	01:00	01:00	01:00	01:00	01:00	01:00			01:00	01:00
07:30	**08:30**	**34**	**5**	**1**	**0**	**0**	**2**	**1**			**43**	41.5
07:45	08:45	34	4	0	0	0	1	1			**40**	38.6
08:00	09:00	39	5	0	0	0	0	2			**46**	44.4
08:15	09:15	44	7	0	0	0	0	3			**54**	51.6
08:30	**09:30**	**57**	**6**	**1**	**0**	**0**	**0**	**2**			**66**	**64.9**
08:45	09:45	44	5	1	0	0	0	2			**52**	50.9
09:00	10:00	35	3	1	0	0	0	1			**40**	39.7
09:15	10:15	19	0	1	0	0	0	0			**20**	20.5
15:00	16:00	70	5	0	0	0	0	3			**78**	75.6
15:15	16:15	82	4	0	0	0	2	3			**91**	87.4
15:30	**16:30**	**77**	**3**	**0**	**0**	**0**	**2**	**3**			**85**	**81.4**
15:45	16:45	85	2	0	0	0	2	3			**92**	88.4
16:00	17:00	75	1	0	0	0	2	3			**81**	77.4
16:15	17:15	73	2	0	0	0	0	4			**79**	75.8
16:30	**17:30**	**94**	**5**	**1**	**0**	**0**	**0**	**5**			**105**	101.5
16:45	17:45	94	5	1	0	0	1	7			**108**	102.3
17:00	18:00	97	7	2	0	0	1	6			**113**	**108.6**
17:15	18:15	76	6	2	0	0	1	4			**89**	86.2
17:30	**18:30**	**42**	**3**	**1**	**0**	**0**	**1**	**3**			**50**	47.5
17:45	18:45	15	2	1	0	0	0	1			**19**	18.7
	P/TOT	**333**	**24**	**4**	**0**	**0**	**5**	**15**	**0**	**0**	**381**	**368**

SITE: **2**
LOCATION: Manor Road / Sainsbury's Access
TOTAL ARMS: A B C

from arm: **all**
to arm: **all**

period I period II
from: 07:30 15:00
to: 09:30 18:00

DATE: 02/10/2018
DAY: Tuesday

from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU		from	to	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			TOT	PCU.h
PCU factor		1	1	1.5	2.3	2	0.4	0.2						PCU factor		1	1	1.5	2.3	2	0.4	0.2				
INTERVAL		00:15	00:15	00:15	00:15	00:15	00:15	00:15			00:15	00:15		INTERVAL		01:00	01:00	01:00	01:00	01:00	01:00	01:00			01:00	01:00
07:30	**07:45**	123	31	8	0	7	5	4			**178**	182.8	AM	**07:30**	**08:30**	**436**	**93**	**23**	**3**	**16**	**16**	**26**			**613**	614
07:45	08:00	96	23	5	1	5	2	3			**135**	140.2	AM	07:45	08:45	448	83	20	3	9	16	28			**607**	597.9
08:00	08:15	110	19	5	1	2	6	8			**151**	146.8	AM	08:00	09:00	510	84	18	3	5	17	29			**666**	650.5
08:15	08:30	107	20	5	1	2	3	11			**149**	144.2	AM	08:15	09:15	522	79	20	2	3	12	26			**664**	651.6
08:30	**08:45**	135	21	5	0	0	5	6			**172**	166.7	AM	**08:30**	**09:30**	**541**	**77**	**21**	**1**	**6**	**10**	**17**			**673**	**671.2**
08:45	09:00	158	24	3	1	1	3	4			**194**	192.8	AM	08:45	09:45	406	56	16	1	6	5	11			**501**	504.5
09:00	09:15	122	14	7	0	0	1	5			**149**	147.9	AM	09:00	10:00	248	32	13	0	5	2	7			**307**	311.7
09:15	09:30	126	18	6	0	5	1	2			**158**	163.8	AM	09:15	10:15	126	18	6	0	5	1	2			**158**	163.8
15:00	15:15	141	20	4	0	2	4	7			**178**	174	MID	15:00	16:00	529	84	19	3	10	9	23			**677**	676.6
15:15	15:30	111	21	8	1	4	1	5			**151**	155.7	MID	15:15	16:15	526	83	19	4	10	9	19			**670**	674.1
15:30	**15:45**	157	21	4	2	1	3	8			**196**	193.4	MID	**15:30**	**16:30**	**549**	**82**	**13**	**4**	**8**	**12**	**22**			**690**	**684.9**
15:45	16:00	120	22	3	0	3	1	3			**152**	153.5	MID	15:45	16:45	528	82	13	2	9	11	18			**663**	660.1
16:00	16:15	138	19	4	1	2	4	3			**171**	171.5	PM	16:00	17:00	539	82	11	2	8	11	19			**672**	666.3
16:15	16:30	134	20	2	1	2	4	8			**171**	166.5	PM	16:15	17:15	542	88	9	1	10	11	23			**684**	674.8
16:30	**16:45**	136	21	4	0	2	2	4			**169**	168.6	PM	**16:30**	**17:30**	**590**	**94**	**12**	**0**	**9**	**11**	**27**			**743**	729.8
16:45	17:00	131	22	1	0	2	1	4			**161**	159.7	PM	16:45	17:45	624	88	14	0	8	16	33			**783**	762
17:00	17:15	141	25	2	0	4	4	7			**183**	180	PM	17:00	18:00	642	85	14	0	8	19	36			**804**	**778.8**
17:15	17:30	182	26	5	0	1	4	12			**230**	221.5	PM	17:15	18:15	501	60	12	0	4	15	29			**621**	598.8
17:30	**17:45**	170	15	6	0	1	7	10			**209**	200.8	PM	**17:30**	**18:30**	**319**	**34**	**7**	**0**	**3**	**11**	**17**			**391**	377.3
17:45	18:00	149	19	1	0	2	4	7			**182**	176.5	PM	17:45	18:45	149	19	1	0	2	4	7			**182**	176.5
	P/TOT	**2687**	**421**	**88**	**9**	**48**	**65**	**121**	**0**	**0**	**3439**	**3407**			**P/TOT**	**2687**	**421**	**88**	**9**	**48**	**65**	**121**	**0**	**0**	**3439**	**3407**

Period I Total:	977	170	44	4	22	26	43	0	0	**1286**	1285
Period II Total:	1710	251	44	5	26	39	78	0	0	**2153**	2122

				from:	to:	
08:30	**09:30**	AM Peak Hour	AM	07:00	10:00	AM Peak PCU **671.2**
15:30	**16:30**	MID Peak Hour	MID	10:00	16:00	MID Peak PCU **684.9**
17:00	**18:00**	PM Peak Hour	PM	16:00	19:00	PM Peak PCU **778.8**
17:00	**18:00**	TOT Peak Hour				TOT Peak PCU **778.8**

APPENDIX D

Parking Stress Survey Report

Manor Road, Richmond

Parking Stress Survey Report

PARKING STRESS SURVEY REPORT

Development: Manor Road, Richmond

Location: London Borough of Richmond

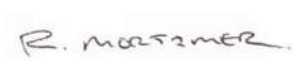
Client: Avanton Richmond Developments Limited

Project Manager: Roger Mortimer

Version No: V01

Date: 26/11/2018

Approvals:

Name	Signature	Title
Roger Mortimer		Project Manager
Penny Winder		Director

CONTENTS PAGE

1 INTRODUCTION

Avanton Richmond Developments Limited has commissioned Alpha Parking Ltd to undertake a parking stress survey around the development site known as Manor Road in Richmond.

The purpose of the survey is to examine the roads within 500 metres' walking distance of the site and establish the existing levels of "parking stress", meaning the percentage of the kerbside parking space occupied at peak periods. This information can be used to assess whether there would be sufficient spare capacity on the streets for any additional parking generated by the development or whether special measures would be needed to manage the pressure for parking space.

Further details of the survey project are given in the inception document shown in Appendix A and a plan of the development site and survey area is shown in Figure 1.

The idea of parking stress surveys arose following changes in government policy in the 1990s to address concerns about growth in car use. In order to limit the available parking spaces the previous requirements to provide parking within housing developments were dropped and, instead, planning authorities were given new powers to cap the number of spaces that developers might choose to provide. However, reducing the levels of parking space did not necessarily stop the new residents from wanting cars. This tended to put pressure on the parking facilities in surrounding roads and, in some cases, for parking demand to exceed the available capacity.

In response to this a number of local authorities, such as the The London Borough of Lambeth, realised the need to assess such problems at the planning stage and the concept of "planning/parking stress surveys" came into being. These allowed early identification of likely problems and meant that protective measures (often in the form of parking restrictions on the streets) could be brought in with, and funded by, the development. The London Borough of Lambeth produced what are recognised as the standard guidelines on how to approach these surveys the “Lambeth Methodology”. This approach is used as the basis for this survey.

2 PROJECT APPROACH

Alpha Parking Ltd recognises that the parking stress survey method developed by Lambeth Council has become an unofficial standard for this type of work and we use this as a basis for our surveys. This standard approach has an added benefit in allowing the results to be readily understood by anyone familiar with previous surveys.

However, we recommend that survey times and technical standards (such as the nominal length of road occupied by a parked vehicle) are tailored to reflect the preferences of the particular local authority involved and we plan the surveys to reflect these requirements.

Every Planning Department will decide on the parking situation on a case by case basis. This means that it is not possible to predict the planning decision, therefore the surveys are providing an independent and professional set of results to facilitate the decision rather than a conclusion. As an indication of the message from the results we would suggest that 85% is an indicative level at which parking stress becomes a cause for concern after allowance has been made for parking generated by the development. At this point, residents will begin to have difficulty parking close to their homes. Anything over 95% represents a situation where full capacity has effectively been reached. The use of a 500 metre walking distance to define the roads affected by the development is accepted as standard practice.

3 METHODOLOGY

Background Assessment

An initial assessment was made taking into account the following factors:-

- The size and nature of the development
- Setting of development – residential/industrial etc, proximity to shopping centres, schools, railway stations etc
- Parking provisions within the development
- Other transport improvements linked to the development.

Surveys

The survey area and the times and days of the surveys were defined taking into account the results of the background assessment. Within each road, the lengths of each section of restricted or unrestricted parking were measured and recorded, together with the number of vehicles parked upon that section and the lengths of any dropped kerbs.The position of skips was also noted, as well as any other unexpected items on the roads.

Analysis

The lengths of restricted and unrestricted parking recorded on site were converted into equivalent numbers of parking spaces, assuming a 5.5 metre length for each space. Any sections with dropped kerbs were excluded from the calculation, as were any lengths of less than 5.5 metres.

4 RESULTS

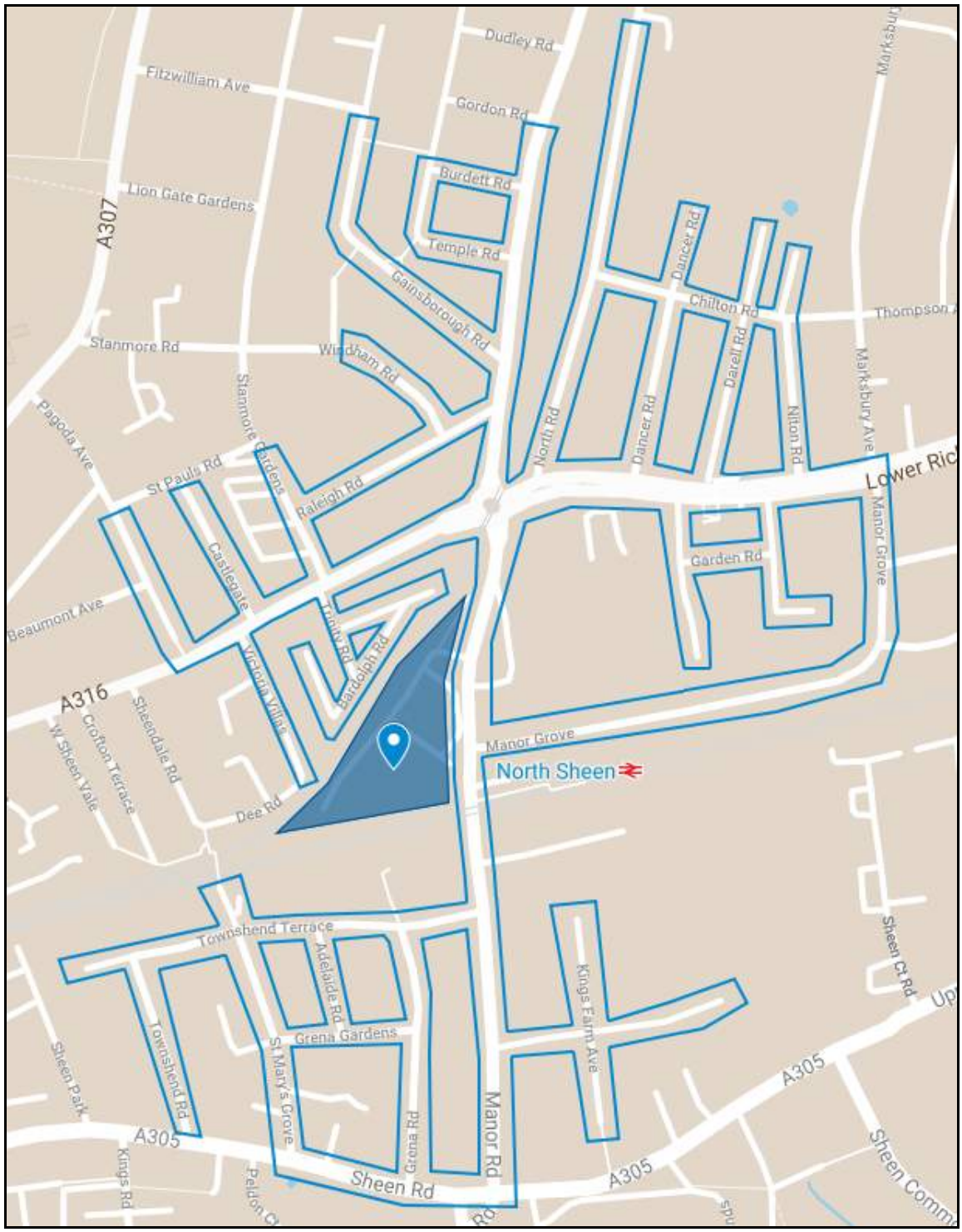
Surveys

The area surveyed is shown on the plan in Figure 1 and the roads surveyed together with any additional comments are listed underneath each table.

The surveys took place between 01:00 – 05:30, 09:00 – 10:00 and 13:00 – 14:00 on Monday 12th and Tuesday 13th November 2018.

The tables show a detailed breakdown of the results for both days and beats and what restrictions are in place on the streets within the survey area.

Figure 1 – Survey Area



- *The shaded area/pin drop shows the site location*

Adelaide Road

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Disabled	0	0	1	0.00%	1	0.00%	1	0.00%	1	0.00%	1	0.00%	1	0.00%
Resident Permit Holder	10	10	8	80.00%	9	90.00%	8	80.00%	8	80.00%	8	80.00%	8	80.00%
Resident Permit Holder & Limited Waiting	4	4	3	75.00%	3	75.00%	4	100.00%	4	100.00%	4	100.00%	4	100.00%
Single Yellow/Red Lines	0	15	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Total	**14**	**29**	**12**	**85.71%**	**13**	**92.86%**	**13**	**44.83%**	**13**	**92.86%**	**13**	**92.86%**	**13**	**44.83%**

Bardolph Road

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Pay & Display	2	3	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Resident Permit Holders	13	17	10	76.92%	10	76.92%	12	70.59%	10	76.92%	10	76.92%	12	70.59%
Single Yellow/Red Lines	0	2	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Total	**15**	**22**	**10**	**66.67%**	**10**	**66.67%**	**12**	**54.55%**	**10**	**66.67%**	**10**	**66.67%**	**12**	**54.55%**

Burdett Road

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Disabled	1	1	1	100.00%	0	0.00%	1	100.00%	1	100.00%	0	0.00%	1	100.00%
Limited Waiting	2	2	2	100.00%	1	50.00%	0	0.00%	2	100.00%	2	100.00%	0	0.00%
Resident Permit Holder	18	18	13	72.22%	14	77.78%	17	94.44%	12	66.67%	14	77.78%	17	94.44%
Total	**21**	**21**	**16**	**76.19%**	**15**	**71.43%**	**18**	**85.71%**	**15**	**71.43%**	**16**	**76.19%**	**18**	**85.71%**

Carrington Road

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Disabled	2	2	1	50.00%	1	50.00%	2	100.00%	2	100.00%	2	100.00%	2	100.00%
Unrestricted	48	48	32	66.67%	30	62.50%	40	83.33%	28	58.33%	28	58.33%	41	85.42%
Total	**50**	**50**	**33**	**66.00%**	**31**	**62.00%**	**42**	**84.00%**	**30**	**60.00%**	**30**	**60.00%**	**43**	**86.00%**

Castlegate

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Disabled	1	1	0	0.00%	1	100.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Resident Permit Holder	27	27	23	85.19%	22	81.48%	26	96.30%	20	74.07%	21	77.78%	24	88.89%
Resident Permit Holder & Limited Waiting	4	4	4	100.00%	4	100.00%	3	75.00%	4	100.00%	4	100.00%	3	75.00%
Single Yellow/Red Lines	0	13	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Total	**32**	**45**	**27**	**84.38%**	**27**	**84.38%**	**29**	**64.44%**	**24**	**75.00%**	**25**	**78.13%**	**27**	**60.00%**

Chilton Road

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %

Resident Permit Holder	19	19	14	73.68%	14	73.68%	17	89.47%	14	73.68%	13	68.42%	17	89.47%		
Unrestricted	25	25	20	80.00%	19	76.00%	22	88.00%	20	80.00%	20	80.00%	21	84.00%		
Total	**44**	**44**	**34**	**77.27%**	**33**	**75.00%**	**39**	**88.64%**	**34**	**77.27%**	**33**	**75.00%**	**38**	**86.36%**		

Dancer Road

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Disabled	1	1	1	100.00%	1	100.00%	1	100.00%	1	100.00%	1	100.00%	1	100.00%
Resident Permit Holder	79	79	53	67.09%	51	64.56%	67	84.81%	50	63.29%	51	64.56%	67	84.81%
Total	**80**	**87**	**54**	**67.50%**	**52**	**65.00%**	**68**	**78.16%**	**51**	**63.75%**	**52**	**65.00%**	**68**	**78.16%**

Darrel Road

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Disabled	1	1	0	0.00%	0	0.00%	1	100.00%	0	0.00%	0	0.00%	1	100.00%
School Keep Clear	6	6	1	16.67%	0	0.00%	0	0.00%	2	33.33%	0	0.00%	0	0.00%
Unrestricted	65	65	47	72.31%	49	75.38%	52	80.00%	48	73.85%	48	73.85%	53	81.54%
Total	**72**	**81**	**48**	**66.67%**	**49**	**68.06%**	**53**	**65.43%**	**50**	**69.44%**	**48**	**66.67%**	**54**	**66.67%**

* School Keep Clear restriction applies Monday - Friday between 08.00 to 09.30 and 14.30-16.30

Gainsborough Road

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Car Club	1	1	1	100.00%	1	100.00%	1	100.00%	1	100.00%	1	100.00%	1	100.00%
Limited Waiting	2	2	1	50.00%	1	50.00%	0	0.00%	0	0.00%	0	0.00%	1	50.00%
Resident Permit Holder	82	82	55	67.07%	59	71.95%	76	92.68%	51	62.20%	56	68.29%	76	92.68%
Single Yellow/Red Lines	0	4	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Total	**85**	**89**	**57**	**67.06%**	**61**	**71.76%**	**77**	**86.52%**	**52**	**61.18%**	**57**	**67.06%**	**78**	**87.64%**

Garden Road

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Unrestricted	19	19	17	89.47%	17	89.47%	14	73.68%	18	94.74%	17	89.47%	14	73.68%
Total	**19**	**19**	**17**	**89.47%**	**17**	**89.47%**	**14**	**73.68%**	**18**	**94.74%**	**17**	**89.47%**	**14**	**73.68%**

Grena Gardens

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Disabled	2	2	1	50.00%	1	50.00%	2	100.00%	2	100.00%	1	50.00%	2	100.00%
Resident Permit Holder	16	16	12	75.00%	12	75.00%	13	81.25%	11	68.75%	12	75.00%	13	81.25%
Resident Permit Holder & Limited Waiting	2	2	2	100.00%	2	100.00%	2	100.00%	2	100.00%	2	100.00%	2	100.00%
Single Yellow/Red Line	0	14	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Total	**20**	**34**	**15**	**75.00%**	**15**	**75.00%**	**17**	**50.00%**	**15**	**75.00%**	**15**	**75.00%**	**17**	**50.00%**

Grena Road

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Resident Permit Holder	25	25	23	92.00%	22	88.00%	24	96.00%	22	88.00%	21	84.00%	24	96.00%
Resident Permit Holder & Limited Waiting	5	5	2	40.00%	2	40.00%	4	80.00%	3	60.00%	3	60.00%	4	80.00%
Total	**30**	**31**	**25**	**83.33%**	**24**	**80.00%**	**28**	**93.33%**	**25**	**83.33%**	**24**	**80.00%**	**28**	**93.33%**

Kings Farm Avenue

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Disabled	3	3	4	133.33%	3	100.00%	4	133.33%	3	100.00%	3	100.00%	4	133.33%
Unrestricted	52	52	38	73.08%	37	71.15%	44	84.62%	38	73.08%	37	71.15%	45	86.54%
Total	**55**	**55**	**42**	**76.36%**	**40**	**72.73%**	**48**	**87.27%**	**41**	**74.55%**	**40**	**72.73%**	**49**	**89.09%**

Lower Mortlake Road

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Loading & Disabled	4	4	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Resident Permit Holder	6	6	5	83.33%	5	83.33%	5	83.33%	5	83.33%	5	83.33%	5	83.33%
Resident Permit Holder & Limited Waiting	2	2	4	200.00%	4	200.00%	4	200.00%	4	200.00%	4	200.00%	4	200.00%
Total	**12**	**12**	**9**	**75.00%**	**9**	**75.00%**	**9**	**75.00%**	**9**	**75.00%**	**9**	**75.00%**	**9**	**75.00%**

Lower Richmond Road

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Loading	2	2	0	0.00%	0	0.00%	0	0.00%	1	50.00%	0	0.00%	0	0.00%
Limited Waiting	4	4	2	50.00%	1	25.00%	0	0.00%	0	0.00%	1	25.00%	0	0.00%
Single Yellow/Red Lines	0	40	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Total	**6**	**46**	**2**	**33.33%**	**1**	**16.67%**	**0**	**0.00%**	**1**	**16.67%**	**1**	**16.67%**	**0**	**0.00%**

Manor Gardnes

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Resident Permit Holder	10	10	8	80.00%	8	80.00%	8	80.00%	8	80.00%	8	80.00%	8	80.00%
Resident Permit Holder & Limited Waiting	10	10	9	90.00%	9	90.00%	9	90.00%	8	80.00%	9	90.00%	8	80.00%
Total	**20**	**23**	**17**	**85.00%**	**17**	**85.00%**	**17**	**85.00%**	**16**	**80.00%**	**17**	**85.00%**	**16**	**80.00%**

Manor Grove

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Disabled	2	2	2	100.00%	2	100.00%	2	100.00%	1	50.00%	1	50.00%	2	100.00%
Unrestricted	190	190	116	61.05%	112	58.95%	127	66.84%	113	59.47%	107	56.32%	130	68.42%
Total	**192**	**192**	**118**	**61.46%**	**114**	**59.38%**	**129**	**67.19%**	**114**	**59.38%**	**108**	**56.25%**	**132**	**68.75%**

Manor Park

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Disabled	2	2	1	50.00%	1	50.00%	2	100.00%	2	100.00%	2	100.00%	2	100.00%
Unrestricted	22	22	20	90.91%	19	86.36%	21	95.45%	20	90.91%	20	90.91%	21	95.45%
Total	**24**	**24**	**21**	**87.50%**	**20**	**83.33%**	**23**	**95.83%**	**22**	**91.67%**	**22**	**91.67%**	**23**	**95.83%**

Manor Road

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Single Yellow/Red Lines	0	15	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Unrestricted	39	39	30	76.92%	29	74.36%	34	87.18%	27	69.23%	27	69.23%	34	87.18%
Total	**39**	**54**	**30**	**76.92%**	**29**	**74.36%**	**34**	**62.96%**	**27**	**69.23%**	**27**	**69.23%**	**34**	**62.96%**

Market Road

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Loading & Disabled	2	2	1	50.00%	1	50.00%	0	0.00%	1	50.00%	1	50.00%	0	0.00%
Single Yellow/Red Lines	0	2	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Unrestricted	8	8	6	75.00%	6	75.00%	3	37.50%	8	100.00%	7	87.50%	3	37.50%
Total	**10**	**12**	**7**	**70.00%**	**7**	**70.00%**	**3**	**25.00%**	**9**	**0.00%**	**8**	**80.00%**	**3**	**25.00%**

Niton Road

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
School Keep Clear	4	4	0	0.00%	0	0.00%	1	25.00%	0	0.00%	0	0.00%	1	25.00%
Unrestricted	31	31	21	67.74%	21	67.74%	22	70.97%	21	67.74%	19	61.29%	25	80.65%
Total	**35**	**35**	**21**	**60.00%**	**21**	**60.00%**	**23**	**65.71%**	**21**	**60.00%**	**19**	**54.29%**	**26**	**74.29%**

* School Keep Clear restriction applies Monday - Friday between 08.00 to 09.30 and 14.30-16.30

North Road

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Limited Waiting	3	3	2	66.67%	2	66.67%	3	100.00%	1	33.33%	3	100.00%	2	66.67%
Resident Permit Holder	108	108	67	62.04%	74	68.52%	95	87.96%	66	61.11%	71	65.74%	89	82.41%
Single Yellow/Red Lines	0	3	1	33.33%	0	0.00%	0	0.00%	0	0.00%	1	33.33%	0	0.00%
Total	**111**	**114**	**70**	**63.06%**	**76**	**68.47%**	**98**	**85.96%**	**67**	**60.36%**	**75**	**67.57%**	**91**	**79.82%**

Orchard Road

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Limited Waiting & Disabled	4	4	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Unrestricted	26	26	23	88.46%	23	88.46%	9	34.62%	25	96.15%	23	88.46%	8	30.77%

Total	**30**	**30**	**23**	**76.67%**	**23**	**76.67%**	**9**	**30.00%**	**25**	**83.33%**	**23**	**76.67%**	**8**	**26.67%**

Pagoda Avenue

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Resident Permit Holder	28	28	24	85.71%	23	82.14%	25	89.29%	22	78.57%	22	78.57%	26	92.86%
Resident Permit Holder & Limited Waiting	4	4	5	125.00%	5	125.00%	7	175.00%	5	125.00%	6	150.00%	7	175.00%
Total	**32**	**32**	**29**	**90.63%**	**28**	**87.50%**	**32**	**100.00%**	**27**	**84.38%**	**28**	**87.50%**	**33**	**103.13%**

Raleigh Road

			Day 1						Day 2					
Restriction Type	No. Spaces	No. Spaces	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Resident Permit Holder	64	64	63	98.44%	60	93.75%	68	106.25%	61	95.31%	61	95.31%	68	106.25%
Total	**64**	**64**	**63**	**98.44%**	**60**	**93.75%**	**68**	**106.25%**	**61**	**95.31%**	**61**	**95.31%**	**68**	**106.25%**

Sandycombe Road

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Single Yellow/Red Lines	0	13	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Unrestricted	41	41	36	87.80%	33	80.49%	39	95.12%	36	87.80%	36	87.80%	39	95.12%
Total	**41**	**54**	**36**	**87.80%**	**33**	**80.49%**	**39**	**72.22%**	**36**	**87.80%**	**36**	**87.80%**	**39**	**72.22%**

Sheen Road

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Resident Permit Holder	19	19	15	78.95%	14	73.68%	15	78.95%	15	78.95%	14	73.68%	15	78.95%
Resident Permit Holder & Limited Waiting	10	10	7	70.00%	7	70.00%	7	70.00%	8	80.00%	6	60.00%	7	70.00%
Single Yellow/Red Lines	0	12	0	0.00%	1	>100.00%	0	0.00%	0	0.00%	2	>100.00%	0	0.00%
Total	**29**	**41**	**22**	**75.86%**	**22**	**75.86%**	**22**	**53.66%**	**23**	**79.31%**	**22**	**75.86%**	**22**	**53.66%**

St George's Road

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Resident Permit Holder	26	26	15	57.69%	14	53.85%	14	53.85%	16	61.54%	14	53.85%	14	53.85%
Total	**26**	**26**	**15**	**57.69%**	**14**	**53.85%**	**14**	**53.85%**	**16**	**61.54%**	**14**	**53.85%**	**14**	**53.85%**

St Mary's Grove

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Resident Permit Holder	25	25	17	68.00%	17	68.00%	19	76.00%	17	68.00%	16	64.00%	18	72.00%
Resident Permit Holder & Limited Waiting	9	9	5	55.56%	4	44.44%	6	66.67%	6	66.67%	5	55.56%	5	55.56%
Total	**34**	**34**	**22**	**64.71%**	**21**	**61.76%**	**25**	**73.53%**	**23**	**67.65%**	**21**	**61.76%**	**23**	**67.65%**

Stanmore Grove

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Resident Permit Holder	15	15	12	80.00%	13	86.67%	16	106.67%	12	80.00%	12	80.00%	15	100.00%
Resident Permit Holder & Pay at Machine	13	13	11	84.62%	11	84.62%	11	84.62%	10	76.92%	10	76.92%	11	84.62%
Single Yellow/Red Lines	0	1	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Total	**28**	**29**	**23**	**82.14%**	**24**	**85.71%**	**27**	**93.10%**	**22**	**0.00%**	**22**	**78.57%**	**26**	**89.66%**

Temple Road

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Disabled	1	1	1	100.00%	1	100.00%	1	100.00%	1	100.00%	1	100.00%	1	100.00%
Limited Waiting	2	2	2	100.00%	2	100.00%	1	50.00%	0	0.00%	0	0.00%	1	50.00%
Resident Permit Holder	36	36	19	52.78%	19	52.78%	32	88.89%	21	58.33%	22	61.11%	31	86.11%
Total	**39**	**39**	**22**	**56.41%**	**22**	**56.41%**	**34**	**87.18%**	**22**	**56.41%**	**23**	**58.97%**	**33**	**84.62%**

Townshed Road

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night])	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Resident Permit Holder	31	31	23	74.19%	23	74.19%	29	93.55%	25	80.65%	26	83.87%	28	90.32%
Single Yellow/Red Lines	0	14	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Total	**31**	**45**	**23**	**74.19%**	**23**	**74.19%**	**29**	**64.44%**	**25**	**80.65%**	**26**	**83.87%**	**28**	**62.22%**

Townshed Terrace

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Disabled	1	1	1	100.00%	1	100.00%	1	100.00%	1	100.00%	1	100.00%	1	100.00%
Resident Permit Holder	40	40	30	75.00%	29	72.50%	28	70.00%	30	75.00%	28	70.00%	31	77.50%
Single Yellow/Red Lines	0	41	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	2.44%
Total	**41**	**82**	**31**	**75.61%**	**30**	**73.17%**	**29**	**35.37%**	**31**	**0.00%**	**29**	**70.73%**	**33**	**40.24%**

Trinity Cottages

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Resident Permit Holder	1	1	0	0.00%	0	0.00%	1	100.00%	1	100.00%	1	100.00%	1	100.00%
Total	**1**	**1**	**0**	**0.00%**	**0**	**0.00%**	**1**	**100.00%**	**1**	**100.00%**	**1**	**100.00%**	**1**	**100.00%**

Trinity Road

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Resident Permit Holder	19	19	8	42.11%	9	47.37%	14	73.68%	9	47.37%	7	36.84%	15	78.95%
Total	**19**	**19**	**8**	**42.11%**	**9**	**47.37%**	**14**	**73.68%**	**9**	**47.37%**	**7**	**36.84%**	**15**	**78.95%**

Victoria Villas

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Loading & Disabled	2	2	1	50.00%	1	50.00%	0	0.00%	0	0.00%	1	50.00%	0	0.00%
Resident Permit Holder	11	11	3	27.27%	3	27.27%	2	18.18%	3	27.27%	4	36.36%	2	18.18%
Resident Permit Holder & Pay at Machine	12	12	5	41.67%	4	33.33%	2	16.67%	3	25.00%	3	25.00%	2	16.67%
Single Yellow/Red Lines	0	3	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Total	**25**	**28**	**9**	**36.00%**	**8**	**32.00%**	**4**	**14.29%**	**6**	**24.00%**	**8**	**32.00%**	**4**	**14.29%**

Windham Road

			Day 1						Day 2					
Restriction Type	No. Spaces (day)	No. Spaces (night)	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %	0900-1000	Stress %	1300-1400	Stress %	Overnight	Stress %
Resident Permit Holder	11	11	7	63.64%	9	81.82%	9	81.82%	10	90.91%	9	81.82%	9	81.82%
Resident Permit Holder & Limited Waiting	13	13	10	76.92%	10	76.92%	11	84.62%	9	69.23%	11	84.62%	10	76.92%
School Keep Clear	3	3	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Single Yellow/Red Lines	0	4	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Total	**27**	**31**	**17**	**62.96%**	**19**	**70.37%**	**20**	**64.52%**	**19**	**70.37%**	**20**	**74.07%**	**19**	**61.29%**

* School Keep Clear restriction applies Monday - Friday between 08.00 to 09.30 and 14.30-16.30

Overall Results

Overall Results	Spaces	Usage	Average Stress	Average Stress per beat/day	Overall Average Stress
Day 1 - 0900-1000	1453	1028	70.75%	70.13%	67.45%
Day 2 - 0900-1000		1010	69.51%		
Day 1 - 1300-1400	1628	1017	62.47%	62.93%	
Day 2 - 1300-1400		1032	63.39%		
Day 1 - overnight	1674	1161	69.35%	69.30%	
Day 2 - overnight		1159	69.24%		

CONCLUSION

The overall stress percentage covering the survey area is 67.45%. While the parking decisions for developments remains with the Council the results here are moderate for a busy London Borough.

Appendix A

A. CONTACT DETAILS

1. Client Contact Name	Avanton Richmond Developments Limited
2. Client Contact Email address	chris@avanton.co.uk

B. DEVELOPMENT DETAILS

3. Development Name	Manor Road, Richmond
4. Development address (please include post code)	84 Manor Road, Richmond, TW9 1YB
5. Can development plans be provided?	n/a

PLANNING REQUIREMENTS

6. Which Local Authority is requiring the Parking Stress Survey?	London Borough of Richmond
7. Local Authority Planning contact:	n/a

ALPHA PARKING

Manor Road, Richmond: PSS Day 1 AM

SCALE	1 : 1250 @ A0 size
DATE	26/11/2018
DRAWING No.	
DRAWN BY	

ALPHA PARKING

Manor Road, Richmond: PSS Day 1 Night

SCALE	1 : 1250 at A0 size
DATE	26/11/2018
DRAWING No.	
DRAWN BY	

ALPHA PARKING

Manor Road, Richmond: PSS Day 1 PM

SCALE	1 : 1250 @ A0 size
DATE	26/11/2018
DRAWING No.	
DRAWN BY	