



9 Nestles Avenue, Hayes

Transport Assessment

Client: Healey Development Solutions (Hayes) Ltd

i-Transport Ref: PH/JN/LC/ITL14154-002a

Date: 30 November 2018

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Quality Management

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Contents

SECTION 1	INTRODUCTION	1
SECTION 2	POLICY CONTEXT	3
SECTION 3	EXISTING CONDITIONS	10
SECTION 4	DEVELOPMENT PROPOSAL	22
SECTION 5	TRAFFIC IMPACT	27
SECTION 6	SUMMARY AND CONCLUSIONS	33

Drawings

ITL14154-SK-006 RA SWEPT PATH ANALYSIS

Appendices

APPENDIX A.	PIA DATA
APPENDIX B.	PTAL CALCULATION
APPENDIX C.	TIM OUTPUT
APPENDIX D.	PROPOSED SITE PLAN
APPENDIX E.	TRICS OUTPUTS
APPENDIX F.	DELIVERY AND SERVICING CALCULATIONS

SECTION 1 INTRODUCTION

1.1 Context

- 1.1.1 Healey Development Solutions (Hayes) Ltd has appointed i-Transport LLP to provide transport and highway advice with regard to a planning application for a residential-led development at 9 Nestles Avenue, Hayes, within the London Borough of Hillingdon (LBH).
- 1.1.2 As such, this Transport Assessment (TA) has been prepared by i-Transport LLP as part of a planning submission for the re-development of the site. It should be read in conjunction with the Framework Travel Plan (FTP) and Delivery and Servicing Plan (DSP) which accompany the application.
- 1.1.3 The application site currently comprises a single building, totalling some 1,718sqm of B1c/B2 commercial floorspace. The remainder of the site is taken up by open space used as forecourt parking. Access is taken directly from Nestles Avenue.

1.2 Proposed Development

- 1.2.1 The proposed development is a 'Build to Rent' (BTR) residential-led scheme comprising 81 residential units over 10 floors along with 868sqm of commercial (B Use Class) floorspace at ground floor level. The development is proposed to be car-free, aside from the provision of four blue badge car parking spaces.
- 1.2.2 The planning application is referable to the Mayor of London under Category 1C of the Mayor of London Order 2008 due to the height of the proposed building. The Greater London Authority (GLA) will in turn consult with Transport for London (TfL) in relation to the transport impact of the proposal, although LBH remains the Local Highway Authority responsible for the local highway network.

1.3 Scope

- 1.3.1 This TA has been prepared by i-Transport LLP to assess the transport impact of the development proposal with respect to relevant national, regional, and local policy and guidance, and to identify any appropriate mitigation measures should they be required. This document has been prepared in accordance with TfL's Transport Assessment Guidance.

1.3.2 Pre-application discussions have been held with both LBH, the GLA and TfL.

1.4 **Structure of Report**

1.4.1 The remainder of the TA is set out as follows:

- Section 2 summarises the national, regional, and local policies and guidance relevant to the application;
- Section 3 summarises the existing site use and local services and facilities, and establishes the anticipated future infrastructure and services improvements proposed as part of the wider regeneration of the area;
- Section 4 sets out the development proposal in detail, including the access arrangements for all travel modes;
- Section 5 provides an assessment of the anticipated total and net change in multi-modal movements resulting from the development; and
- Section 6 provides a summary of the TA and its conclusions.

SECTION 2 POLICY CONTEXT

2.1 Overview

2.1.1 This section sets out the regional and local transport policies to be considered.

2.2 National Transport Policy

National Planning Policy Framework (July 2018)

2.2.1 The National Planning Policy Framework (NPPF) sets the following three tests in relation to transport and highways matters:

“In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:

- *Appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;*
- *Safe and suitable access to the site can be achieved for all users; and*
- *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.” (ref: NPPF, Paragraph 108)*

2.2.2 The NPPF further states that development: “should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.” (ref: NPPF, Paragraph 109).

2.3 Regional Transport Policies

The London Plan (March 2016)

2.3.1 The London Plan sets out the strategic targets for the spatial development of London to 2031 and beyond. From a transport perspective, the Mayor intends that London will be a city where it is easy, safe and convenient for everyone to access jobs, opportunities and facilities with an efficient and effective transport system which actively encourages more walking and cycling. Furthermore, the Mayor wishes to strike an appropriate balance between promoting new development and preventing excessive parking provision that can undermine the use of sustainable travel modes.

2.3.2 The current car and cycle parking standards relevant to the site are summarised in Tables 2.1 and 2.2 respectively.

Table 2.1: London Plan Car Parking Standards

Land Use	Vehicle Parking Standards (Maximum)
Residential (Land Use C3)	Up to 1.5 spaces per unit (PTAL 2-4) Notes: All developments in areas of good public transport accessibility in all parts of London should aim for significantly less than 1 space per unit. Adequate parking spaces for disabled people must be provided preferably on-site. 20 per cent of all spaces must be for electric vehicles with an additional 20 per cent passive provision for electric vehicles in the future.
Offices and Light Industrial (Land Use B1)	Outer London: 100 – 600 spaces per sqm of gross floorspace (GIA) Notes: All non-residential elements of a development should provide at least one on or off-street disabled persons parking bay. 20 per cent of all spaces must be for electric vehicles with an additional 10 percent passive provision for electric vehicles in the future.

Source: London Plan 2016

Table 2.2: London Plan Cycle Parking Standards

Land Use	Minimum Cycle Parking	
	Long Stay	Short Stay
Residential (Land Use C3)	Studio/1 bed: 1 space 2 beds +: 2 spaces	1 space per 40 units
Offices and Light Industrial (Land Use B1)	Business Offices – 1 space per 150sqm	Business Offices – 1 space per 500sqm
	Light Industry – 1 space per 250sqm	Light Industry – 1 space per 1,000sqm

Source: London Plan 2016

The Draft London Plan (August 2018)

2.3.3 The Mayor published a draft London Plan on 29th November 2017 which sets out the overall strategic plan, including an integrated economic, environmental, transport and social framework, for the development of London over the next 20-25 years. Additional amendments to the draft were then proposed in August 2018.

2.3.4 The Examination in Public (EiP) to assess the Draft London Plan is due to commence in January 2019. Currently, it is considered the draft London Plan and the policies contained within it will carry 'as much' material weight as the current London Plan by the time this application is

determined, although this is a decision to be made on a case by case basis. It is noteworthy that significant reference is already being made to the policies contained within the new Draft London Plan by statutory consultees, such as Transport for London, and as such it is considered prudent that the proposed development complies with the new draft policies wherever possible.

2.3.5 For this reason, this TA considers the development proposal against emerging policies and standards. The Draft London Plan (2018) is due to be published (adopted) in Winter 2019/20.

2.3.6 The car and cycle parking standards in the Draft London Plan are summarised in Tables 2.3 and 2.4 below. It is prudent to note that the site is located within the Heathrow Opportunity Area and therefore specific standards apply.

Table 2.3: Draft London Plan Car Parking Standards

Land Use	Vehicle Parking Standards (Maximum)
Residential (Land Use C3)	Up to 0.5 spaces per unit (Outer London Opportunity Areas) Note in PTAL 5 and above locations, development is expected to be car-free expect for disabled provision. Notes: Disabled persons parking should be provided for all new residential developments. 20 per cent of all spaces must be for electric vehicles with passive provision for all remaining spaces in the future.
Offices and Light Industrial (Land Use B1)	Up to 1 space per 600sqm (Outer London Opportunity Areas) Notes: All non-residential elements of a development should provide at least one on or off-street disabled persons parking bay. All operational parking must provide infrastructure for electric or other Ultra-Low Emission vehicles.

Source: Draft London Plan 2018

Table 2.4: Draft London Plan Cycle Parking Standards

Land Use	Minimum Cycle Parking	
	Long Stay	Short Stay
Residential (Land Use C3)	Studio/1 bed: 1 space 2 beds +: 2 spaces	1 space per 40 units
Offices and Light Industrial (Land Use B1)	Business Offices – 1 space per 150sqm	Business Offices – 1 space per 500sqm
	Light Industry – 1 space per 250sqm	Light Industry – 1 space per 1,000sqm

Source: Draft London Plan 2018

2.4 Local Transport Policies

London Borough of Hillingdon Local Plan: Part 1 – Strategic Policies (November 2012) and London Borough of Hillingdon Unitary Development Plan (1998) Saved – September 2007

2.4.1 The Hillingdon Local Plan - Part 1 - Strategic Policies is the key strategic planning document for Hillingdon and will support delivery of the spatial elements of the Sustainable Community Strategy. It sets out a long-term vision and objectives for the Borough. The primary matter relating to Transport notes Hillingdon has an overall aim of improving quality of life and reducing private car dependency.

2.4.2 The LBH Unitary Development Plan (UDP) contains 'saved' policies from 1998 and sits alongside the Local Plan Part 1. Once adopted, the Local Plan Part 2 will replace these policies, although until then the following transport policies are still relevant to this proposal.

- *Policy AM1* – Development will only be permitted where the existing/proposed public transport network has sufficient capacity to meet demand and/or the development makes the development more accessible through finding improvements;
- *Policy AM2* – All proposals for development will be assessed against their contribution to traffic generation and their impact on congestion;
- *Policy AM6* - The Local Planning Authority will consider whether the traffic generated by proposed developments is acceptable in terms of the capacity and functions of existing and committed principal roads only – development will be refused if development will result in unacceptable increases in demand on roads/through junctions already at capacity, prejudice the free flow of traffic or conditions of general highway or pedestrian safety or diminish materially the environmental benefits brought about by new or improved roads;
- *Policy AM13* - The Local Planning Authority will seek to ensure that proposals for development increase ease and spontaneity of movement for elderly people, the frail and people with disabilities by (amongst other things) seeking adequate and convenient parking spaces for people with disabilities;
- *Policy AM14* - New development will only be permitted where it is in accordance with the council's adopted car parking standards as set out in annex 1;

- *Policy AM15* - All car parks provided for new development shall contain conveniently located reserved spaces for disabled persons in accordance with the council's adopted car parking standards.

2.4.3 The current relevant adopted car and cycle parking standards are summarised in Tables 2.5 and 2.6.

Table 2.5: LBH Local Plan 1 Car Parking Standards

Land Use	Vehicle Parking Standards (Maximum)
Residential (Land Use C3)	Up to 1.5 spaces per dwelling
Offices and Light Industrial (Land Use B1)	Business Offices – 1 space per 100sqm
	Light Industry – 2 spaces up to 235sqm, plus 1 space per 100sqm for all floorspace in excess of 235sqm

Source: London Borough of Hillingdon Unitary Development Plan Saved Policies 2007

Table 2.6: LBH Local Plan 1 Cycle Parking Standards

Land Use	Maximum Cycle Standards
Residential (Land Use C3)	Studio/1 bed/2 beds: 1 space 3 beds +: 2 spaces
Offices and Light Industrial (Land Use B1)	Business Offices – 1 space per 50sqm
	Light Industry – 1 space per 75sqm

Source: London Borough of Hillingdon Unitary Development Saved Policies 2007

Note: Visitor parking forms part of the standard unless otherwise stated

London Borough of Hillingdon Local Plan: Part 2 – Development Management Policies (Submission Version October 2015)

2.4.4 The Local Plan Part 2 provides revised development management policies and will replace the UDP in its entirety, once adopted. It was submitted for examination in May 2018 and therefore is considered to carry the same weight as policies/standards contained within the UDP. The relevant policies within the submitted October 2015 version are as follows:

- *Policy DMT 1* – Managing Transport Impacts – Development will be required to be accessible by sustainable modes of travel, adequately address delivery, servicing and drop-off requirements and have no significant adverse transport or associated air quality and noise impacts on the local and wider environment. Developments of more than 80 units will be required to prepare a Transport Assessment and Travel Plan.

- *Policy DMT 2 – Highways Impacts – Development must provide safe and suitable access for all users;*
- *Policy DMT 4 – Public Transport - The Council may require developers to mitigate transport impacts from development proposals by improving local public transport facilities and services;*
- *Policy DMT 5 – Pedestrians and Cyclists - Development proposals will be required to ensure that safe, direct and inclusive access for pedestrians and cyclists is provided on the site connecting it to the wider network.*
- *Policy DMT 6 – Vehicle Parking – Development must comply with the standards outlined at Appendix C in order to facilitate sustainable development. All car parks provided for new development will be required to contain conveniently located reserved spaces for wheelchair users and those with restricted mobility in accordance with the Council's Accessible Hillingdon SPD.*

2.4.5 The proposed parking standards from the document are set out in Tables 2.7 and 2.8 below.

Table 2.7: LBH Local Plan 2 Car Parking Standards

Land Use	Vehicle Parking Standards (Maximum)
Residential (Land Use C3)	Studio: 0.5 spaces per unit 1-2 bed: 1 – 1.5 spaces per unit 3 beds and above: 2 spaces per unit Notes: Proposals must also accommodate visitor's car parking on-site additional to the above Car parks must be allocated to dwellings
Offices (Land Use B1)	1 space per 50-100sqm

Source: London Borough of Hillingdon Local Plan Part 2 2015

Table 2.8: LBH Local Plan 2 Cycle Parking Standards

Land Use	Maximum Cycle Standards
Residential (Land Use C3)	Studio/1 bed/2 beds: 1 space 3 beds +: 2 spaces
Offices and Light Industrial (Land Use B1)	Business Offices – 1 space per 250sqm
	Light Industry – 1 space per 500sqm

Source: London Borough of Hillingdon Local Plan Part 2 2015

Note: Visitor parking forms part of the standard unless otherwise stated

2.5 Summary

- 2.5.1 Both the regional and local policies/standards are in the process of being updated and it is prudent to be aware of emerging policies. The draft London Plan recommends a car parking level of a maximum 0.5 spaces per unit in Outer London Opportunity Areas, whilst the residential parking standards in the LBH Local Plan seek maximum standards of up to 1.5 spaces per unit for 1-2 beds and 2 spaces per 3-bed units. Regional and local parking standards both require adequate disabled parking on-site.
- 2.5.2 It is important to note that the current Adopted London Plan requires all developments in areas of good public transport accessibility in all parts of London to aim for significantly less than 1 space per unit.
- 2.5.3 There is an element of contradiction between the parking policies of LBH and those set by the Mayor of London both in terms of adopted and emerging regional policy and a balance should be sought.

SECTION 3 EXISTING CONDITIONS

3.1 Overview

- 3.1.1 This section sets out the existing transport and highway conditions of the local area as well as detailing the accessibility of the site.

3.2 Site Location and Existing Site Use

- 3.2.1 The site is located at 9 Nestles Avenue in Hayes, within the London Borough of Hillingdon. It is bordered by the former Nestle Factory site (soon to be re-developed) to the east, Nestles Avenue to the south, the former Tarbiyyah Primary School to the west and Squirrels Trading Estate to the north.
- 3.2.2 The existing site comprises a single building with two floors, totalling 1,718sqm. The site has recently become vacant but has been used as a Printers and Lithographers and therefore it is assumed it holds a Class B1c/B2 use. Forecourt parking is provided along the site frontage with access taken from Nestles Avenue.

3.3 Extant Site Trips

- 3.3.1 It is understood that the site benefits from an extant B1c/B2 Use Class consent and could therefore reopen and operate within that use class without the need for an amended planning consent. Accordingly, to understand the potential 'existing' trip generation, the TRICS database has been used to derive a vehicular trip rate.
- 3.3.2 Vehicle (only) trip rates for the extant B1c/B2 use have been obtained, as there are insufficient Multi Model sites in the TRICS Industrial Unit category (only one single site is identified, even when including London and the South East region, and this has a floor area of over 6,000sqm and as such is not comparable). The vehicle trip rate sites obtained for the Greater London region are very representative with respect to site location, given both TRICS surveys are located within Hillingdon.
- 3.3.3 The derived vehicle trip rate has been applied to the extant site floor area (1,718sqm), with the resultant trip generation for the AM and PM peak hours shown in Table 3.3.

Table 3.1: Extant B1c/B2 Trip Generation (Vehicles)

	AM Peak Hour (0800 – 0900)			PM Peak Hour (1700 – 1800)		
	In	Out	Two Way	In	Out	Two Way
Trip Rate (per 100sqm)	0.441	0.300	0.741	0.240	0.401	0.641
Vehicular Flow	8	5	13	4	7	11

Source: TRICS 7.5.3. Note: Numbers may not sum due to rounding.

- 3.3.4 Table 3.3 demonstrates that the extant site use could generate circa 13 two-way vehicular trips in the AM peak hour and 11 two-way vehicular trips in the PM peak hour. It is considered the above rates also account for deliveries and servicing movements in the peak hours.

3.4 Local Highway Network

- 3.4.1 Nestles Avenue is a single carriageway road with a speed limit of 30mph. Single yellow lines are present on both sides of the carriageway for the majority of Nestles Avenue, including along the site frontage, although marked on-street parking bays are also occasionally located. The yellow lines are subject to No Waiting restrictions between 0800 – 1830, Monday – Saturday.
- 3.4.2 Circa 260m to the west of the site, Nestles Avenue connects to Station Road via a priority junction. To the north, Station Road is a single carriageway road leading to the rail station and Hayes Town Centre, while to the south it heads towards the ASDA Hayes Superstore. Separate ghost island right turn junctions are provided for southbound traffic. Street lighting is provided along the entire road on both sides of the carriageway.
- 3.4.3 Controlled Parking Zone (CPZ) HY2 encompasses local roads including all of Nestles Avenue. This restricts parking to resident permit holders only between 0900 – 1700, Monday to Friday.

Pedestrian Environment

- 3.4.4 Wide, good quality footways are provided on both sides of Nestles Avenue along with street lighting on both sides of the carriageway. There are dropped kerbs and tactile paving at all vehicle crossovers to allow for safe and easy crossing for all pedestrians. There is an informal crossing point, also with dropped kerbs and tactile paving, with a refuge island to the west of the site at the junction with Station Road.

- 3.4.5 Hayes High Street has undergone significant improvements to the pedestrian and vehicle infrastructure. The council was given £4.5 million to improve the town centre after a successful bid was made to Transport for London (TfL).

Cycle Network

- 3.4.6 The local area benefits from an extensive network of cycle routes which provide convenient routes to local facilities and train and London Underground stations, as well as Heathrow Airport to the south west. These are detailed in full in the TfL Local Cycling Guide 6. In the vicinity of the site, the Local Cycling Guide identifies most of Station Road as being signed or marked for use by cyclists. This route can be taken south along the High Street eventually connecting to a designated off-road cycle route running parallel to the A4. This extends east towards London and west towards Heathrow Airport.
- 3.4.7 Another off-road cycle route has been designated alongside the Grand Union Canal. This route can be taken west towards Uxbridge.
- 3.4.8 There are also various routes that have been recommended by other cyclists, along quieter or safer roads. These routes can be used to connect designated cycle routes, acting as undesignated continuations of the cycle network. As a result, cyclists can head east into Ealing using a variety of designated off-road, marked and undesignated cycle routes.
- 3.4.9 Within the vicinity of the site, recommended cycle routes along Nestles Avenue, Roseville Road and Cranford Drive can be used to access Cranford Park Academy. Additional facilities that can be directly accessed via the cycle network include Khalsa Primary School, Cranford Primary School and Heathpark Golf Course. Additional locations that can be directly accessed via the cycle network include Greenford, Hounslow, West Drayton, Southall and Hayes.

3.5 Collision Data Analysis

- 3.5.1 The Personal Injury Accident (PIA) Data for the last five years, ending in February 2018, has been obtained for Nestles Avenue and Station Road (between North Hyde Road and the train station). A total of 14 accidents have been recorded in the study area over the time period, all of which resulted in slight injuries. The full accident report is provided at Appendix A.
- 3.5.2 The one accident that has been recorded on Nestles Avenue occurred just east of the junction with Black Rod Close, opposite the proposed site. A vehicle let a pedestrian pass before reversing into a driveway, however, did not see a second pedestrian (a child) crossing behind, resulting in

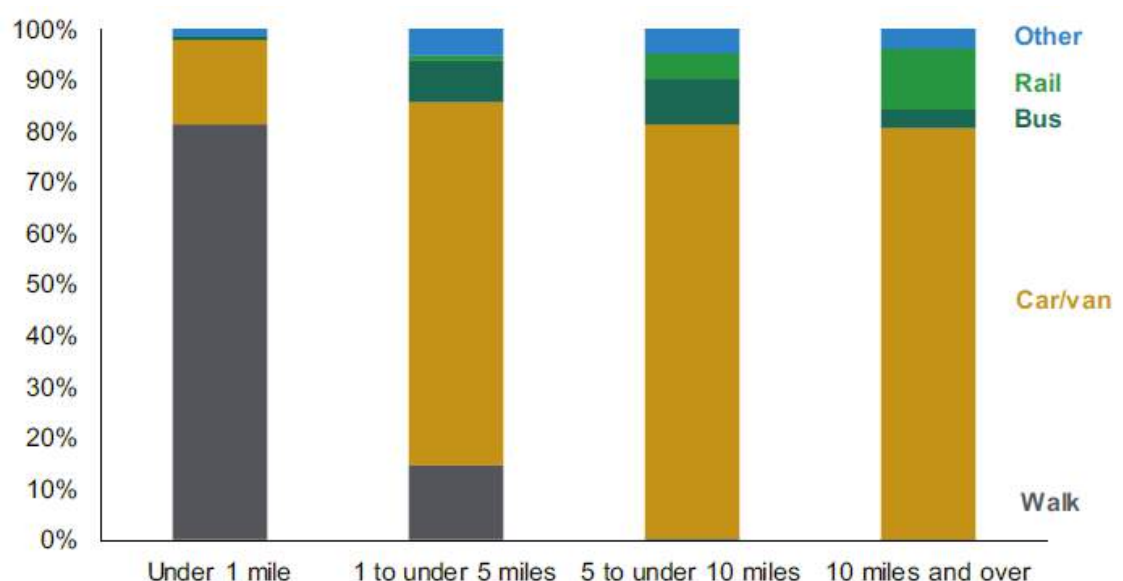
the child being struck and briefly pinned to a parked vehicle. It is important to note that the accident occurred in the evening when it was dark.

- 3.5.3 The majority of the other recorded accidents involved pedestrians or pedal cycles along Station Road. Most of the pedestrian related accidents were a result of inappropriate crossing locations (i.e. behind a stationary vehicle) or not looking properly. Therefore, whilst any accident is regrettable, the local highway network is not deemed to have any safety issues.

3.6 Local Facilities

- 3.6.1 A key aim of regional and local policy is the delivery of sustainable development. This in part, is achieved by the accessibility of sites to a good range of everyday services and facilities.
- 3.6.2 In this regard, Manual for Streets states that '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.' (Ref: *Manual for Streets* paragraph 4.4.1). However, this is not an upper limit.
- 3.6.3 The National Travel Survey: England 2017 has identified the mode share journeys of different lengths (as shown in Image 3.1) and found that walking was the most frequent mode for short trips in 2017, where 81% of trips under one mile (c. 1,600m), and 30% of trips between one and two miles (c. 3,200m) were walks (Ref: *NTS Table 0308*).

Image 3.1: Mode Share of Trips by Main Mode for Different Trip Lengths: England, 2017



Source: National Travel Survey: England 2017

3.6.4 A summary of the local facilities and services within the vicinity of the site and their respective walking and cycling distances is provided in Table 3.1. The colour coding highlights the locations within 800m, 1,600m and 3,200m walking distance.

Table 3.1: Distances and Travel Time to Key Destinations

Destination		Approx. Distance from Site (metres)	Walking journey time (mins)	Cycling journey time (mins)
Retail	Asda Superstore	450	5	2
	Tesco Esso Express	550	7	2
	Nearest ATM (Barclays)	600	7	2
	Hayes Town Centre	700	8	3
	Iceland	800	10	3
	Post Office	850	10	3
	Lidl	1,100	13	4
Education	Cranford Park Academy	850	10	3
	The Global Academy	1,000	12	4
	Harlington School	1,600	19	7
	Minet Nursery and Infant School	1,900	23	7
	Minet Junior School	2,000	24	8
	Uxbridge College – Hayes Community Campus	2,100	25	9
Leisure	London Motor Museum	170	2	<1
	Grand Union Canal Walk	650	8	3
	Botwell Green Library	1,100	13	4
	Botwell Green Sports and Leisure Centre	1,100	13	4
	Lake Farm Country Park	2,000	24	8
Health	Hayes Medical Centre	350	4	1
	The Hayes Dental Practice	500	6	2
	Hayes Town Medical Centre	700	8	3
	Hayes Town Pharmacy	1,100	13	4

Source: i-Transport. Note: All distances taken from pavement outside 9 Nestles Avenue, to the south of the site.

Key:

	Within a 'Walkable Neighbourhood' (800m)
	Within a distance where most people (circa 81%) will walk (1,600m)
	Within a distance where walking is a realistic alternative to car use and where some people (circa 30%) are still prepared to walk (3,200m)

- 3.6.5 It is clear from Table 3.1 that a good range of every day services and facilities will be accessible to future residents of the site, on foot or by bicycle.

3.7 Public Transport

National Rail

- 3.7.1 National Rail services can be accessed from Hayes & Harlington railway station, circa 400m from the site, operated by TfL Rail and located within Travelcard Zone 5. Approximately eight trains per hour operate between London Paddington and Reading/Didcot/Heathrow Airport.
- 3.7.2 Hayes & Harlington station will benefit from introduction of the Elizabeth Line. The Elizabeth Line is a significant piece of new railway infrastructure adding approximately 10% of new railway capacity and new/easier journey opportunities.
- 3.7.3 Stations along the route are also being upgraded with Hayes & Harlington station to benefit from a new footbridge with four new lifts to provide step free access to every platform, platform extensions and new replacement canopies and new lighting, customer information screens, station signage, help points and CCTV.
- 3.7.4 From December 2020, when the full route opens, up to ten Elizabeth line services an hour will allow passengers from Hayes & Harlington to travel to Reading or Heathrow in the west or through the central London tunnels to Essex and southeast London via Liverpool Street and Canary Wharf.

Buses

- 3.7.5 The nearest bus stop is circa 350m from the site on Station Road (Stop K) and is served by 8 different northbound bus services to a range of destinations, including Northolt, Uxbridge and Heathrow Airport Terminal 5. It is provided with a shelter and equipped with real-time Countdown information. The bus stop outside Hayes & Harlington railway station (Stop E), circa 400m from the site, is the closest stop providing southbound services.
- 3.7.6 A summary of the buses that serve the site is provided in Table 3.2 below.

Table 3.2: Local Bus Services

Bus No.	Route	Typical Frequency (per hour, per direction)		
		Mon – Fri	Sat	Sun
90	Feltham – Hayes - Northolt	6 buses per hour	6 buses per hour	4 buses per hour
140 (24hr)	Harrow – Northolt – Hayes – Heathrow	10 buses per hour	10 buses per hour	5 buses per hour
195	Wood End – Hayes – Southall – Brentford	5 buses per hour	5 buses per hour	4 buses per hour
350	Hayes – West Drayton – Heathrow (T5)	3 buses per hour	3 buses per hour	3 buses per hour
E6	Bulls Bridge – Hayes – Greenford	5 buses per hour	5 buses per hour	4 buses per hour
H98	Hayes – Hounslow West – Hounslow	6 buses per hour	6 buses per hour	4 buses per hour
U4	Hayes – Hillingdon Hospital – Uxbridge	6 buses per hour	6 buses per hour	4 buses per hour
U5	Hayes – West Drayton – Hillingdon Hospital – Uxbridge	5 buses per hour	5 buses per hour	3 buses per hour

Source: TfL – Accessed: November 2018

- 3.7.7 The table above demonstrates there are in excess of 40 buses per hour in each direction which are accessible from the site; equivalent to approximately one to two buses every two minutes within approximately four-minutes walk of the site (350m). This provision will clearly provide future residents, employees and visitors of the site with excellent travel opportunities by bus.

Future Bus Services

- 3.7.8 In addition to the bus services listed above, significant changes to the local bus network are proposed as a result of TfL's proposals to alter the bus network as a result of introduction of Elizabeth Line services. At Hayes and Harlington, this results in the following;

- extension of the H32 which currently operates between Southall and Hounslow from Southall to Hayes and Harlington Station (subject to completion of the Southall Gasworks link road);
- curtailment of route 140 which currently operates between Harrow and Heathrow to operate between Harrow and Hayes and Harlington station only;

- introduction of a new route, the X140, an express, limited stop service between Harrow and Heathrow (i.e. replicating the current 140) with a stop at Hayes and Harlington station; and
- introduction of a new route, the 278, providing a local service between Ruislip, Hillingdon, Hayes and Harlington and Heathrow.

3.7.9 These additional services result in the site having access to a further 15 buses per hour in each direction. These changes were confirmed in August 2018 by TfL and are to be introduced as consulted. These services are anticipated to commence once Elizabeth Line services are operational.

3.8 PTAL

3.8.1 The accessibility of the site has been assessed using the TfL Public Transport Accessibility Level (PTAL) methodology. PTALs are a detailed measure of the accessibility of a site to the public transport network, taking into account the combination of walking time and service frequency.

3.8.2 The site currently has a PTAL rating of 4, indicating a good level of public transport accessibility. This good PTAL score is a result of the proximity to Hayes & Harlington railway station and local bus stops.

3.8.3 As detailed in Section 3.7, introduction of the Elizabeth Line will deliver a marginal increase in rail service frequency as well as the introduction of three new bus services to the local area.

3.8.4 Whilst the PTAL website does not take account of these forthcoming changes, the PTAL of the site has been re-calculated for the future scenario by following the PTAL methodology with these additional bus and rail services included. This demonstrates the PTAL of the site increasing to a rating of 5 meaning very good access to the public transport network. The calculation sheet is included at Appendix B.

3.8.5 Full details of the public transport services accessible from the site are provided in the following sections.

3.9 TIM Assessment

3.9.1 TfL's WebCAT resource also provides travel time mapping (TIM) which reflects the travel time from the site to other areas in London by public transport during a morning peak hour.

Considering this, the site is accessible to a large area of central and southeast London (including Ealing and Paddington) within a 30-45-minute journey. The output is provided at Appendix C.

3.10 Accessible Transport

- 3.10.1 Where car-free and/or car limited development is proposed, it is important to recognise how accessible particular modes of transport available in the surrounding area are to different possible users, i.e. disabled, elderly, pregnant.

Bus Network

- 3.10.2 In general, all London Bus routes are served by low-floor vehicles with at least one dedicated wheelchair space and an access ramp per bus. For an access ramp to deploy, bus stops themselves must be accessible (where the kerb is high enough for the ramp to deploy or the step onto the bus be at a suitable height for users). All London buses also make use of the 'iBus' system providing audio and visual updates as to the bus route and stop information for deaf/blind users.
- 3.10.3 As per the review of bus services above, a number of routes are accessible within 500m. Site visits have confirmed that the nearest stops, in each direction, are provided with suitable kerb heights to allow bus boarding ramps to deploy.

Dial-a-Ride

- 3.10.4 Dial-a-Ride is a free door-to-door transport service for people with a permanent or long-term disability or health problem who are unable, or virtually unable, to use public transport.
- 3.10.5 Membership of dial-a-ride is available to anyone who is a recipient of the Higher Rate Mobility Component of Disability Living Allowance, the Standard or Enhanced Mobility Rate of the Personal Independence Payment (PIP) or are Registered blind or partially sighted.
- 3.10.6 The service is offered on a pre-booked basis and can be booked up to two weeks in advance.

Taxicard

- 3.10.7 The Taxicard is a fully-funded scheme (via London Councils) and is a method of providing subsidised door-to-door transport for people who have serious mobility impairment and difficulty in using public transport. Taxicard holders make journeys in licensed London taxis and the subsidy, of up to £12.80 per trip, applies directly to each trip made.

- 3.10.8 The taxi must be booked in advance via a specific contractor who will then search for available vehicles, including wheelchair accessible vehicles, to provide the service to the Taxicard holder.

60+ / Freedom Pass

- 3.10.9 A 60+ or Freedom Pass is available to people who live within the boroughs of London and are either over the age of 60 or meet the disability eligibility criteria. If you have a Freedom Pass, you can travel free on most public transport services in London, including London Buses, London Underground, London Overground, London Trams, the Docklands Light Railway and most National Rail services within London (after 09:30).

3.11 Local Planning Applications

- 3.11.1 There are two schemes of note in the local area which have been considered in the preparation of this document. Both schemes are referable to the Greater London Authority (GLA) as is this application. However, both schemes are of a significantly greater scale than the proposed scheme.

- 3.11.2 The transport aspects of both schemes have been examined in the following paragraphs for comparison purposes. It should be noted that both schemes considered seek to provide 'traditional' residential schemes rather than a Build-to-Rent (BTR) which is proposed under this application.

Former Nestle Factory Site

- 3.11.3 Directly east of the site, a large mixed-use development scheme to provide 1,386 new homes, 22,663sqm of commercial space and 2,986sqm of flexible community, retail and leisure along with public open space, including allotments, has been permitted [*planning ref: 1331/APP/2017/1883*].
- 3.11.4 In order to mitigate the impact of the development on the existing highway network and to help embed sustainable travel patterns in the area, the developer is contributing towards highway improvements at Bulls Bridge roundabout and providing land, as well as funding, towards delivery of a 'multi-modal transport spine' along Nestles Avenue. This is intended to extend the full length of the site frontage and includes segregated cycle lanes and a bus turning circle at the western-most end of the site. It is intended for developments along Nestles Avenue to also make allowance for this such that a connection can be made with Station Road.

- 3.11.5 This scheme was consented with a car parking ratio of 0.6 spaces per unit for the residential element, despite this exceeding emerging standards in the draft London Plan and standards agreed between LBH and the GLA for the Hayes Housing Zone (of 0.5 spaces per unit) due to the package of sustainable travel measures proposed. Some 2,186 cycle parking spaces are to be provided for residents as well as provision of electric vehicle charging points.
- 3.11.6 The scheme will also fund provision of car club vehicles in order to encourage a reduction of private car ownership. A total of five cars are understood to be provided, with a possible further five subject to uptake.
- 3.11.7 Provision of the bus turning head facilitates potential diversion of a bus route (or routes) onto Nestles Avenue in the future which would further enhance access to the local bus network. Detailed proposals have not yet been set out by TfL.

233 – 236 Nestle Avenue

- 3.11.8 To the west of the site, a planning application for a mixed-use development to deliver 474 residential units over 11 storeys with 834sqm of A/B Class floorspace and 286 car parking spaces has been submitted to LBH [*planning ref: 73238/APP/2018/1145*]. This application is yet to be determined.
- 3.11.9 The initial GLA Stage 1 report requests car parking provision be reduced since the case for a car-free proposal would be strong (in line with the draft London Plan standards) due to the site's level of accessibility (PTAL 5). The provision currently proposed is 0.6 spaces per unit. An increase in cycle parking is also recommended and contributions are sought for improvements to local junctions and local bus service improvements on a pro-rata basis in line with the larger development at the Former Nestle Factory.

3.12 Summary

- 3.12.1 The site is located in a PTAL 4 (rising to PTAL 5 with introduction of the Elizabeth Line) area with good access to public transport, including rail and a number of local bus services (with the closest bus stop under 400m from the site). The new PTAL 5 classification will bring the area in line with the zone within which development should be 'car-free' according to both the adopted London Plan and emerging London Plan.
- 3.12.2 In addition, and in support of car-free development, there is very good accessibility to local facilities and services, with the vast majority of key destinations within a distance most people

will walk to (1,600m) and the remaining still within a realistic distance where some people will walk (3,200m), indicating that future occupiers of the site will have significant opportunities to utilise sustainable travel modes.

SECTION 4 DEVELOPMENT PROPOSAL

4.1 Overview

4.1.1 The proposed development is for the construction of 81 'build-to-rent' residential units and circa 863sqm of ground floor employment space.

4.1.2 The development comprises:

- Residential units:
 - 1-bed – 44 units;
 - 2-bed – 28 units; and
 - 3-bed – 9 units.
- Commercial
 - 1 unit of 868sqm (Use Class B1a/B1c/B2/B8).

4.1.3 Given the site is located in an area of very good accessibility to public transport (PTAL 4 rising to PTAL 5), which is to be complemented by high-quality public realm/segregated cycle lane as part of the Nestles Avenue Sustainable Transport corridor, the development proposed will be car-free (aside from the provision of four disabled parking spaces). A proposed site plan is provided at Appendix D.

4.1.4 Pedestrian and vehicular access to the site is taken from Nestles Avenue, with a shared surface providing access to the residential cores.

4.2 Access Strategy

4.2.1 The single vehicle crossover will be retained (subject to minor amendments) to provide access to the proposed disabled car parking spaces. The internal access road will operate as shared surface given the low vehicular movements anticipated.

4.2.2 The size of the site does not give rise to the possibility for on-site servicing. Furthermore, given the proposed introduction of the Nestles Avenue Sustainable Transport Corridor and its dedicated, segregated cycle lane and wide footways, it is not considered appropriate to have delivery vehicles crossing the high-quality public realm.

- 4.2.3 Therefore, it is proposed that a dedicated half-on/half-off loading bay be provided on Nestles Avenue to accommodate delivery and servicing vehicles associated with the development. In addition, this can be utilised by vehicles undertaking drop-off activities.

4.3 **Parking Strategy**

Cycle Parking

- 4.3.1 Cycle parking for the development will be provided in the form of double stacked cycle racks which will be capable of accommodating 144 bicycles, including 136 cycle parking spaces for the residential units and eight cycle parking spaces for the commercial unit. In addition, there will be seven external short-stay/visitor cycle parking spaces (two for employment and five for residential). This is in accordance with Draft London Plan (2018) standards.
- 4.3.2 Cycle parking is to be located in dedicated stores accessed via the residential cores (i.e. not directly from the access road).

Car Parking

- 4.3.3 In accordance with the London Plan and emerging London Plan, the site's very good accessibility to public transport is supported by a car-free development, aside from provision of four disabled parking spaces. All four spaces will be equipped with electric vehicle charging points, again in line with the requirements of the London Plan and emerging London Plan.
- 4.3.4 This will ensure, through limited vehicular flow, that maximum space is reserved on the local network to accommodate sustainable travel patterns, such as road-space allocation for delivery of the Nestles Avenue Sustainable Transport corridor.
- 4.3.5 In addition, as the proposed development is a 'build-to-rent' scheme, where all flats are to be let to renters rather than sold, it is important to understand how this impacts car ownership.
- 4.3.6 In February 2017, Savills produced the report 'Unlocking the Benefits and Potential of Build to Rent', on behalf of The British Property Federation (BPF), to determine if the BTR sector would benefit from any specific policy measures to help the sector become established. The report contains research of BTR schemes (including a range of stakeholder consultations), evaluation of market and regulatory failures and evaluation of potential policy options and tools to overcome the identified failures.

- 4.3.7 Research within the report identifies that tenure has an impact on private car ownership levels, with those that occupy rented accommodation having up to 0.4 fewer cars on average than owner-occupied households in dwellings of a similar size and type. This suggests that BTR developments have a lower parking demand than traditional Buy to Sell (BTS) schemes

Disabled Parking

- 4.3.8 Three of the four disabled parking spaces are provided for the exclusive use of the residential development and the fourth bay is reserved for use by commercial occupiers.
- 4.3.9 With respect to the residential element of the scheme, whilst the level of provision is below the recommended guidance of one space for each of the wheelchair adaptable units (normally 10% of all units as per Table 6.2 of the London Plan), the size of the site and limitations introduced by the need to retain a minimum of 50% of commercial floorspace, means it is not possible to provide for substantial provision without the loss of significant amounts of the ground floor commercial space.
- 4.3.10 Indeed, the draft London Plan requires provision of 3% of disabled parking from the outset with a car park management strategy necessary to identify how this can be increased to 10% if and when required. The development accords with provision of 3% of disabled parking from the outset but given no other parking is available for conversion, cannot meet the 10% requirement on-site.
- 4.3.11 In these instances, guidance is set out in the Accessible London SPG (October 2014) which states boroughs should take a flexible approach to provision of disabled parking spaces which should consider factors such as conveniently located on-street bays, access to a car club, facilities for the storage and charging of mobility scooters and the accessibility of local public transport facilities. With respect to this, the following points are noted:
- On-Street Provision – The loading bay to be provided for deliveries/refuse collection will also serve as an area for the dropping off/collection of mobility impaired residents by taxi and/or Dial-a-Ride services. In addition, as the detailed design for the Nestles Avenue Sustainability Transport Corridor comes forward, opportunities for on-street blue-badge provision can be considered;
 - Car Club Access – Given the development offers car-club membership, access to car-club vehicles will be available to the mobility impaired residents of the development;

- Charging of mobility scooters - Facilities for the charging of mobility scooters are provided in each wheelchair adapted unit; and
- Accessibility of the local transport network – Hayes and Harlington station, and indeed the whole length of the Elizabeth line, is designed to be fully accessible, with appropriate lifts and ramps where necessary. In addition, both bus stops adjacent to Hayes and Harlington station are designed with 'bus boarders' which allow wheelchair ramps to easily deploy.

4.3.12 On this basis, there are substantial opportunities for the mobility-impaired to still travel without the need to access a private vehicle.

Permit Free

4.3.13 The development will also be 'permit-free' i.e. the occupiers will not be eligible to apply for permits to park within the surrounding CPZ. This will be secured through a Section 106 legal agreement, which will also be made under Section 16 of the Greater London Council (General Powers) Act 1974, in line with recent case law, between LBH and the Applicant. Securing this arrangement by way of a legal agreement will make it unlawful for a) new residents to apply for parking permits; and for b) the Council to issue new residents with a parking permit. The agreement will apply in perpetuity, i.e. all future residents (not just the first occupants) will be obliged to live permit-free throughout the lifetime of the development.

4.3.14 The permit-free arrangement will be made clear to all new residents and business occupiers prior to their occupation and will be set out clearly in all leases. As the proposed development is for private rental only, all future occupiers will have sight of this restriction and will be of the understanding and awareness of this restriction prior to moving in, i.e. they will choose to live at this development fully aware of the need for car-free lifestyles.

4.3.15 This permit-free approach is a well-established way of providing for residential development in sustainable locations, in compliance with the London Plan and local policy, without resulting in on-street parking issues.

Car Club

4.3.16 Car clubs provide the opportunity for residents to have access to a car without owning a private vehicle. As this transport option has become established in London, surveys have consistently demonstrated the positive benefits of car clubs – including the fact that car club members drive

significantly fewer miles than other London drivers and have lower car ownership than Londoners in general.

- 4.3.17 Indeed, the Carplus Annual Survey of Car Clubs 2016/17 found that of new members to car clubs (i.e. benefiting from free membership when moving to a development), 72% of respondents did not own a car. This fell further to 77% of members not owning a car once they had been a member for 6 months as a result of members selling/disposing of a car and not replacing it.
- 4.3.18 Accordingly, car club membership provides for reduced car ownership and as such, the local car club operator, Zipcar, has been approached to determine the level of demand/support for a car club. They have confirmed support for the provision of three years free car club membership, but not the provision of a car on site. This is in recognition of the significant number of cars to be brought forward within the adjacent Nestles Factory site and that "it would make complete sense to simply plug into this hub of vehicles".
- 4.3.19 On this basis, Zipcar will be secured as the car club membership provider for the proposed development.

SECTION 5 TRAFFIC IMPACT

5.1 Overview

5.1.1 This section sets out the trip generation of the proposed development in order to determine the traffic impact of the scheme on the local highway. As detailed in Section 4, the development proposal is car-free, aside from the provision of four disabled spaces.

5.2 Proposed Trip Generation

Residential (81 units)

5.2.1 The TRICS database has been used to extract residential trip rates for privately owned flats. The sites have been filtered based on the following parameters:

- Residential/C – Flats Privately Owned;
- Sites in Greater London only;
- Sites with a range of 20 to 250 units;
- Weekday surveys only (Monday-Friday); and
- Edge of Town Centre and Suburban Area locations.

5.2.2 The full residential TRICS outputs are provided at Appendix E.

5.2.3 A summary of the total person trip rates and subsequent trip generation (based on 81 units) is presented in Table 5.1.

Table 5.1: C3 Residential: Flats Privately Owned (81 units) – Total Person Trips

	AM Peak Hour (0800 – 0900)			PM Peak Hour (1700 – 1800)		
	In	Out	Two Way	In	Out	Two Way
Trip Rate (per 1 dwells)	0.101	0.429	0.530	0.287	0.176	0.463
Person Trips	8	35	43	23	14	38

Source: TRICS 7.5.3. Note: Numbers may not sum due to rounding.

5.2.4 Table 5.1 demonstrates that the scheme could generate 43 two-way person movements in the AM peak hour and 38 two-way person trips in the PM peak hour.

- 5.2.5** To derive a multi-modal trip generation, 2011 Census Method of Travel to Work data has been obtained for the resident population of Hillingdon 030 Middle Super Output Area (MSOA). Since the proposed site will be almost exclusively car free, car or van drivers have been removed from the dataset and the percentage modal split of the remaining modes has been recalculated on a proportional basis to other modes. As a worst-case assessment, it has been assumed all three disabled parking spaces results in an outbound trip in the AM peak and an inbound trip in the PM peak.
- 5.2.6** The total person trip generation (in Table 5.1 above) has been applied to the modal split data with the resultant multi-modal trip generation summarised in Table 5.2.
- 5.2.7** This methodology allows for a robust analysis of the modes of travel used by existing residents of the area, which are likely to be replicated by the new occupiers.

Table 5.2: Residential Trip Generation – Multi Modal (81 units)

Mode and Modal Split		Trip Generated					
		AM Peak Hour (0800 – 0900)			PM Peak Hour (1700 – 1800)		
		In	Out	Two-Way	In	Out	Two-Way
Bus, minibus or coach	45%	3	14	17	9	6	16
Train, underground, metro, light rail or tram	32%	2	10	12	6	5	11
On foot	11%	1	4	5	2	2	4
Disabled Car Driver	-	0	3	3	3	0	3
Car or van passenger	7%	1	2	3	2	1	3
Bicycle	3%	0	1	1	1	0	1
Motorcycle, scooter or moped	1%	0	0	0	0	0	0
Other	1%	0	0	0	0	0	0
Taxi	0%	0	0	0	0	0	0
Total	100%	8	35	43	23	14	38

Source: NOMIS, Method of Travel to Work, 2011 (QS701EW) – Output Area: Hillingdon 030 MSOA (E02000523). Note: Numbers may not sum due to rounding.

- 5.2.8** Table 5.2 demonstrates that circa 77% of future residents of the proposed development are likely to travel by public transport and 14% by walking or cycling. This has the potential to generate 17 extra two-way bus passengers and 12 more train passengers in the morning and evening peak hours.

Employment (B1c 863sqm)

5.2.9 As mentioned in section 3 (paragraph 3.3.2), it is not possible to derive a person trip rate from the TRICS database for a B1c/B2 use class. Therefore, to evidence the potential trip attraction of the site by all modes, reference has been made to the Employment Density Guide 2015, which identifies a typical density of 1 employee per 47sqm of site floorspace for typical land uses falling under class B1c. Applying this to the site floor area of 868sqm shows circa 18 employees could be employed at the site.

5.2.10 It has then been assumed that all 18 employees will arrive and depart the site in the peak hours and this has then been applied to the 2011 Method of Travel to Work data for the work population of the same MSOA as above (Hillingdon 030), to determine the likely mode of travel that will be used by future employees. The resultant trip attraction is summarised in Table 5.3.

Table 5.3: Employment Trip Attraction – Multi-Modal (868sqm)

Mode and Modal Split		Trip Attraction			
		AM Peak Hour (0800 – 0900)		PM Peak Hour (1700 – 1800)	
		In	Out	In	Out
Train, underground, metro, light rail or tram	33%	6	0	0	6
Bus, minibus or coach	31%	5	0	0	5
On foot	15%	3	0	0	3
Disabled Car Driver	-	1	0	0	1
Car or van passenger	8%	1	0	0	1
Bicycle	7%	1	0	0	1
Motorcycle, scooter or moped	5%	0	0	0	0
Other	1%	0	0	0	0
Taxi	0%	0	0	0	0
Total	100%	17	0	0	17

Source: NOMIS, Method of Travel to Work, 2011 (QS701EW) – Output Area: Hillingdon 030 MSOA (E02000523). Note: Numbers may not sum due to rounding.

5.2.11 Table 5.3 shows that approximately 64% of future employees of the proposed development are likely to travel to work by public transport and 22% by walking or cycling.

Delivery & Servicing Trips

- 5.2.12 Additional vehicular trips will be made to/from the development for the purpose of deliveries and servicing. The development will require deliveries for the commercial units, refuse collection from both the commercial and residential units, and ad-hoc deliveries such as post, home shopping, etc. for the residential units.
- 5.2.13 The requirement for delivery and servicing vehicles for the residential units has been estimated using the TRICS database. Some 19 privately flatted London survey sites include a delivery/servicing vehicle count. It is not possible to extract a TRICS output for servicing vehicles, however the calculation has been made manually utilising the count information and unit numbers of each survey as provided on the database.
- 5.2.14 One B1 delivery and servicing trip rate is held within the TRICS database for sites within London which correlates with the proposed commercial unit size.
- 5.2.15 The anticipated daily servicing/delivery requirements for each of the proposed land uses are summarised in Table 5.4. The survey codes and calculation of the trip rates in provided in Appendix F.

Table 5.4: Anticipated Number of Daily Servicing / Delivery Vehicles

Proposed Land Use	Factor	Anticipated Number of Delivery and Servicing Trips (typical worst-case)
Residential (81 Units)	0.12 per unit	10, predominantly LGV
B1 (868sqm)	0.54 per 100sqm	5, all LGV
Total	n/a	15 LGVs

5.3 Development Impact Assessment

Vehicular Trips

- 5.3.1 As per para. 5.2.5, a worst-case assumption has been made that all of the disabled car parking spaces are occupied, and each of them generates an outbound trip in the morning peak hour and an inbound trip in the evening peak hour. Furthermore, it is assumed that of the delivery and servicing trips set out in Table 5.4, 20% of movements will take place during morning peak hour and 20% during the evening peak hour. Accordingly, these can be summarised as follows:

Table 5.5: Vehicle Trips to/from Proposed Development

	AM Peak Hour (0800 – 0900)			PM Peak Hour (1700 – 1800)		
	In	Out	Two Way	In	Out	Two Way
Vehicle Trips	4	7	11	7	4	11

Source: TRICS 7.5.3. Note: Numbers may not sum due to rounding.

- 5.3.1.1 When compared with the extant flows identified in Table 3.1, the following net change in vehicular flow can be anticipated.

Table 5.6: Net Change in Vehicle Trips

	AM Peak Hour (0800 – 0900)			PM Peak Hour (1700 – 1800)		
	In	Out	Two Way	In	Out	Two Way
Vehicle Trips	-4	+2	-2	-3	+3	-

Source: TRICS 7.5.3. Note: Numbers may not sum due to rounding.

- 5.3.2 The assessment confirms that there will be no net change in vehicle trips as a result of the proposed development, with a slight reduction in traffic in the morning peak period on the basis of the worst-case assessment presented. However, these are wholly as a result of an unmanaged servicing strategy from the TRICS sites, resulting in a number of delivery vehicles arriving/departing during the peak hours. In reality, a delivery and servicing plan (DSP), will encourage deliveries to occur outside of peak hours. A draft DSP is included as part of this application.
- 5.3.3 Given the very limited vehicular movements associated with the site and noting that delivery and servicing movements will be mitigated by way of the DSP, as well as the introduction of a Framework Travel Plan for the whole scheme, no further highway impact assessment is considered necessary since the impact is confirmed to be negligible.

Sustainable Trips

- 5.3.4 The multi-modal trip generation of the proposed development has been set out within Tables 5.2 and 5.3. To summarise, this will result in the following changes on the local transport network (note, no reduction has been made for the trips that could occur to the existing commercial unit):

- An additional 23 trips on the bus network in each of the peak hours – given more than 50 buses per hour are accessible from the site, this results in less than one additional bus passenger per bus in the peak hours;
- An additional 18 trips on the National Rail network; and
- An additional eight walking trips in each of the peak hours.

SECTION 6 SUMMARY AND CONCLUSIONS

6.1 Summary

- 6.1.1 In summary, this TA has been prepared on behalf of Healey Development Solutions (Hayes) Ltd to accompany a planning application for a residential-led Build to Rent development at 9 Nestles Avenue, Hayes, within the London Borough of Hillingdon (LBH).
- 6.1.2 The application is for demolition of the existing building and construction of a 'Build to Rent' (BTR) residential-led scheme comprising 81 residential units over 10 floors along with 868sqm of commercial (B Use Class) floorspace at ground floor level. The development is proposed to be car-free, aside from the provision of four blue badge car parking spaces.
- 6.1.3 The development is in line with both the London Plan and emerging London Plan which seek to minimise car parking wherever possible and require car free development in locations with PTAL 5 or higher. The site is demonstrated to offer a PTAL 5 following introduction of the Elizabeth Line and associated bus service improvements.
- 6.1.4 The development includes efficient provision for deliveries and servicing, in accordance with national, regional and local policy. The anticipated daily servicing/delivery requirements are low – with a worst-case requirement of approximately 15 light goods vehicles. An outline DSP has been prepared in accordance with regional and local requirements and is submitted as part of the application.
- 6.1.5 With reference to the existing site use, the proposed development will result in a slight reduction in the number of vehicular trips made to and from the site. The reduction in traffic flows to/from the site will have a beneficial impact in terms of road safety.
- 6.1.6 There will be an increase in walking and cycling trips to and from the site, and an increase demand for public transport services compared to the extant position. However, the existing infrastructure for walking, cycling and public transport trips is suitable to accommodate this increase, and committed improvements will enhance this further, including additional bus and rail services and the proposed introduction of the Nestles Avenue Sustainable Transport Corridor, for which this development makes provision for. Section 5 has set out a detailed assessment of the impact of development trips upon the local public transport network. The impact of the scheme has been shown to be negligible in transport terms.

6.1.7 A Framework Travel Plan and Delivery and Servicing Plan will be introduced.

6.2 Conclusion

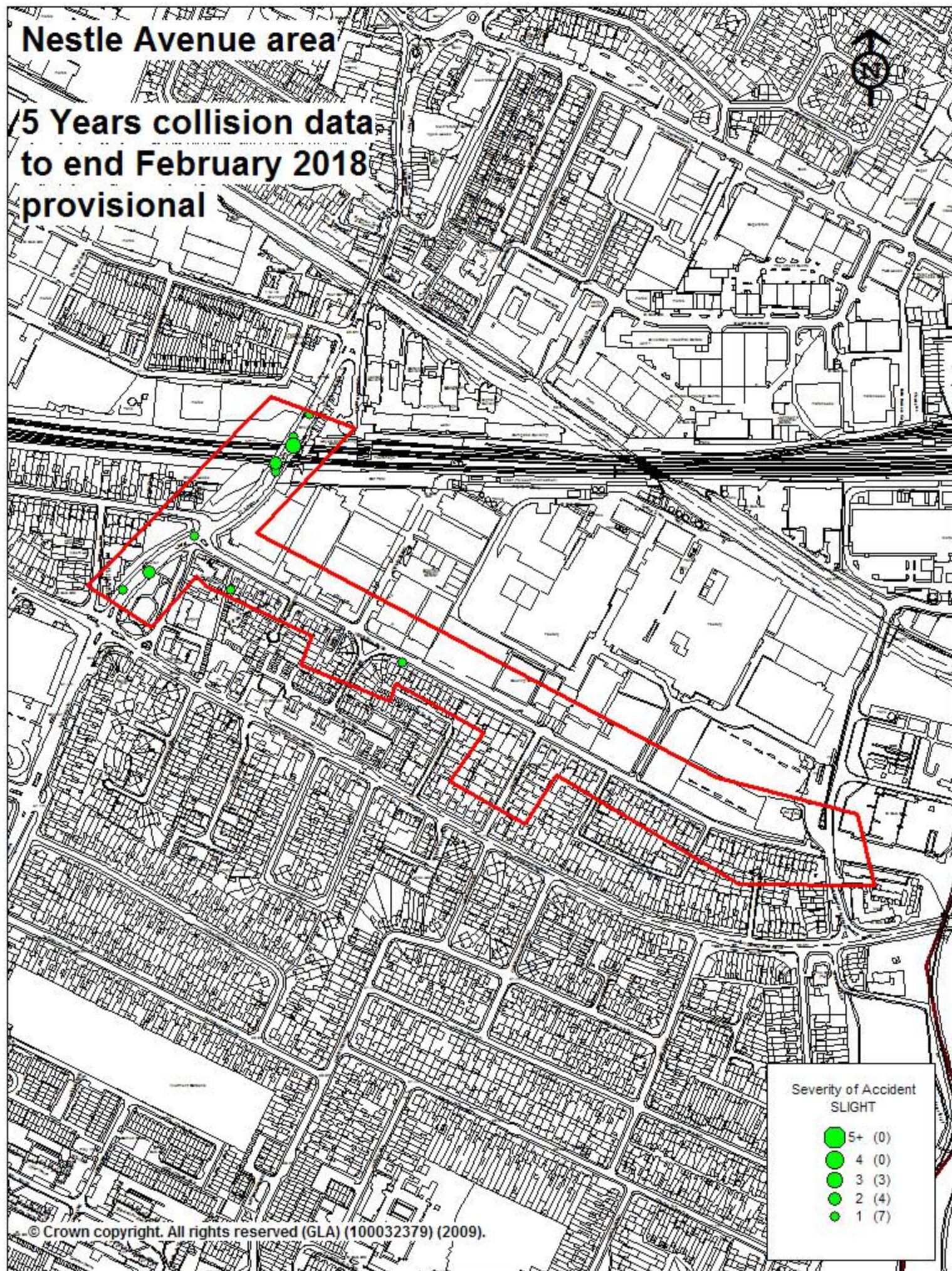
6.2.1 In conclusion, the proposed development complies with the relevant national, regional and local policies and is considered acceptable in transport terms.

DRAWINGS

APPENDIX A. PIA Data

Nestle Avenue area

5 Years collision data
to end February 2018
provisional





5 years to end February 2018 provisional

Summary of Accidents Selected

Site Reference and Description (zero accident counts shown in bold)	Date Period	Accidents
MP01 GIS AREA Nestles Ave Nov 2018 (P)	60 MTS TO FEB-2018	14

The description of how the accident occurred and the contributory factors are the reporting officer's opinion at the time of reporting and may not be the result of extensive investigation



5 years to end February 2018 provisional

Summary of Accidents Selected

Site Reference and Description (zero accident counts shown in bold)	Date Period	Accidents
MP01 GIS AREA Nestles Ave Nov 2018 (P)	60 MTS TO FEB-2018	14

The description of how the accident occurred and the contributory factors are the reporting officer's opinion at the time of reporting and may not be the result of extensive investigation

**5 years to end February 2018 provisional**

MP01 GIS AREA Nestles Ave Nov 2018 (P)	60 MTS TO FEB-2018 SORTED BY DATE
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1	0113XH30178	THU 18/04/13 18:51	LIGHT	STATION ROAD, 147M NORTH EAST OF JUNCTION WITH KEITH ROAD	26	LINK 67-68	509700 / 179430
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POLICE - AT SCENE ROAD-DRY WEATHER-FINE SINGLE CWY NO JUN IN 20M PELICAN OR SIMILAR

PEDESTRIAN RAN OUT ACCROSS ROAD IN FRONT OF VEH 1 IN ORDER TO GET TO HIS FRIENDS CAR & WAS HIT BY VEH 1

CASUALTY 001 (001) (? Yrs - M CR0) SLIGHT PEDESTRIAN CROSSING ROAD WITHIN 50M XING W BOUND FROM DRIVERS O/SIDE

VEHICLE 001 (000) CAR (38 Yrs - M TW14) GOING AHEAD OTHER SW TO NE
BT - NEGATIVE O/S HIT FIRST

V001 B 405 (FAILED TO LOOK PROPERLY)

C001 A 802 (FAILED TO LOOK PROPERLY)

C001 A 808 (CARELESS/RECKLESS/IN A HURRY)

2	0113XH30435	THU 11/07/13 07:44	LIGHT	STATION RD 63M SOUTH WEST OF J/W NESTLE'S AVENUE	26	LINK 67-68	509540 / 179280
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POLICE - OVER COU ROAD-DRY WEATHER-FINE SINGLE CWY NO JUN IN 20M ZEBRA

PED RAN INTO PATH OF V1, CAUSING COLLISION.

CASUALTY 001 (001) (12 Yrs - M UB2) SLIGHT PEDESTRIAN CROSSING ROAD WITHIN 50M XING UNKNOWN FROM DRIVERS N/SIDE MSK

VEHICLE 001 (000) CAR (? Yrs - F UNKN) GOING AHEAD OTHER NE TO SW
BT - DRV NOT CONTACTED N/S HIT FIRST

C001 A 802 (FAILED TO LOOK PROPERLY)

C001 A 808 (CARELESS/RECKLESS/IN A HURRY)

3	0113XH30537	MON 21/10/13 15:14	LIGHT	NFL - STATION RD 133M SOUTH WEST OF J/W CLAYTON RD	26	LINK 67-68	509700 / 179420
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POLICE - AT SCENE ROAD-WET WEATHER-FINE SINGLE CWY NO JUN IN 20M ZEBRA

PED RAN IN FRONT OF STAT BUS THAT V1 WAS OVERTAKING, CAUSING COLLISION.

CASUALTY 001 (001) (8 Yrs - M SL2) SLIGHT PEDESTRIAN CROSSING ROAD WITHIN 50M XING UNKNOWN FROM DRIVERS N/SIDE MSK
JOURNEY TO/FROM SCHOOL Sch Attended : LITTLE DOWN SPECIAL SCHOO

VEHICLE 001 (000) CAR (42 Yrs - M UB3) OVERTAKE STAT VEH O/S NE TO SW
BT - NOT REQUESTED N/S HIT FIRST

C001 A 802 (FAILED TO LOOK PROPERLY)

C001 A 808 (CARELESS/RECKLESS/IN A HURRY)

C001 A 801 (CROSSED ROAD MASKED BY STATIONARY OR PARKED VEHICLE)

V001 A 701 (VISION AFFECTED - STATIONARY OR PARKED VEHICLE(S))

**5 years to end February 2018 provisional**

MP01 GIS AREA Nestles Ave Nov 2018 (P)	60 MTS TO FEB-2018 SORTED BY DATE
--	-----------------------------------

4 0114XH30246 TUE 15/04/14 16:50 LIGHT STATION ROAD 110M NORTH EAST J/W KEITH ROAD	26 LINK 67-68	509680 / 179400
---	---------------	-----------------

POLICE - OVER COU ROAD-DRY WEATHER-FINE SINGLE CWY NO JUN IN 20M	NO XING FACILITY IN 50M
--	-------------------------

PED CROSSED ROAD INTO PATH OF V1 MASKED BY STATIONARY VEHICLE

CASUALTY 001 (001) (20 Yrs - M UB5) SLIGHT PEDESTRIAN	CROSSING ROAD (NOT ON XING) E BOUND FROM DRIVERS N/SIDE MSK
---	---

VEHICLE 001 (000) CAR (? Yrs - M UB3)	OVERTAKE STAT VEH O/S S TO N
BT - DRV NOT CONTACTED	FRONT HIT FIRST

C001 A 801 (CROSSED ROAD MASKED BY STATIONARY OR PARKED VEHICLE)
--

C001 A 802 (FAILED TO LOOK PROPERLY)

C001 A 808 (CARELESS/RECKLESS/IN A HURRY)

5 0114XH30529 SUN 31/08/14 17:35 LIGHT STATION ROAD, 106M SW OF J/W STATION APPROACH	26 LINK 67-68	509700 / 179420
---	---------------	-----------------

POLICE - AT SCENE ROAD-DRY WEATHER-FINE SINGLE CWY NO JUN IN 20M	NO XING FACILITY IN 50M
--	-------------------------

C1 FELL OVER ON V1 AS V1 PULLED AWAY FROM BUS STOP - [BUS PASSENGER NOT HOLDING ON PROPERLY (C001)]

CASUALTY 001 (001) (45 Yrs - F UB3) SLIGHT PASSENGER	STANDING ON PSV
--	-----------------

VEHICLE 001 (000) BUS/COACH (35 Yrs - M TW8)	MOVING OFF	NE TO SW JNY PART OF WORK
BT - NOT REQUESTED	DID NOT IMPACT	

C001 A 999 (OTHER FACTOR)

6 0115XH30791 TUE 03/11/15 08:20 LIGHT STATION RD 105M NORTH EAST OF J/W KEITH RD	26 LINK 67-68	509680 / 179390
--	---------------	-----------------

POLICE - OVER COU ROAD-DRY WEATHER-FINE SINGLE CWY NO JUN IN 20M	NO XING FACILITY IN 50M
--	-------------------------

PED STEPPED INTO PATH OF V1, CAUSING COLLISION.

CASUALTY 001 (001) (23 Yrs - F UB10) SLIGHT PEDESTRIAN	CROSSING ROAD (NOT ON XING) UNKNOWN
--	-------------------------------------

VEHICLE 001 (000) CAR (? Yrs - U UNKN)	GOING AHEAD OTHER	NE TO SW
BT - DRV NOT CONTACTED	FRONT HIT FIRST	

C001 A 802 (FAILED TO LOOK PROPERLY)

C001 A 808 (CARELESS/RECKLESS/IN A HURRY)

**5 years to end February 2018 provisional**

MP01 GIS AREA Nestles Ave Nov 2018 (P)	60 MTS TO FEB-2018 SORTED BY DATE
--	-----------------------------------

7 0116XH30040 TUE 26/01/16 09:55 LIGHT STATION ROAD, 131M NE OF J/W KEITH ROAD	26 LINK 67-68	509700 / 179420
--	---------------	-----------------

POLICE - AT SCENE ROAD-DRY WEATHER-UNKNOWN SINGLE CWY NO JUN IN 20M	ZEBRA
---	-------

C1 HAS RUN ACROSS ROAD FROM BEHIND A STATIONARY BUS, INTO PATH OF V1 & WAS HIT
--

CASUALTY 001 (001) (31 Yrs - F W4) SLIGHT PEDESTRIAN CROSSING ROAD WITHIN 50M XING NW BOUND FROM DRIVERS N/SIDE MSK

VEHICLE 001 (000) CAR (? Yrs - F UNKN) GOING AHEAD OTHER NE TO SW	FRONT HIT FIRST
BT - DRV NOT CONTACTED	

C001 A 801 (CROSSED ROAD MASKED BY STATIONARY OR PARKED VEHICLE)
--

C001 A 802 (FAILED TO LOOK PROPERLY)

C001 A 803 (FAILED TO JUDGE VEHICLE'S PATH OR SPEED)
--

C001 A 808 (CARELESS/RECKLESS/IN A HURRY)

V001 A 701 (VISION AFFECTED - STATIONARY OR PARKED VEHICLE(S))
--

8 0116XH30310 SAT 14/05/16 09:02 LIGHT STATION ROAD J/W NESTLE'S AVENUE	26 LINK 67-68	509590 / 179320
---	---------------	-----------------

POLICE - AT SCENE ROAD-DRY WEATHER-FINE SINGLE CWY T/STAG JUN GIVE WAY/UNCONT NO XING FACILITY IN 50M

V1 TURNED LEFT ACROSS PATH V2

CASUALTY 001 (002) (43 Yrs - M UB3) SLIGHT DRIVER/RIDER

VEHICLE 001 (002) CAR (24 Yrs - M UB6) TURNING LEFT NE TO SE	JCT MID
BT - NOT REQUESTED	N/S HIT FIRST

VEHICLE 002 (001) PEDAL CYCLE (43 Yrs - M UB3) GOING AHEAD OTHER NE TO SW	JCT MID
BT - NOT APPLICABLE	FRONT HIT FIRST

V001 A 406 (FAILED TO JUDGE OTHER PERSON'S PATH OR SPEED)

V001 A 602 (CARELESS/RECKLESS/IN A HURRY)

9 01160021376 SAT 17/09/16 19:35 DARK ON NESTLES AVENUE, NEAR THE JUNCTION WITH UNKNOWN.	26 CELL 509500/179000	509820 / 179180
--	-----------------------	-----------------

SELF COMPLETION ROAD-DRY WEATHER-FINE SINGLE CWY PRIV DRIVE GIVE WAY/UNCONT NO XING FACILITY IN 50M

V1 STOPPED TO LET C1'S MOTHER CROSS DRIVEWAY, V1 THEN STARTED AGAIN TO REVERSE AND STRUCK C1, BRIEFLY PINNING HER TO A PARKED VEHICLE

CASUALTY 001 (001) (14 Yrs - F UB34) SLIGHT PEDESTRIAN ON FOOTPATH - VERGE SE BOUND

VEHICLE 001 (000) CAR (46 Yrs - M UB34) REVERSING SW TO NE	JCT APP
BT - DRV NOT CONTACTED	BACK HIT FIRST

FOOTWAY

**5 years to end February 2018 provisional**

MP01 GIS AREA Nestles Ave Nov 2018 (P)										60 MTS TO FEB-2018 SORTED BY DATE	
--	--	--	--	--	--	--	--	--	--	-----------------------------------	--

10	01160004185	FRI 18/11/16 08:30	LIGHT	NESTLES AVENUE J/W STATION ROAD					26	CELL 509500/179000	509630 / 179260
-----------	-------------	--------------------	-------	---------------------------------	--	--	--	--	----	--------------------	-----------------

SELF COMPLETION	UNKNOWN (S/R)	WEATHER-UNKNOWN	SINGLE CWY	CROSSROADS	GIVE WAY/UNCONT	UNKNOWN (S/R)					
-----------------	---------------	-----------------	------------	------------	-----------------	---------------	--	--	--	--	--

NOT KNOWN HOW COLLISION OCCURRED											
----------------------------------	--	--	--	--	--	--	--	--	--	--	--

CASUALTY	001 (001)	(53 Yrs - M UB3)	SLIGHT	DRIVER/RIDER							
----------	-----------	------------------	--------	--------------	--	--	--	--	--	--	--

VEHICLE	001 (000)	PEDAL CYCLE	(53 Yrs - M UB3)	UNKNOWN (S/F GOING AHEAD OTHER	N TO S					LEAVING MAIN RD	
		BT - NOT APPLICABLE			FRONT HIT FIRST						

UNKNOWN (S/R)											
---------------	--	--	--	--	--	--	--	--	--	--	--

11	01170012345	TUE 17/01/17 17:15	DARK	STATION ROAD 105M N OF J/W KEITH ROAD					26	LINK 67-68	509680 / 179400
-----------	-------------	--------------------	------	---------------------------------------	--	--	--	--	----	------------	-----------------

POLICE - AT SCENE	ROAD-DRY	WEATHER-FINE	SINGLE CWY	NO JUN IN 20M			ZEBRA				
-------------------	----------	--------------	------------	---------------	--	--	-------	--	--	--	--

NOT KNOWN HOW COLLISION OCCURRED											
----------------------------------	--	--	--	--	--	--	--	--	--	--	--

CASUALTY	001 (001)	(37 Yrs - F UB3)	SLIGHT	PEDESTRIAN	CROSSING ROAD (NOT ON XING)	W BOUND	FROM DRIVERS O/SIDE				
----------	-----------	------------------	--------	------------	-----------------------------	---------	---------------------	--	--	--	--

VEHICLE	001 (000)	CAR	(71 Yrs - F UB4)	GOING AHEAD OTHER	S TO N						
		BT - DRV NOT CONTACTED			FRONT HIT FIRST						

V001	B	405 (FAILED TO LOOK PROPERLY)									
------	---	-------------------------------	--	--	--	--	--	--	--	--	--

12	01170026004	SAT 11/03/17 13:00	LIGHT	STATION ROAD 50M SW OF J/W OLD STATION ROAD					26	LINK 67-68	509540 / 179280
-----------	-------------	--------------------	-------	---	--	--	--	--	----	------------	-----------------

SELF COMPLETION	UNKNOWN (S/R)	WEATHER-UNKNOWN	UNKNOWN	NO JUN IN 20M	UNKNOWN (S/R)	UNKNOWN (S/R)	UNKNOWN (S/R)				
					UNKNOWN (S/R)	UNKNOWN (S/R)	UNKNOWN (S/R)				

NOT KNOWN HOW COLLISION OCCURRED											
----------------------------------	--	--	--	--	--	--	--	--	--	--	--

CASUALTY	001 (001)	(26 Yrs - M UB3)	SLIGHT	PEDESTRIAN	CROSSING ROAD (NOT ON XING)	UNKNOWN	FROM DRIVERS N/SIDE MSK				
----------	-----------	------------------	--------	------------	-----------------------------	---------	-------------------------	--	--	--	--

VEHICLE	001 (000)	CAR	(42 Yrs - F UB3)	OVERTAKE STAT VEH O/S	U(TO U(						
		BT - DRV NOT CONTACTED			N/S HIT FIRST						

UNKNOWN (S/R)											
---------------	--	--	--	--	--	--	--	--	--	--	--

**5 years to end February 2018 provisional**

MP01 GIS AREA Nestles Ave Nov 2018 (P)	60 MTS TO FEB-2018 SORTED BY DATE
--	-----------------------------------

13	01170059867	SAT 19/08/17 21:29	LIGHT	STATION ROAD J/W STATION ROAD	26	NODE 67	509510 / 179260
SELF COMPLETION			UNKNOWN (S/R)	WEATHER-OTHER	UNKNOWN	MULTI JUN	UNKNOWN (S/R)
							UNKNOWN (S/R)
							UNKNOWN (S/R)

NOT KNOWN HOW COLLISION OCCURRED

CASUALTY 001 (001) (39 Yrs - M UB3) SLIGHT DRIVER/RIDER

VEHICLE	001 (000)	CAR	(39 Yrs - M UB3)	UNKNOWN (S/F GOING AHEAD OTHER	U(TO U(	UNKNOWN (S/R)
		BT - NOT REQUESTED		UNKNOWN (S/R)	UNKNOWN (S/R)	
		UNKNOWN (S/R)		UNKNOWN (S/R)	UNKNOWN (S/R)	UNKNOWN (S/R)

VEHICLE	002 (000)	CAR	(? Yrs - M UNKN)	UNKNOWN (S/F GOING AHEAD OTHER	U(TO U(	UNKNOWN (S/R)
		BT - REFUSED TO PROVIDE		UNKNOWN (S/R)	UNKNOWN (S/R)	
		UNKNOWN (S/R)		UNKNOWN (S/R)	UNKNOWN (S/R)	UNKNOWN (S/R)

VEHICLE	003 (000)	CAR	(? Yrs - M UB03)	UNKNOWN (S/F GOING AHEAD OTHER	U(TO U(	UNKNOWN (S/R)
		BT - NOT PROVD (MEDCL REASONS)		UNKNOWN (S/R)	UNKNOWN (S/R)	
		UNKNOWN (S/R)		UNKNOWN (S/R)	HIT OTH OBJECT	UNKNOWN (S/R)

VEHICLE	004 (000)	CAR	(? Yrs - M UNKN)	UNKNOWN (S/F GOING AHEAD OTHER	U(TO U(	UNKNOWN (S/R)
		BT - NOT REQUESTED		UNKNOWN (S/R)	UNKNOWN (S/R)	
		UNKNOWN (S/R)		UNKNOWN (S/R)	UNKNOWN (S/R)	UNKNOWN (S/R)

14	01180082183	MON 08/01/18 06:50	LIGHT	STATION ROAD 100M S OF J/W CLAYTON ROAD	26	CELL 509500/179000	509717 / 179455
POLICE - AT SCENE			ROAD-DRY	WEATHER-FINE	SINGLE CWY	NO JUN IN 20M	ZEBRA

NOT KNOWN HOW COLLISION OCCURRED

CASUALTY 001 (001) (32 Yrs - M CW10) SLIGHT PEDESTRIAN CROSSING ROAD ON PED XING E BOUND FROM DRIVERS O/SIDE

VEHICLE	001 (000)	CAR	(47 Yrs - F TW5)	SLOWING OR STOPPING	N TO S	COMM TO/FROM WORK
		BT - NOT REQUESTED			FRONT HIT FIRST	

V001 A 705 (VISION AFFECTED - DAZZLING HEADLIGHTS)

V001 A 405 (FAILED TO LOOK PROPERLY)

End of Accidents for MP01 GIS AREA Nestles Ave Nov 2018 (P)

End of Report



5 years to end February 2018 provisional

MP01 GIS AREA Nestles Ave Nov 2018 (P)										60 MTS TO FEB-2018 SORTED BY DATE
	1	2	3	4	5	6	7	8	9	10
Accident Reference	0113XH30178	0113XH30435	0113XH30537	0114XH30246	0114XH30529	0115XH30791	0116XH30040	0116XH30310	01160021376	01160004185
Day	THURSDAY	THURSDAY	MONDAY	TUESDAY	SUNDAY	TUESDAY	TUESDAY	SATURDAY	SATURDAY	FRIDAY
Date	18/04/2013	11/07/2013	21/10/2013	15/04/2014	31/08/2014	03/11/2015	26/01/2016	14/05/2016	17/09/2016	18/11/2016
Time	18:51	07:44	15:14	16:50	17:35	08:20	09:55	09:02	19:35	08:30
Light Conditions	LIGHT	LIGHT	LIGHT	LIGHT	LIGHT	LIGHT	LIGHT	LIGHT	DARK	LIGHT
Road Surface	DRY	DRY	WET	DRY	DRY	DRY	DRY	DRY	DRY	UNKN (S/R)
Severity	SLIGHT	SLIGHT	SLIGHT	SLIGHT	SLIGHT	SLIGHT	SLIGHT	SLIGHT	SLIGHT	SLIGHT
Conflict										
Pedestrian Location	50M	50M	50M	0		0	50M		0	
Contributory Factors (* denotes pre 2005)	405 V001 B 802 C001 A 808 C001 A	802 C001 A 808 C001 A	802 C001 A 808 C001 A 801 C001 A 701 V001 A	801 C001 A 802 C001 A 808 C001 A	999 C001 A	802 C001 A 808 C001 A	801 C001 A 802 C001 A 803 C001 A 808 C001 A 701 V001 A	406 V001 A 602 V001 A		
Easting/Northing	509700 179430	509540 179280	509700 179420	509680 179400	509700 179420	509680 179390	509700 179420	509590 179320	509820 179180	509630 179260

Pedestrian	10	71 %
Wet	1	7 %
Dark	2	14 %

Site Diagram

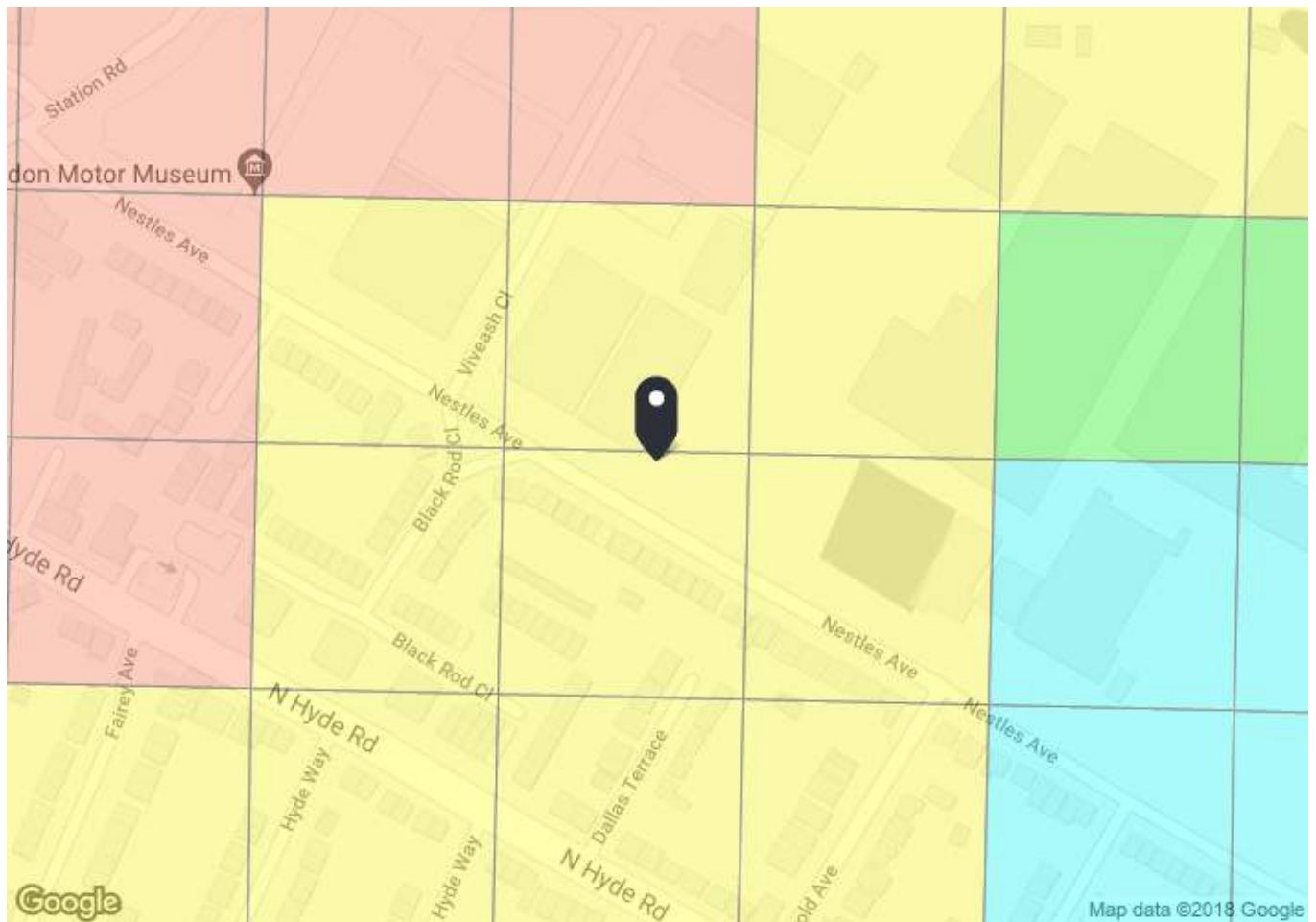


Severity / Months To	12 02/2014	12 02/2015	12 02/2016	12 02/2017	12 02/2018	Total	Pct
Fatal	0	0	0	0	0	0	0.0 %
Serious	0	0	0	0	0	0	0.0 %
Slight	3	2	2	4	3	14	100.0 %
Total	3	2	2	4	3	14	
Pct	21.4 %	14.3 %	14.3 %	28.6 %	21.4 %		

**5 years to end February 2018 provisional**

MP01 GIS AREA Nestles Ave Nov 2018 (P)				60 MTS TO FEB-2018 SORTED BY DATE
	11	12	13	14
Accident Reference	01170012345	01170026004	01170059867	01180082183
Day	TUESDAY	SATURDAY	SATURDAY	MONDAY
Date	17/01/2017	11/03/2017	19/08/2017	08/01/2018
Time	17:15	13:00	21:29	06:50
Light Conditions	DARK	LIGHT	LIGHT	LIGHT
Road Surface	DRY	UNKN (S/R)	UNKN (S/R)	DRY
Severity	SLIGHT	SLIGHT	SLIGHT	SLIGHT
Conflict				
Pedestrian Location	0	0		X
Contributory Factors (* denotes pre 2005)	405 V001 B			705 V001 A 405 V001 A
Easting/Northing	509680 179400	509540 179280	509510 179260	509717 179455

APPENDIX B. PTAL Calculation



PTAL output for 2021 (Forecast)

4

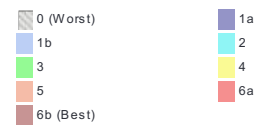
Stanford House, 9 Nestles Ave, Hayes UB3 4SA, UK
Easting: 509859, Northing: 179190

Grid Cell: 73752

Report generated: 16/11/2018

This information is produced using forecasting tools and is subject to uncertainty

Map key - PTAL



Map layers

 PTAL (cell size: 100m)

Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency (vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	STATION RD NORTH HYDE RD	E6	458.08	6.21	5.73	6.83	12.56	2.39	0.5	1.19
Bus	STATION RD NORTH HYDE RD	U5	458.08	5.18	5.73	7.8	13.52	2.22	0.5	1.11
Bus	STATION RD NORTH HYDE RD	90	458.08	6.21	5.73	6.83	12.56	2.39	0.5	1.19
Bus	STATION RD NORTH HYDE RD	350	458.08	5.18	5.73	7.8	13.52	2.22	0.5	1.11
Bus	STATION RD NORTH HYDE RD	H98	458.08	7.76	5.73	5.86	11.59	2.59	0.5	1.29
Bus	STATION RD NORTH HYDE RD	U4	458.08	7.76	5.73	5.86	11.59	2.59	0.5	1.29
Bus	STATION RD NORTH HYDE RD	140	458.08	8.8	5.73	5.41	11.14	2.69	1	2.69
Bus	HAROLD AVENUE	195	296.64	5.18	3.71	7.8	11.51	2.61	0.5	1.3
Rail	Hayes & Harlington	'ABBEYW-HTRW4'	472.37	3.33	5.9	9.76	15.66	1.92	1	1.92
Rail	Hayes & Harlington	'SHENFLD-RDNGSTN'	472.37	2	5.9	15.75	21.65	1.39	0.5	0.69
Rail	Hayes & Harlington	'SHENFLD-MDNHEAD'	472.37	1.33	5.9	23.31	29.21	1.03	0.5	0.51
Rail	Hayes & Harlington	'HTRW4-SHENFLD'	472.37	1	5.9	30.75	36.65	0.82	0.5	0.41
Rail	Hayes & Harlington	'ABBEYW-MDNHEAD'	472.37	0.67	5.9	45.53	51.43	0.58	0.5	0.29
Rail	Hayes & Harlington	'WDRAITN-ABBEYW'	472.37	1.33	5.9	23.31	29.21	1.03	0.5	0.51
Rail	Hayes & Harlington	'WDRAITN-SHENFLD'	472.37	0.67	5.9	45.53	51.43	0.58	0.5	0.29
Rail	Hayes & Harlington	'RDNGSTN-ABBEYW'	472.37	0.33	5.9	91.66	97.56	0.31	0.5	0.15
Rail	Hayes & Harlington	'HTRW4-WWARS'	472.37	0.33	5.9	91.66	97.56	0.31	0.5	0.15
Rail	Hayes & Harlington	'RDNGSTN-PADTON 2P11'	472.37	2	5.9	15.75	21.65	1.39	0.5	0.69
Rail	Hayes & Harlington	'PADTON-RDNGSTN 2R13'	472.37	2	5.9	15.75	21.65	1.39	0.5	0.69

Total Grid Cell AI: 17.49

PTAL Calculator

EDIT GREEN BOXES ONLY

Route Walk Distance Frequency Weight Walk Time SWT Total Access Time EDF AI

BUSES MAX 640m

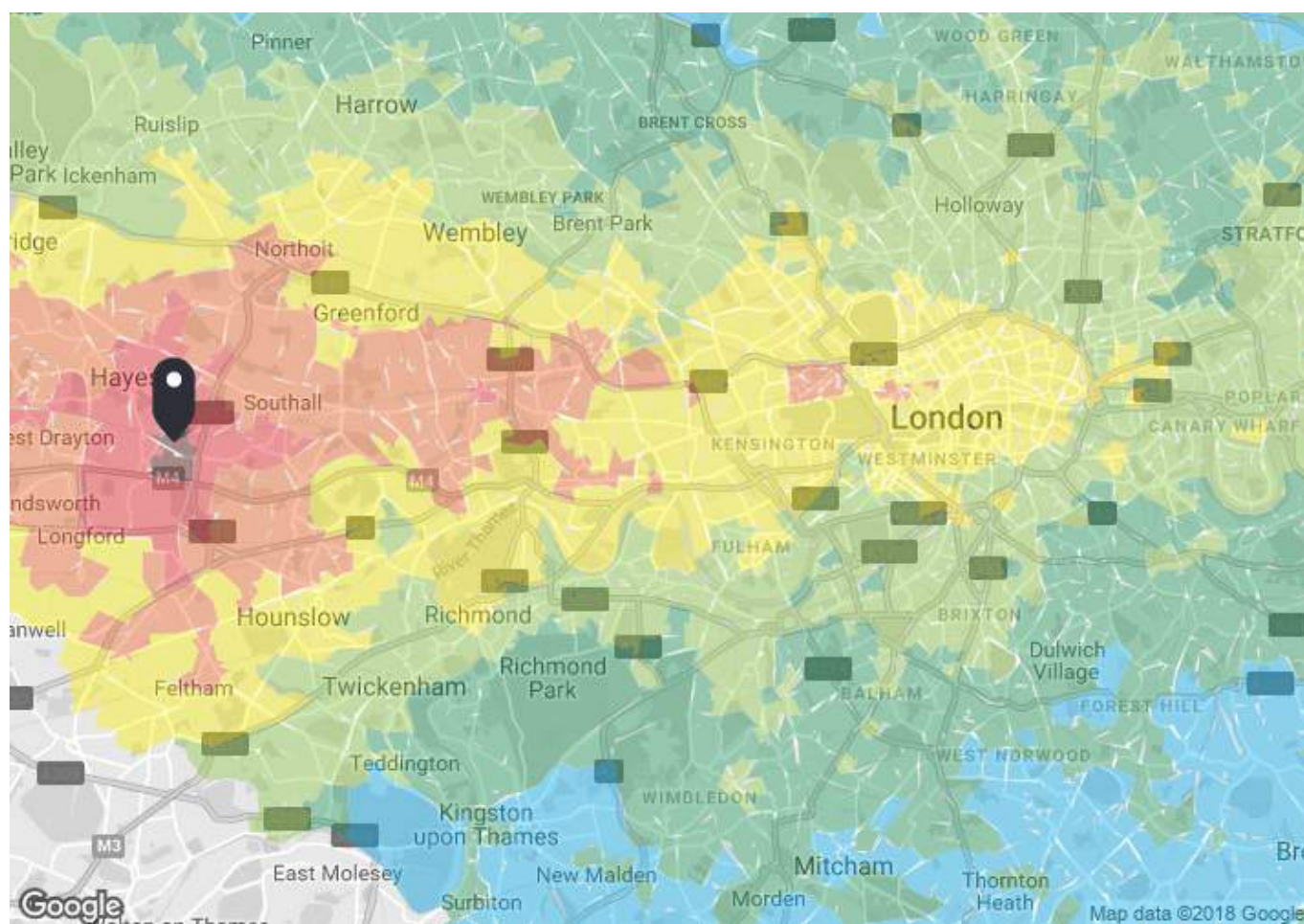
H32	413	10	1	5.16	7	12.16	2.47	2.47
X140	413	12	0.5	5.16	8	13.16	2.28	1.14
278	413	15	0.5	5.16	9.5	14.66	2.05	1.02

Your Existing PTAL AI 17.49
Your Calculated PTAL AI 22.12

CHECK YOUR PTAL

AI	PTAL
0.01 - 2.50	1a
2.51 - 5.00	1b
5.01 - 10.00	2
10.01 - 15.00	3
15.01 - 20.00	4
20.01 - 25.00	5
25.01 - 40.00	6a
40.01+	6b

APPENDIX C. TIM Output



TIM output for 2021 (Forecast)

Scenario: 2021 (Forecast) Mode: All public transport modes, Time of day: AM peak, Direction: From location

Nestles Avenue

Nestles Ave, Hayes UB3, UK

Easting: 509896, Northing: 179145

Report generated: 30/11/2018

This information is produced using forecasting tools and is subject to uncertainty

Population and employment: GLA forecasts 2016

Town Centres: GLA 2016

Education: EduBase 2016

Health: NHS Direct, CQC 2016

Code: WE086A05C

Map key - Travel Time

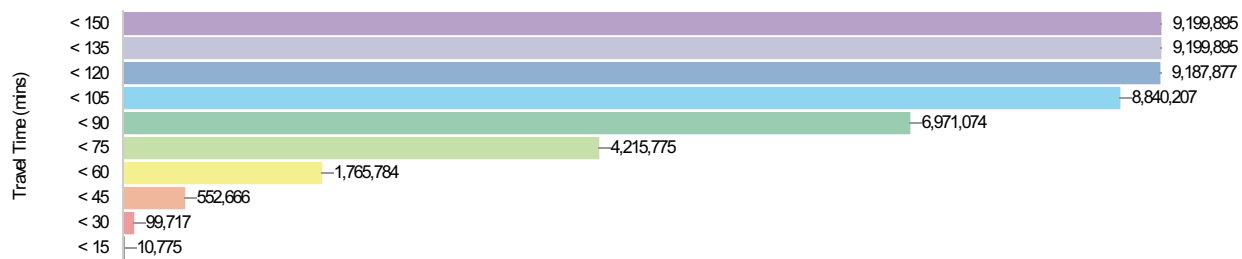
< 15 mins	15 - 30 mins
30 - 45 mins	45 - 60 mins
60 - 75 mins	75 - 90 mins
90 - 105 mins	105 - 120 mins
120 - 135 mins	135 - 150 mins

Map layers

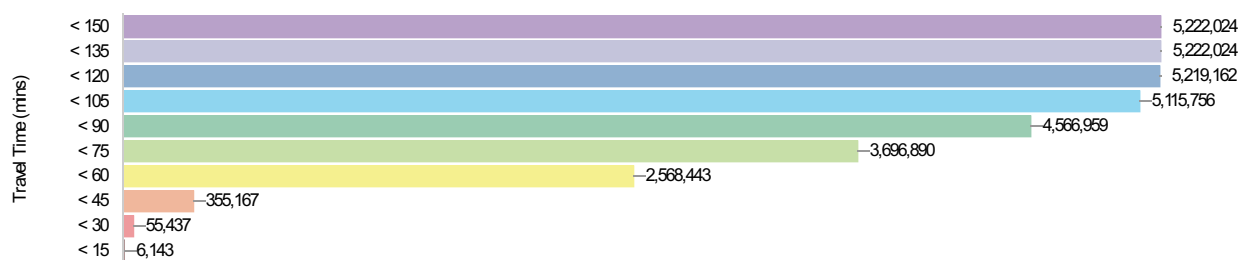
 Travel Times

Catchment data for your current selection

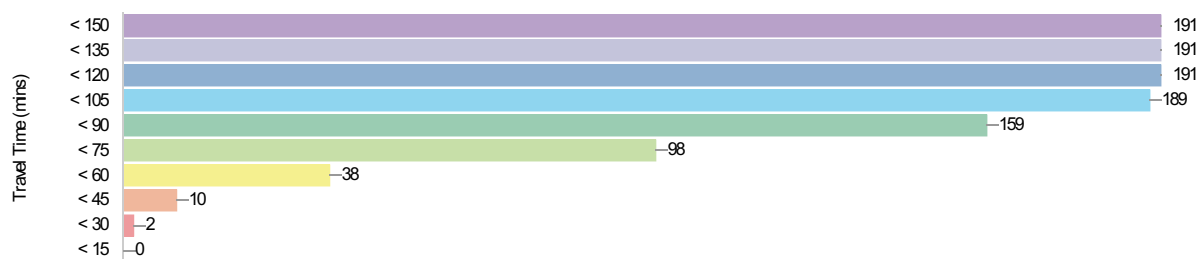
Population - Total: London 2021



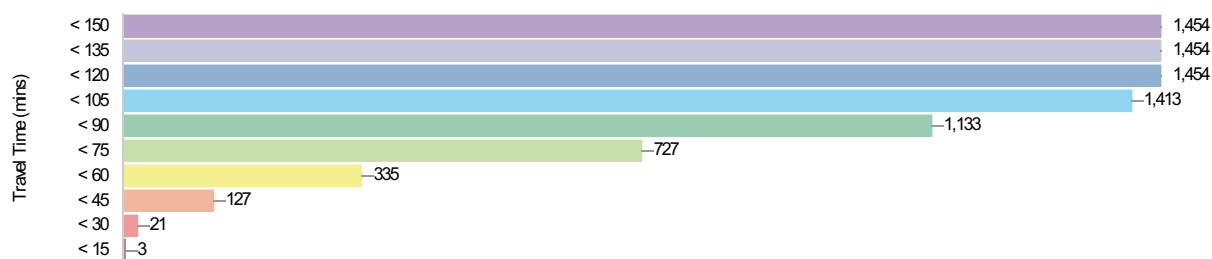
Employment - Jobs: London 2021



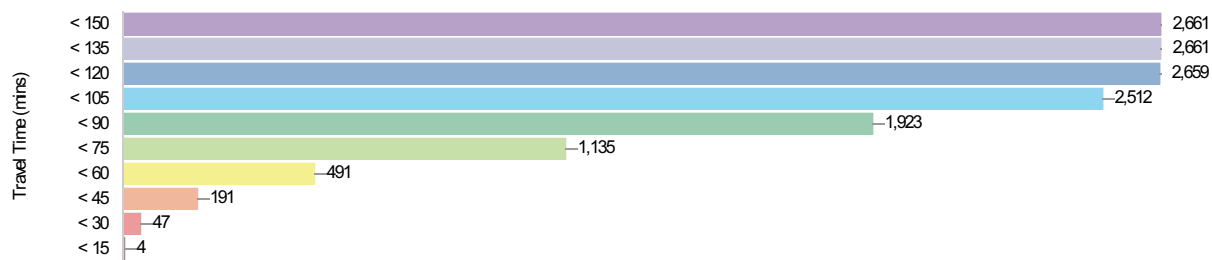
Town centres - Metropolitan, major and district: London



Health services - GP Surgeries: London



Education establishments - Primary schools: London



APPENDIX D. Proposed Site Plan



Do not scale from this drawing, except for town planning purposes.
Work to figured dimensions only.
This drawing is the property of Brimelow McSweeney Architects and copyright is reserved by them.
This drawing is issued on condition that it is not copied, used or disclosed by or to any unauthorised person without the prior written consent of Brimelow McSweeney Architects.
The areas on the drawing have been measured directly from a CAD drawing and have no tolerances added or subtracted.
The areas have been calculated in accordance with the Code of Measuring Practice, 6th Edition (2007) using the stated options N/A, GIA, GEA. They are approximate and relate to the likely areas of the building at the current state of the design. Any decisions to be made on the basis of these predictions, whether as to project viability, pre-letting, lease agreements and the like, should make allowance for the following:
- Design development
- Accurate site survey, site levels and dimensions need to be fully evaluated
- Allowance for construction methods and building tolerances.
- Local authority consents

rev	date	drawn by	checked	description
/	21/11-18	JT	SMD	First Issue
A	23/11-18	JT	SMD	General Update

status		PRELIMINARY	
BRIMELOW McSWEENEY ARCHITECTS			
26 Great Queen Street, Covent Garden, London WC2B 5BL tel: 020 7831 7835 - email: admin@bm-architects.co.uk			
project		9 Nestles Avenue Hayes UB3 4SA	
title		Ground Floor Plan As Proposed	
scale	date	drawn	
1 : 200@ A3	21/11/13	JT	
1 : 100@ A1			
drawing no.	revision		
1820 - 1100	A		

APPENDIX E. TRICS Outputs

Calculation Reference: AUDIT-236603-181116-1107

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
 Category : C - INDUSTRIAL UNIT
 VEHICLES

Selected regions and areas:

01 GREATER LONDON
 HD HILLINGDON 2 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area
 Actual Range: 1080 to 3912 (units: sqm)
 Range Selected by User: 620 to 4000 (units: sqm)

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/10 to 05/12/12

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Wednesday 1 days
 Friday 1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count 2 days
 Directional ATC Count 0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre) 2

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Industrial Zone 2

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

B1 2 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

10,001 to 15,000 1 days
 15,001 to 20,000 1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Secondary Filtering selection (Cont.):

Population within 5 miles:

125,001 to 250,000 2 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

1.1 to 1.5 2 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No 2 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present 1 days

1b Very poor 1 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	HD-02-C-01	TARMAC PRODUCTION	HILLINGDON
	PUMP LANE		
	HAYES		
	Suburban Area (PPS6 Out of Centre)		
	Industrial Zone		
	Total Gross floor area:	3912 sqm	
	Survey date: FRIDAY	11/05/12	Survey Type: MANUAL
2	HD-02-C-02	WINDOW PRODUCTION	HILLINGDON
	BETAM ROAD		
	HAYES		
	Suburban Area (PPS6 Out of Centre)		
	Industrial Zone		
	Total Gross floor area:	1080 sqm	
	Survey date: WEDNESDAY	05/12/12	Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 02 - EMPLOYMENT/C - INDUSTRIAL UNIT
VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	2496	0.661	2	2496	0.561	2	2496	1.222
08:00 - 09:00	2	2496	0.441	2	2496	0.300	2	2496	0.741
09:00 - 10:00	2	2496	0.461	2	2496	0.441	2	2496	0.902
10:00 - 11:00	2	2496	0.541	2	2496	0.481	2	2496	1.022
11:00 - 12:00	2	2496	0.561	2	2496	0.581	2	2496	1.142
12:00 - 13:00	2	2496	0.481	2	2496	0.721	2	2496	1.202
13:00 - 14:00	2	2496	0.300	2	2496	0.421	2	2496	0.721
14:00 - 15:00	2	2496	0.461	2	2496	0.501	2	2496	0.962
15:00 - 16:00	2	2496	0.401	2	2496	0.461	2	2496	0.862
16:00 - 17:00	2	2496	0.321	2	2496	0.401	2	2496	0.722
17:00 - 18:00	2	2496	0.240	2	2496	0.401	2	2496	0.641
18:00 - 19:00	2	2496	0.120	2	2496	0.260	2	2496	0.380
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:	4.989			5.530			10.519		

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

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Parameter summary

Trip rate parameter range selected:	1080 - 3912 (units: sqm)
Survey date date range:	01/01/10 - 05/12/12
Number of weekdays (Monday-Friday):	2
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Calculation Reference: AUDIT-236603-181116-1111

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : C - FLATS PRIVATELY OWNED
MULTI-MODAL VEHICLES

Selected regions and areas:

01	GREATER LONDON	
BT	BRENT	1 days
HG	HARINGEY	1 days
HO	HOUNSLOW	1 days
IS	ISLINGTON	1 days
KI	KINGSTON	2 days
RD	RICHMOND	1 days
SK	SOUTHWARK	2 days
WH	WANDSWORTH	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Number of dwellings
Actual Range: 20 to 170 (units:)
Range Selected by User: 20 to 250 (units:)

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/10 to 03/07/18

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	2 days
Wednesday	3 days
Thursday	3 days
Friday	2 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	10 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Edge of Town Centre	7
Suburban Area (PPS6 Out of Centre)	3

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Development Zone	3
Residential Zone	4
Built-Up Zone	2
No Sub Category	1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

C3	10 days
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This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

10,001 to 15,000	1 days
25,001 to 50,000	5 days
50,001 to 100,000	2 days
100,001 or More	2 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

250,001 to 500,000	1 days
500,001 or More	9 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.5 or Less	2 days
0.6 to 1.0	6 days
1.1 to 1.5	2 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	5 days
No	5 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

1b Very poor	1 days
2 Poor	2 days
3 Moderate	1 days
4 Good	1 days
6a Excellent	2 days
6b (High) Excellent	3 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	BT-03-C-01 LAKESIDE DRIVE PARK ROYAL	BLOCKS OF FLATS	BRENT
	Suburban Area (PPS6 Out of Centre) Development Zone Total Number of dwellings:	170	
	Survey date: WEDNESDAY	28/09/16	Survey Type: MANUAL
2	HG-03-C-02 HIGH ROAD WOOD GREEN WOODSIDE PARK	BLOCK OF FLATS	HARINGEY
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings:	30	
	Survey date: WEDNESDAY	01/10/14	Survey Type: MANUAL
3	HO-03-C-03 COMMERCE ROAD BRENTFORD	BLOCKS OF FLATS	HOUNSLOW
	Edge of Town Centre Development Zone Total Number of dwellings:	150	
	Survey date: FRIDAY	18/11/16	Survey Type: MANUAL
4	IS-03-C-04 CITY ROAD ISLINGTON	BLOCK OF FLATS	ISLINGTON
	Edge of Town Centre Development Zone Total Number of dwellings:	157	
	Survey date: THURSDAY	14/07/16	Survey Type: MANUAL
5	KI-03-C-02 SOPWITH WAY KINGSTON UPON THAMES	BLOCK OF FLATS	KINGSTON
	Edge of Town Centre No Sub Category Total Number of dwellings:	132	
	Survey date: MONDAY	14/06/10	Survey Type: MANUAL
6	KI-03-C-03 PORTSMOUTH ROAD SURBITON	BLOCK OF FLATS	KINGSTON
	Edge of Town Centre Residential Zone Total Number of dwellings:	20	
	Survey date: MONDAY	11/07/16	Survey Type: MANUAL
7	RD-03-C-03 BESSANT DRIVE KEW	BLOCKS OF FLATS	RICHMOND
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings:	120	
	Survey date: THURSDAY	26/04/18	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

8	SK-03-C-01 PARK STREET SOUTHWARK	BLOCK OF FLATS	SOUTHWARK
	Edge of Town Centre Built-Up Zone Total Number of dwellings: 53 <i>Survey date: FRIDAY 19/09/14</i>		
9	SK-03-C-02 LAMB WALK BERMONDSEY	BLOCK OF FLATS	SOUTHWARK
	Edge of Town Centre Built-Up Zone Total Number of dwellings: 29 <i>Survey date: THURSDAY 23/04/15</i>		
10	WH-03-C-01 AMIES STREET CLAPHAM JUNCTION	BLOCKS OF FLATS	WANDSWORTH
	Edge of Town Centre Residential Zone Total Number of dwellings: 30 <i>Survey date: WEDNESDAY 09/05/12</i>		

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
KN-03-C-03	Central/inner London Location

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	10	89	0.098	10	89	0.332	10	89	0.430
08:00 - 09:00	10	89	0.101	10	89	0.429	10	89	0.530
09:00 - 10:00	10	89	0.131	10	89	0.220	10	89	0.351
10:00 - 11:00	10	89	0.109	10	89	0.183	10	89	0.292
11:00 - 12:00	10	89	0.130	10	89	0.163	10	89	0.293
12:00 - 13:00	10	89	0.163	10	89	0.153	10	89	0.316
13:00 - 14:00	10	89	0.165	10	89	0.167	10	89	0.332
14:00 - 15:00	10	89	0.116	10	89	0.118	10	89	0.234
15:00 - 16:00	10	89	0.176	10	89	0.119	10	89	0.295
16:00 - 17:00	10	89	0.199	10	89	0.172	10	89	0.371
17:00 - 18:00	10	89	0.287	10	89	0.176	10	89	0.463
18:00 - 19:00	10	89	0.318	10	89	0.184	10	89	0.502
19:00 - 20:00	6	108	0.331	6	108	0.150	6	108	0.481
20:00 - 21:00	6	108	0.207	6	108	0.119	6	108	0.326
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:	2.531			2.685			5.216		

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

APPENDIX F. Delivery and Servicing Calculations

i-Transport Calculation of Delivery/Service Trip Rate - London Sites - Per Day

03/C Flats Privately Owned

TRICS Code	Units	Deliveries	Trip Rate per Unit
BT-03-C-01	170	16	0.09
BT-03-C-02	472	11	0.02
HG-03-C-02	30	5	0.17
HK-03-C-03	10	2	0.20
HO-03-C-03	150	40	0.27
IS-03-C-04	157	9	0.06
IS-03-C-05	15	2	0.13
IS-03-C-06	14	2	0.14
KI-03-C-03	20	1	0.05
SK-03-C-01	53	4	0.08
SK-03-C-02	29	4	0.14
EN-03-C-02	76	31	0.41
HO-03-C-04	203	24	0.12
RD-03-C-03	120	2	0.02
Average	109	11	0.14

90% LGV

10% HGV

03/M Mixed Private/Affordable Housing

TRICS Code	Units	Deliveries	Trip Rate per Unit	Proportion Flats
BN-03-M-01	105	21	0.20	26%
BT-03-M-03	74	9	0.12	100%
EG-03-M-04 / 01	167	22	0.13	95%
EG-03-M-05	106	8	0.08	83%
GR-03-M-01/01	226	14	0.06	100%
GR-03-M-02/01	455	11	0.02	100%
HD-03-M-03/01	261	19	0.07	61%
HD-03-M-04/01	45	4	0.09	100%
HD-03-M-05/01	261	18	0.07	61%
HM-03-M-01/01	1751	279	0.16	99%
SK-03-M-01	122	15	0.12	100%
RD-03-M-01/01	76	14	0.18	80%
BT-03-M-01	284	11	0.04	100%
BT-03-M-02	232	12	0.05	100%
Average	298	33	0.10	86%

Average of All 99-100% Flat Sites

19 214 23 0.12 100%

Updated

Sep-18

