PAUL MEW ASSOCIATES

TRAFFIC CONSULTANTS 020 8780 0426

LONDON BOROUGH OF RICHMOND UPON THAMES

ELLERAY HALL & NORTH LANE EAST CAR PARK/DEPOT, TEDDINGTON, TW11

TRANSPORT ASSESSMENT

July 2021

PAUL MEW ASSOCIATES - TRAFFIC CONSULTANTS
Unit 1, Plym House, 21 Enterprise Way, London SW18 1FZ
T:0208 780 0426 E:paul.mew@pma-traffic.co.uk W: www.pma-traffic.co.uk

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1.0 INTRODUCTION

1.1 Paul Mew Associates is instructed by the London Borough of Richmond upon Thames in relation to the proposed developments at Elleray Hall and North Lane East Car Park/Depot, Teddington, TW11.

1.2 The application site's location is presented on a map in Figure 1 of this report; the site's boundary is displayed on an Ordnance Survey (OS) map base in Appendix A.

Site Location

1.3 The site comprises of two plots of land accessed from Elleray Road (Elleray Hall) and North Lane (North Lane East car park/depot), which are both situated within a short walking distance of Teddington town centre. A parade of local shops, amenities and services are located along the A313 Broad Street, which is connected to the northern ends of Elleray Road and North Lane.

1.4 The area adjoining the site comprises of mixture of residential dwellings and commercial uses, with the car park entrance to Tesco Metro situated directly opposite the access to North Lane East car park.

1.5 North Lane East car park/depot is bounded by the footway adjoining North Lane to the west, residential dwellings to the north and east, and Middle Lane to the south (a pedestrian through route). Elleray Hall is bounded by residential dwellings to the south, east and west, and Elleray Road/Middle Lane to the north.

1.6 Elleray Road and North Lane are both oriented in a northerly to southerly direction, connecting with the A313 Broad Street to the north at priority give-way junctions.

1.7 The roads adjoining Elleray Hall are situated within Controlled Parking Zone (CPZ) 'Z1', which operates from Monday to Sunday (including bank holidays), 08:30hrs-22:00hrs. A new CPZ 'Area 5' is also proposed on North Lane and the surrounding streets. Further consultation regarding the operational hours and design of the new CPZ is expected to take place in May 2021.

1.8 The closest bus stops to the site are situated on Broad Street, within a 190 and 150 metres walking distance of North Lane East car park/depot and Elleray Hall respectively. These stops serve access to bus routes 481, X 26, 281, 285, 33 and R68.

1.9 Teddington rail station is located within a 500 metres walking distance of both plots to the east on Victoria Road, and serves access to a number of rail services.

1.10 The local planning and highway authority for the site is the London Borough of Richmond upon Thames (LBRuT).

1.11 Transport for London's (TfL) Public Transport Accessibility Level (PTAL) tool has calculated the site to have a PTAL score of 3 which is a 'moderate' level of public transport service availability as defined by TfL.

Existing Site

1.12 North Lane East car park/depot currently comprises of a vacant depot and a car park, which is currently in use. Elleray Hall currently comprises of a local community centre (Use Class: D1, 510.5sqm GIA, 540sqm GEA) with an informal parking area provided to the west of the building with capacity for around one minibus and five cars.

The Proposals

1.13 The proposals seek the construction of a new community centre (Use Class: D1 / F2 (b), 519sqm GIA, 587sqm GEA) with on-site parking facilities (comprising of four standard parking bays, one designated blue badge bay and one minibus bay) at North Lane East car park/depot. Vehicle access to the new community centre will be provided from a re-positioned access onto North Lane, whilst pedestrian access will be served from the pedestrian only section of Middle Lane.

1.14 The expected opening hours for the proposed community centre will be 09:00hrs-22:00hrs Monday to Saturday and 10:00hrs-15:30hrs on Sundays. It's proposed that three Full-Time Equivalent (FTE) staff will be employed at the community centre.

1.15 A residential development of 16 affordable flats (comprising of 14 one-bedroom (two person) and two two-bedroom units) is also proposed with one on-site blue badge parking bay (0.06 spaces per dwelling), which will replace the existing Elleray Hall. Two of the one-bedroom units shall also be wheelchair accessible. Vehicle access to the site will be provided from a new dropped-kerb crossover onto Elleray Road, whilst pedestrian access will be served from the pedestrian only section of Middle Lane and Elleray Road for Plot 1 only.

1.16 There is also potential for one of the standard parking bays within the community centre parking area to be converted into a blue badge bay for the proposed residential development if required.

1.17 Active electric vehicle charging facilities will be provided for one of the standard parking spaces at the proposed community centre and the residential development's blue badge space. Passive provision will be provided for the remaining parking spaces.

1.18 In terms of cycle parking for the residential development, 26 secure and sheltered long-stay cycle parking spaces (comprising of 20 vertical spaces, four standard Sheffield spaces and two larger Sheffield spaces) will be provided for the development within two communal cycle stores at ground level. Short-stay cycle parking will also be provided in accordance with London Plan requirements.

1.19 A total of two long-stay and six short-stay cycle parking spaces will also be provided for the proposed community centre in the form of three bike lockers and three Sheffield stands respectively.

1.20 The schedule of accommodation and proposed site plan are presented in Appendix B of this report.

This Report

1.21 This Transport Assessment has been produced for submission with a full planning application to the local planning authority and follows on from formal pre-application consultations which have helped shape the proposals.

1.22 The proposed development is also being subject to a BREEAM sustainability assessment. As such, reference has been made to Chapter 7 'Transport' of the BREEAM New Construction (2018) document. Tra 01 requirements for this Transport Assessment have been extracted below for ease of reference:

> *"2 The site-specific travel assessment (or statement) shall cover as a minimum:*
>
> *2.a If relevant, travel patterns and attitudes of existing building or site users towards cycling, walking and public transport, to identify relevant constraints and opportunities.*
> *2.b Predicted travel patterns and transport impact of future building or site users.*
> *2.c Current local environment for pedestrians and cyclists, accounting for any age-related requirements of occupants and visitors.*
> *2.d Reporting of the number and type of existing accessible amenities, see Table 7.1 below, within 500m of the site.*
> *2.e Disabled access accounting for varying levels and types of disability, including visual impairment.*

2.f Calculation of the existing public transport Accessibility Index (AI), see Methodology on the facing page.
2.g Current facilities for cyclists."

1.23 An outline Travel Plan, and two outline Construction Management Statements have also been prepared by Paul Mew Associates and submitted with the full planning application.

1.24 The following section outlines planning policy relevant to the application site.

2.0 POLICY CONTEXT

2.1 This proposal has been assessed in accordance with current transport planning policy guidance at the local, regional and national level.

London Borough of Richmond upon Thames

2.2 Richmond Council's planning policy is contained in a hierarchy of policy and guidance documents from the national to the local level, all of which are used to guide and manage development in the borough.

2.3 The Local Plan (previously known as Local Development Framework) sets out the priorities for the development of the borough and is used for making decisions on planning applications. It consists of a number of planning documents and guidance.

2.4 Richmond Council adopted its new Local Plan for the borough in July 2018, which replaces previous policies within the Core Strategy and Development Management Plan. The Plan sets out policies and guidance for the development of the borough over the next 15 years.

2.5 Policy LP45 of the Council's adopted Local Plan sets out the parking standards and servicing standards for new development and is therefore of material importance to this assessment. The full wording is extracted as follows:

> *"Policy LP 45*
> ***Parking Standards and Servicing***
> ***Parking standards***
> *The Council will require new development to make provision for the accommodation of vehicles in order to provide for the needs of the development while minimising the impact of car based travel including on the operation of the road network and local environment, and ensuring making the best use of land. It will achieve this by:*
> *1. Requiring new development to provide for car, cycle, 2 wheel and, where applicable, lorry parking and electric vehicle charging points, in accordance with the*

standards set out in Appendix 3. Opportunities to minimise car parking through its shared use will be encouraged.

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

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

b. there would be no harmful impact on the character of the area, including the streetscape or setting of the property, in line with the policies on Local Character and Design; and c. the existing on-street demand is less than available capacity.

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

a. the provision of disabled parking;

b. appropriate servicing arrangements; and

c. demonstrating that proper controls can be put in place to ensure that the proposal will not contribute to on-street parking stress in the locality. All proposals for car free housing will need to be supported by the submission of a Travel Plan.

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

Freight and Servicing

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

2.6 As is referenced in Policy LP 45, the Council's parking standards are set out in Appendix 3 of the adopted Local Plan. The Council's C3 residential and D1 public halls parking standards are set out as follows:

- Residential (Use Class C3):
  - Car Parking – PTALs 0-3: 1-2 bedrooms, maximum of 1 space. 3+ bedrooms, maximum of 2 spaces
  - Cycle Parking – as per London Plan
- Public Halls (Use Class D1):
  - Car Parking – maximum of 1 space per 10 persons/seats, 1 coach space per 50 persons/seats
  - Cycle Parking – as per London Plan
- Electric Vehicle Charging (EVC) Facilities – as per London Plan

New London Plan

2.7 The Mayor of London, through the legislation establishing the Greater London Authority (GLA), must produce a spatial development strategy (SDS) which has become known as the London Plan.

2.8 In March 2021 the Mayor of London published the new London Plan, which sets out a framework for how London will develop over the next 20-25 years and the Mayor's vision for Good Growth. Chapter 10 of the London Plan relates to London's Transport.

2.8 At the regional level the London Plan Policy T1 sets out the Mayor's strategic approach to transport as shown below:

> *"Policy T1 Strategic approach to transport*
> *A Development Plans should support and development proposals should facilitate:*
> *1) the delivery of the Mayor's strategic target of 80 per cent of all trips in London to be made by foot, cycle or public transport by 2041*
> *2) the proposed transport schemes set out in Table 10.1.*
> *B All development should make the most effective use of land, reflecting its connectivity and accessibility by existing and future public transport, walking and cycling routes, and ensure that any impacts on London's transport networks and supporting infrastructure are mitigated."*

2.9 Policy T2 of the new London Plan sets out the Mayor's strategy for 'healthy streets' and is an important new feature. Policy T2 is extracted as follows:

> *"Policy T2 Healthy Streets*
> *A Development proposals and Development Plans should deliver patterns of land use that facilitate residents making shorter, regular trips by walking or cycling.*
> *B Development Plans should:*
> *1) promote and demonstrate the application of the Mayor's Healthy Streets Approach to: improve health and reduce health inequalities; reduce car dominance, ownership and use, road danger, severance, vehicle emissions and noise; increase walking, cycling and public transport use; improve street safety, comfort, convenience and amenity; and support these outcomes through sensitively designed freight facilities.*

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

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

D Development proposals should:

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

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

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

2.9 In terms of guidance for car, blue badge, EVC and cycle parking standards, the new London Plan sets out the following standards, which are applicable to this proposal:

- Residential (Use Class C3):
    - Car Parking: Outer London PTAL's 2-3 – up to 0.75 spaces per one or two-bedroom unit;
    - Cycle Parking: Long-stay 1 space per studio, 1.5 spaces per 1 bedroom dwelling, and 2 spaces per all other dwellings. Short-stay, 1 space per 40 units;
    - Blue Badge Parking (10 or more dwellings): Disabled parking is required for 3% of dwellings. This assessment should also demonstrate that disabled parking can be provided for an additional 7% of dwellings in future upon request;
    - EVC Parking: At least 20% of spaces should have active charging facilities, with passive provision for all remaining spaces.
- Public Halls (Use Class D1):
    - Hotel and Leisure Uses Car Parking: schemes should be assessed on a case-by case basis;

- Hotel and Leisure Uses EVC Parking: All operational parking must provide infrastructure for electric or other Ultra-Low Emission vehicles, including active charging points for all taxi spaces
- Other D1 Cycle Parking: Long-stay 1 space 8 FTE staff, Short-stay, 1 space per 100sqm (GEA);
- Retail, Recreation, Hotels and Leisure Blue Badge Parking: Disabled parking is required for 6% of total provision. This assessment should also demonstrate that disabled parking can be provided for an additional 4% of the total provision in future upon request;

National Planning Policy Framework (NPPF)

2.15 The main planning policy documents which provide a context for national sustainable transport is the National Planning Policy Framework (NPPF), which was published in July 2018 and revised in June 2019.

2.16 The NPPF sets out key sustainable transport objectives. Promoting sustainable transport is an integral part of transportation policy.

2.17 An extract from section 9 'Promoting Sustainable Transport' of the NPPF June 2019 is set out as follows:

> *"102. Transport issues should be considered from the earliest stages of plan-making and development proposals, so that:*
> *a) the potential impacts of development on transport networks can be addressed;*
> *b) opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised – for example in relation to the scale, location or density of development that can be accommodated;*
> *c) opportunities to promote walking, cycling and public transport use are identified and pursued;*
> *d) the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; and*

e) patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places."

"103. The planning system should actively manage patterns of growth in support of these objectives. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions, and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making."

"106. Maximum parking standards for residential and non-residential development should only be set where there is a clear and compelling justification that they are necessary for managing the local road network, or for optimising the density of development in city and town centres and other locations that are well served by public transport (in accordance with chapter 11 of this Framework). In town centres, local authorities should seek to improve the quality of parking so that it is convenient, safe and secure, alongside measures to promote accessibility for pedestrians and cyclists."

3.0 SITE ACCESSIBILITY

Local Amenities

3.1 As previously noted, both plots are situated within a short walking distance to the south of a parade of local shops, amenities and services on the A313 Broad Street.

3.2 The closest amenities in proximity to the site on Broad Street include a Tesco Metro, Halifax bank, pharmacy and a number of restaurants/cafes.

3.3 As per Table 7.1 of BREEAM Tra 01, the number and type of existing accessible amenities within 500 metres of the site have been detailed in Table 1 below:

Table 1: Amenities in Proximity to The Site

Type of Amenity	Count
Appropriate food outlet	2
Access to cash	2
Access to an outdoor open space (public or private, suitably sized and accessible to building users)	1
Access to a recreation or leisure facility for fitness or sports	1
Publicly available postal facility	1
Community facility	3
Over the counter services associated with a pharmacy	2
Public sector GP surgery or general medical centre	2
Childcare facility or school	3

3.4 The location of nearby shops and amenities is displayed in Figure 2 of this report.

Public Transport

3.5 In terms of public transport, in order to demonstrate the accessibility attributes of the application site in the context of its surroundings, an accessibility audit and a public transport accessibility level (PTAL) assessment have been undertaken.

3.6 The PTAL system, widely used by local authorities and the Greater London Authority (GLA), assigns a 'score' to any given location based on the level of public transport accessible from the site within reasonable walk distances and wait times.

3.7 TfL provides an online GIS-based PTAL tool. The GIS-based PTAL tool uses spatial data such as point data files (e.g. bus stops) and vector files (e.g. walking network) to give a specific point of interest's PTAL score.

3.8 TfL's PTAL tool has calculated the site have a PTAI score of 13.47 and a corresponding PTAL score of 3 which is a 'moderate' level of public transport service availability as defined by TfL.

3.9 The PTAL Output File is presented in Appendix C. TfL's PTAL table is extracted as follows:

Table 3 Public Transport Accessibility Levels

PTAL	Range of Index	Map Colour	Description
1a (Low)	0.01 – 2.50		Very poor
1b	2.51 – 5.00		Very poor
2	5.01 – 10.00		Poor
3	10.01 – 15.00		Moderate
4	15.01 – 20.00		Good
5	20.01 – 25.00		Very Good
6a	25.01 – 40.00		Excellent
6b (High)	40.01 +		Excellent

3.10 A total of six different bus services with high hourly service frequencies can be accessed from stops in close proximity to the site. The closest bus stops to the site are situated on Broad Street, within a 190 and 150 metres walking distance of North Lane East car park/depot and Elleray Hall respectively. These stops serve access to bus routes 481, X26, 281, 285, 33 and R68.

3.11 Teddington rail station is located within a 500 metres walking distance of both plots to the east on Victoria Road and is managed by South Western Railway. Services from Teddington station include trains to London Waterloo (via Kingston or Richmond) and Shepperton, which stops at popular destinations such as Clapham Junction, Vauxhall, Wimbledon and Barnes.

3.12 Refer to Figure 2 for the locations of the nearby bus stops and stations.

Cycling & Pedestrian Accessibility

3.13 The pedestrian footways surrounding both plots are sufficiently wide, well-lit, and in a moderate state of repair. The walk routes from the site to local amenities and public transport access points are straightforward as can be seen from the site location map in Figure 2 of this report.

3.14 In terms of pedestrian infrastructure for those with disabilities including visual impairment and wheelchair access, there are limited crossing facilities along Elleray Road and North Lane in the form of dropped-kerbs. At the priority give-way junctions between North Lane / Broad Street and Elleray Road / Broad Street, informal pedestrian crossing facilities are provided in the form of dropped-kerbs with tactile paving. Pelican crossing facilities are also provided along Broad Street.

3.15 Cycling will be encouraged through the provision of appropriate cycle facilities as discussed later in this report. Secure and sheltered cycle parking will be provided for the development in accordance with local and regional policy guidelines.

3.16 From reviewing TfL's cycle route map (https://tfl.gov.uk/maps/cycle), the site is not located within close proximity of any Cycle Superhighway or Quietway routes. However, it should be noted that a number of off-street cycle paths are accessible within Bushy Park located to the south of the site.

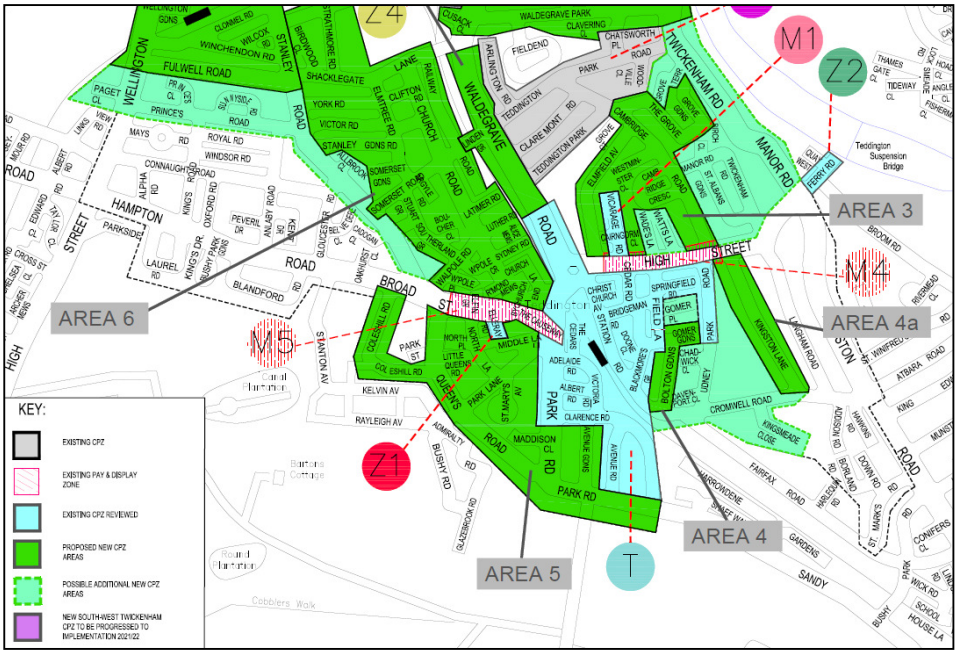
3.17 The site is outside of the catchment area for TfL's cycle hire scheme.

Vehicle Access

3.18 Elleray Road and North Lane are both oriented in a northerly to southerly direction, connecting with the A313 Broad Street to the north at priority give-way junctions.

3.19 Both plots are well connected to the wider highway network, with Elleray Road and North Lane connecting with the A313 Broad Street to the north at priority give-way junctions.

3.20 As previously noted, the roads adjoining Elleray Hall are situated within CPZ 'Z1', which operates from Monday to Sunday (including bank holidays), 08:30hrs-22:00hrs. A new CPZ 'Area 5' is also proposed on North Lane and the surrounding streets. Further consultation regarding the operational hours and design of the new CPZ is expected to take place in May 2021. Implementation of the CPZ's is expected in June 2022. The new CPZ map has been extracted below for ease of reference:



3.21 In terms of public car parks within the local area, part of the proposed site is currently operational as North Lane East car park, which provides parking for up to 25 vehicles during the hours of 8am to 6:30pm, Monday to Friday (maximum stay of three hours during operation). The car park is free to park in on Sundays and bank holidays.

3.22 Opposite to North Lane East car park is North Lane West car park, which provides parking for up to 82 vehicles also during the hours of 8am to 6:30pm, Monday to Friday (maximum stay of three hours during operation). The car park is free to park in on Sundays and bank holidays. As detailed later in this report, parking in both car parks is thought to be unrestricted outside operational hours for both car parks.

4.0 TRIP GENENERATION & TRAFFIC IMPACT

4.1 As previously explained, North Lane East car park/depot currently comprises of a vacant depot and a car park, which is currently in use. Elleray Hall currently comprises of a local community centre (Use Class: D1, 510.5sqm GIA, 540sqm GEA) with an informal parking area provided to the west of the building with capacity for around one minibus and five cars.

4.2 The proposals seek the construction of a new community centre (Use Class: D1 / F2 (b), 519sqm GIA, 587sqm GEA) with on-site parking facilities (comprising of four standard parking bays, one designated blue badge bay and one minibus bay) at North Lane East car park/depot. A residential development of 16 affordable flats (comprising of 14 one-bedroom (two person) and two two-bedroom units) is also proposed with one on-site blue badge parking bay (0.06 spaces per dwelling), which will replace the existing Elleray Hall.

4.3 In order to gauge the traffic impact of the proposal, trip generation estimates have been carried out for the site's extant uses and proposed uses, the net change in trips accessing the site would therefore represent the traffic impact of the development on the adjoining highway.

Trip Generation – Existing Community Centre

4.4 In order to demonstrate the likely multi-modal trip movements associated with the existing community centre 'Elleray Hall' (Use Class: D1, 510.5sqm GIA, 540sqm GEA), the industry standard TRICS (Trip Rate Information Computer System) database has been consulted. Only sites with '07 - Leisure, Q - Community Centre' uses such as Elleray Hall and similar levels of parking provision and access to local amenities have been applied to this assessment, in order to accurately depict the existing situation.

4.5 One comparable site has been selected for this study, details of which are summarised as follows and presented in full in Appendix D of this report. The TRICS database presents trip rates per 100sqm of gross floor area, which is the equivalent of GIA;

- TRICS code ST-07-Q-01: Community Centre, Wolverhampton, 2,329sqm.

4.6 Due to the limited number of TRICS survey sites available for the community centre land use, a survey site situated within London could not be applied to this assessment. As such, it's expected that the chosen TRICS site in Wolverhampton will project a higher reliance on travel by car than the existing Elleray Hall.

4.7 Table 2 illustrates the TRICS derived vehicle trip rate per 100sqm and the trips associated with the existing 510.5sqm community centre use.

Table 2. TRICS Vehicle Trips for the Existing Community Centre

Time Period	TRICS Vehicle Trip Rate Per 100sqm			Existing 510.5sqm Community Centre		
	Arr.	Dep.	Tot.	Arr.	Dep.	Tot.
08:00-09:00	0.56	0.04	0.60	3	0	3
09:00-10:00	0.39	0.22	0.60	2	1	3
10:00-11:00	0.69	0.73	1.42	4	4	7
11:00-12:00	0.60	0.60	1.20	3	3	6
12:00-13:00	0.56	0.60	1.16	3	3	6
13:00-14:00	0.52	0.60	1.12	3	3	6
14:00-15:00	0.34	0.77	1.12	2	4	6
15:00-16:00	0.26	0.30	0.56	1	2	3
16:00-17:00	0.39	0.26	0.64	2	1	3
17:00-18:00	0.17	0.30	0.47	1	2	2
18:00-19:00	0.26	0.13	0.39	1	1	2
19:00-20:00	0.00	0.00	0.00	0	0	0
20:00-21:00	0.00	0.00	0.00	0	0	0
21:00-22:00	0.00	0.00	0.00	0	0	0
Total	**4.72**	**4.55**	**9.28**	**24**	**23**	**47**

NB: Minor arithmetic errors are due to rounding

Source: TRICS 7.7.4

4.8 As is shown in Table 2 the existing 510.5sqm community centre use can be expected to generate in the order of 47 vehicle trips in and out of the site over the course of a typical weekday comprising of 24 arrivals and 23 departures. During AM (10:00hrs-11:00hrs) and PM (12:00hrs-13:00hrs) peak periods for vehicle trips, seven and six two-way vehicle trips respectively are expected at the site.

4.9 Morning, evening and daily (10:00hrs-11:00hrs, 12:00hrs-13:00hrs, and 08:00hrs-22:00hrs respectively) multi-modal trips projections based on TRICS derived data for the existing community centre are set out in Table 3.

Table 3. TRICS Multi-Modal Trip Generation Projections – Proposed Community Centre

Mode of Travel	AM Peak 1000-1100		PM Peak 1200-1300		Daily 0800-2200	
	Arr.	Dep.	Arr.	Dep.	Arr.	Dep.
Underground	0	0	0	0	0	0
Train	0	0	0	0	0	0
Bus, minibus, coach	0	0	0	0	0	0
Vehicles	4	4	3	3	24	23
Vehicle Passenger	1	1	0	0	4	5
Bicycle	0	0	0	0	0	0
On-foot	7	4	7	8	38	36
Other	0	0	0	0	0	0
Total	**11**	**9**	**10**	**11**	**66**	**64**

Source: TRICS 7.7.4
Note: minor arithmetic errors are due to rounding

4.10 As is shown in Table 3 the existing 510.5sqm community centre use can be expected to generate in the order of 130 total trips in and out of the site over the course of a typical weekday comprising of 66 arrivals and 64 departures. Notably, around 56.9% of daily two-way trips were on foot and 36.1% of two-way trips were carried out by car or other motorised vehicles.

Trip Generation – Proposed Community Centre

4.11 As previously noted, North Lane East car park/depot will be converted into a new community centre (Use Class: D1), providing 519sqm of floor space (GIA). Given that the proposed community centre will be situated in a similarly accessible location to Elleray Hall with on-site parking facilities, the same TRICS survey site has been applied to predict the trip generation projections associated with the proposed community centre.

4.12 Table 4 illustrates the TRICS derived vehicle trip rate per 100sqm and the trips associated with the proposed 519sqm community centre use.

Table 4. TRICS Vehicle Trips for the Proposed Community Centre

Time Period	TRICS Vehicle Trip Rate Per 100sqm			Proposed 519sqm Community Centre		
	Arr.	Dep.	Tot.	Arr.	Dep.	Tot.
08:00-09:00	0.56	0.04	0.60	3	0	3
09:00-10:00	0.39	0.22	0.60	2	1	3
10:00-11:00	0.69	0.73	1.42	4	4	7
11:00-12:00	0.60	0.60	1.20	3	3	6
12:00-13:00	0.56	0.60	1.16	3	3	6
13:00-14:00	0.52	0.60	1.12	3	3	6
14:00-15:00	0.34	0.77	1.12	2	4	6
15:00-16:00	0.26	0.30	0.56	1	2	3
16:00-17:00	0.39	0.26	0.64	2	1	3
17:00-18:00	0.17	0.30	0.47	1	2	2
18:00-19:00	0.26	0.13	0.39	1	1	2
19:00-20:00	0.00	0.00	0.00	0	0	0
20:00-21:00	0.00	0.00	0.00	0	0	0
21:00-22:00	0.00	0.00	0.00	0	0	0
Total	**4.72**	**4.55**	**9.28**	**25**	**24**	**48**

NB: Minor arithmetic errors are due to rounding

Source: TRICS 7.7.4

4.13 As is shown in Table 4 the proposed community centre can be expected to generate in the order of 48 vehicle trips in and out of the site over the course of a typical weekday comprising of 25 arrivals and 24 departures. During AM (10:00hrs-11:00hrs) and PM (12:00hrs-13:00hrs) peak periods for vehicle trips, eight and six two-way vehicle trips respectively are expected at the site.

4.14 Morning, evening and daily (10:00hrs-11:00hrs, 12:00hrs-13:00hrs, and 08:00hrs-22:00hrs respectively) multi-modal trips projections based on TRICS derived data for the proposed community centre are set out in Table 5.

Table 5. TRICS Multi-Modal Trip Generation Projections – Proposed Community Centre

Mode of Travel	AM Peak 1000-1100		PM Peak 1200-1300		Daily 0800-2200	
	Arr.	Dep.	Arr.	Dep.	Arr.	Dep.
Underground	0	0	0	0	0	0
Train	0	0	0	0	0	0
Bus, minibus, coach	0	0	0	0	0	0
Vehicles	4	4	3	3	25	24
Vehicle Passenger	1	1	0	0	4	5
Bicycle	0	0	0	0	0	0
On-foot	7	4	7	8	39	36
Other	0	0	0	0	0	0
Total	**11**	**10**	**10**	**11**	**67**	**65**

Source: TRICS 7.7.4
Note: minor arithmetic errors are due to rounding

4.15 As is shown in Table 5 the proposed community centre can be expected to generate in the order of 132 total trips in and out of the site over the course of a typical weekday comprising of 67 arrivals and 65 departures. Notably, around 56.6% of two-way daily trips are expected to be by public transport, whilst around 36.0% of two-way trips are likely to be by car.

Trip Generation – Proposed 16 Dwellings

4.16 As stated previously, a residential development of 16 affordable flats is proposed with one on-site blue badge parking bay (0.06 spaces per dwelling), which will replace the existing Elleray Hall.

4.17 For the C3 'Dwelling Flats' land use, multi-modal surveys within the 03-Residential, C–Flats Privately Owned TRICS dataset have been examined. To filter further, only sites which have similar parking ratios to the proposed development and location characteristics have been selected e.g. access to public transport and local amenities. Details of the chosen TRICS sites are summarised as follows and presented in full in Appendix E of this report.

- TRICS code M-03-C-02: Glenthorne Road, Hammersmith, 194 dwellings (0.273 parking spaces per dwelling); and
- TRICS code IS-03-C-04: City Road, Islington, 157 dwellings (0.268 parking spaces per dwelling).

4.18 It should also be noted that both of the chosen TRICS survey sites are situated within controlled parking zones.

4.19 A vehicle trip rate per dwelling and a non-vehicular trip rate per dwelling have been derived from the TRICS database. The non-vehicular trips are distributed by mode, based on the resident population 2011 Travel to Work Census data for the Middle Layer Super Output Area (MSOA) of Richmond Upon Thames 021, in which the site is located.

4.20 Table 6 illustrates the TRICS derived vehicle trip rate per dwelling and the vehicular trips associated with the proposed 16 residential flats.

Table 6. TRICS Vehicle Trips for Proposed 16 Residential Flats

Time Period	TRICS Vehicle Trip Rate Per Dwelling			Proposed 16 Residential Flats		
	Arr.	Dep.	Tot.	Arr.	Dep.	Tot.
07:00-08:00	0.02	0.03	0.06	0	1	1
08:00-09:00	0.02	0.02	0.04	0	0	1
09:00-10:00	0.03	0.03	0.05	0	0	1
10:00-11:00	0.03	0.02	0.05	0	0	1
11:00-12:00	0.03	0.03	0.06	0	0	1
12:00-13:00	0.01	0.02	0.03	0	0	0
13:00-14:00	0.03	0.04	0.07	0	1	1
14:00-15:00	0.01	0.01	0.02	0	0	0
15:00-16:00	0.02	0.02	0.04	0	0	1
16:00-17:00	0.05	0.03	0.08	1	1	1
17:00-18:00	0.03	0.01	0.04	0	0	1
18:00-19:00	0.04	0.03	0.07	1	0	1
19:00-20:00	0.03	0.03	0.06	0	0	1
20:00-21:00	0.01	0.01	0.03	0	0	0
Total	**0.35**	**0.34**	**0.69**	**6**	**5**	**11**

NB: Minor arithmetic errors are due to rounding
Source: TRICS 7.7.4

4.21 As is shown in Table 6, the proposed 16 residential flats can be expected to generate in the order of 11 total two-way vehicle trips to/from the site over the course of a typical weekday comprising of six arrivals and five departures. The level of vehicle activity is consistently low throughout the day.

4.22 The low level of vehicular traffic projected for the proposed flats is likely accounted to the limited parking provided for the TRICS survey sites and presence of local CPZ's potentially restricting local residents from applying for parking permits and therefore owning a vehicle. These are both parking conditions that reflect the proposed development.

4.23 Table 7 illustrates the TRICS derived non-vehicle trip rate per dwelling and the non-vehicular trips associated with the proposed 16 residential flats.

Table 7. TRICS Non-Vehicle Trips for Proposed 16 Residential Flats

Time Period	TRICS Non-Veh Trip Rate Per Dwelling			Proposed 16 Residential Flats		
	Arr.	Dep.	Tot.	Arr.	Dep.	Tot.
07:00-08:00	0.04	0.22	0.26	1	4	4
08:00-09:00	0.04	0.33	0.37	1	5	6
09:00-10:00	0.04	0.11	0.15	1	2	2
10:00-11:00	0.09	0.10	0.19	1	2	3
11:00-12:00	0.06	0.11	0.17	1	2	3
12:00-13:00	0.06	0.09	0.14	1	1	2
13:00-14:00	0.07	0.08	0.15	1	1	2
14:00-15:00	0.07	0.08	0.15	1	1	2
15:00-16:00	0.08	0.06	0.15	1	1	2
16:00-17:00	0.13	0.09	0.22	2	1	3
17:00-18:00	0.15	0.07	0.21	2	1	3
18:00-19:00	0.29	0.11	0.40	5	2	6
19:00-20:00	0.15	0.07	0.22	2	1	4
20:00-21:00	0.11	0.09	0.21	2	1	3
Total	**1.37**	**1.61**	**2.98**	**22**	**26**	**48**

NB: Minor arithmetic errors are due to rounding
Source: TRICS 7.7.4

4.24 As is shown in Table 7, the proposed 16 residential flats can be expected to generate in the order of 48 total two-way non-vehicle trips to the site over the course of a typical weekday comprising of 22 arrivals and 26 departures.

4.25 In order to further disaggregate the 'non-vehicle' trips in Table 7, method of travel to work census data has been obtained for the MSOA adjoining the site. This comprises of the dwellings immediately adjacent to the site (mean of 7,200 people) and thus accurately reflects current travel trends of residents in the locality.

4.26 Census data (2011) for main method for travel to work for the resident population for the MSOA of Richmond upon Thames 021 is shown in Table 8. Vehicular trips have been removed from the dataset and have been proportionately redistributed amongst the non-vehicular modes.

Table 8. Method of Travel to Work; Resident Population (Redistributed)

Method of Travel to Work (2011)	Resident Population (Richmond upon Thames 021)		Redistributed Driver Car/Van	
	Raw Data	Modal Split	Raw Data	Modal Split
Underground	139	4%	220	6%
Train	1,117	31%	1770	49%
Bus	328	9%	520	14%
Taxi	6	0%	-	-
Motorcycle	46	1%	-	-
Driving a car or van	1,271	35%	-	-
Passenger in a car or van	52	1%	82	2%
Bicycle	198	6%	314	9%
On foot	405	11%	642	18%
Other method of travel	25	1%	40	1%
Total	**3,587**	**100%**	**3,587**	**100%**

Source: Office for National Statistics

4.27 Morning, evening and daily (08:00hrs-09:00hrs, 18:00hrs-19:00hrs, and 07:00hrs-19:00hrs respectively) all non-vehicle modal trips projections based on the TRICS data in Table 7 and the resident method of travel to work data in Table 8 for the proposed residential flats are set out in Table 9.

Table 9. TRICS Non-Vehicle Trip Generation Projections by Mode

Mode of Travel	Adjusted Modal Split	AM Peak 0800-0900		PM Peak 1800-1900		Daily 0700-2100	
		Arr.	Dep.	Arr.	Dep.	Arr.	Dep.
Underground	6%	0	0	0	0	1	2
Train	49%	0	3	2	1	11	13
Bus, minibus, coach	14%	0	1	1	0	3	4
Taxi	-	-	-	-	-	-	-
Motorcycle or scooter	-	-	-	-	-	-	-
Driving a car or a van	-	-	-	-	-	-	-
Pass. in a car or a van	2%	0	0	0	0	1	1
Bicycle	9%	0	0	0	0	2	2
On-foot	18%	0	1	1	0	4	5
Other	1%	0	0	0	0	0	0
Total	**100%**	**1**	**5**	**5**	**2**	**22**	**26**

Source: ONS/TRICS
Note: minor arithmetic errors are due to rounding

4.28 Table 9 above indicates that the proposed 16 residential flats are expected to generate nine two-way trips by foot, four two-way trips by bike and 33 two-way trips by public transport on a typical weekday.

Traffic Impact

4.29 In order to predict the traffic impact of the proposals, the projected increase/decrease in total and vehicle trips has calculated from TRICS derived data and is presented in Table 10 below.

Table 10. TRICS Projected Total & Vehicle Trips Increase/Decrease

Time Period	Proposed Increase – Total Trips			Proposed Increase – Vehicle Trips		
	Arr.	Dep.	Tot.	Arr.	Dep.	Tot.
07:00-08:00	1	4	5	0	1	1
08:00-09:00	1	6	7	0	0	1
09:00-10:00	1	2	3	0	0	1
10:00-11:00	2	2	4	0	0	1
11:00-12:00	1	2	4	0	1	1
12:00-13:00	1	2	3	0	0	1
13:00-14:00	2	2	4	0	1	1
14:00-15:00	1	2	3	0	0	0
15:00-16:00	2	1	3	0	0	1
16:00-17:00	3	2	5	1	1	1
17:00-18:00	3	1	4	0	0	1
18:00-19:00	5	2	8	1	0	1
19:00-20:00	3	2	5	0	0	1
20:00-21:00	2	2	4	0	0	0
21:00-22:00	0	0	0	0	0	0
Total	**29**	**32**	**61**	**6**	**6**	**12**

NB: Minor arithmetic errors are due to rounding

Source: TRICS 7.7.4

4.30 The proposals are predicted to result in an increase in 61 total two-way trips over the course of a typical weekday comprising of 29 arrivals and 32 departures. The morning and evening peak periods associated with the increase in total trips are 08:00hrs-09:00hrs and 18:00-19:00hrs where an increase in seven and eight two-way trips respectively are projected.

4.31 The proposals are also predicted to result in 12 additional two-way vehicle trips over the course of a typical weekday. During the morning (08:00hrs-09:00hrs) and evening (18:00-19:00hrs) peak periods, the proposed development is forecast to generate one additional two-way vehicle trip.

4.32 As previously noted, the low level of vehicular traffic projected for the proposed 16 flats is likely accounted to the limited parking provided for the TRICS survey sites and presence of local CPZ's potentially restricting local residents from applying for parking permits and therefore owning a vehicle. These are both parking conditions that reflect the proposed development. As such, trips by future residents are likely to be made by sustainable modes.

4.33 In addition, there is a minimal change in scale from the existing Elleray Hall to the proposed community (from 510.5sqm to 519sqm GIA), thereby resulting in a similar level of traffic in the local area, albeit re-distributed to North Lane rather than Elleray Road.

4.34 It is therefore anticipated that there will be a minimal and insignificant impact on the adjoining highway and that the vehicle trips generated by the development will likely fall within daily/weekly fluctuations in vehicle flows on North Lane and Elleray Road.

4.35 The projected increase/decrease in multi-modal trips as a result of the proposals has also been calculated from TRICS derived data and is presented in Table 11 below.

Table 11. TRICS Projected Multi-Modal Trips Increase/Decrease

Mode of Travel	Daily 0700-2200		
	Arr.	Dep.	Total
Underground	1	2	3
Train	11	13	24
Bus, minibus, coach	3	4	7
Vehicles	6	6	12
Vehicle Passenger	1	1	1
Bicycle	2	2	4
On-foot	5	5	10
Other	0	0	1
Total	**29**	**32**	**61**

Source: TRICS 7.7.4
Note: minor arithmetic errors are due to rounding

4.36 As shown in Table 11, there is projected to be a minor increase in the volume of public transport users, pedestrians and cyclists in the local area as a result of the proposed development.

4.37 In summary, the traffic impact of the development is expected to be adequately accommodated on the adjoining highway and within the extant available capacity on existing public transport infrastructure adjoining the site.

5.0 BASELINE PARKING CONDITIONS

5.1 The first stage of assessing the parking impact of the proposed development is to survey the existing baseline conditions on the adjoining road network.

Parking Survey Inventory

5.2 This parking survey has been conducted in accordance with the Richmond Parking Methodology. A copy of the methodology is presented in Appendix F.

5.3 The Richmond methodology prescribes a 200 metres walking distance for residential parking surveys such as this one. Refer to Figure 3 for a map illustrating the parking study area.

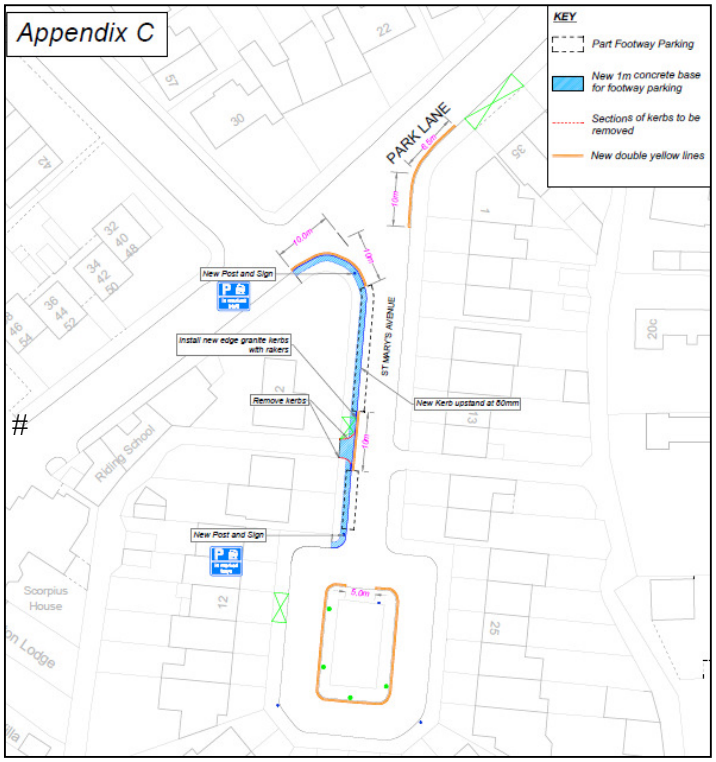
5.4 The survey area has been split into individual streets or sections of streets comprising the following:

- Elfin Grove
- Broad Street
- Little Queens Road
- Middle Lane
- North Lane
- North Place
- Park Lane
- St Marys Avenue

5.5 All vehicle crossovers and kerb space within 7.5 metres of junctions have been eliminated from the surveys. The remainder of the parkable kerb space within the survey area has been measured on-site; the total distance of kerb space between crossovers / junctions has been recorded and split into increments of 5 metres in accordance with Richmond Council's parking survey methodology.

5.6 In accordance with the Richmond Methodology, Elleray Road has been excluded from the following summary as it is located within a CPZ. In addition, Elleray Road (behind the shops), Tesco Parking, Queen's House and the western section of North Place have been excluded from the parking survey results as these are private parking areas. The streets mentioned above are shown separately in Figures 4a-e.

5.7 Since PMA carried out the parking surveys in May 2019, road/parking design changes have been carried out by Richmond Council to St Mary's Avenue to improve access for refuse collection vehicles and fire tenders. The design changes include part-footway parking spaces, and double yellow lines at the entrance and circular section of the road. As a result, it's calculated that the number of available parking opportunities on St Mary's Avenue will be reduced by nine spaces from 40 to 31 parking spaces. The design changes are not reflected in Figures 4a-e as this would not accurately reflect how road users parked their vehicles at the time of carrying out the parking survey, prior to the design changes. The loss of parking has however been taken into account when calculating the parking stress results detailed further in this report. The design changes have been presented below for ease of reference:



5.8 The parking survey inventory is presented in Table 12 as follows:

Table 12. Parking Survey Inventory (kerb-side)

Road	Parking Inventory	
	Total	Disabled
	Kerb-Side	Kerb-Side
	Spaces	Spaces
Elfin Grove	4	0
Broad Street*	21	0
Little Queens Road	33	0
Middle Lane	0	0
North Lane	21	1
North Place	13	0
Park Lane	19	0
St Marys Avenue	31**	0
Total	142	1

Source: PMA Survey
*Parking on Broad Street is Pay and Display during 08:30hrs-18:30hrs (Mon-Sat)
**Applies reduction in parking following design changes

5.9 The parking survey inventory in Table 12 shows that there is a total of 142 safe and legal kerb side parking opportunities within the survey area.

5.10 The parking survey inventory for both car parks is presented in Table 13 as follows (additionally refer to Figures 4a-e):

Table 13. Parking Survey Inventory (car park)

Road	Parking Inventory	
	Total	Disabled
	Parking bays	Parking bays
	Spaces	Spaces
North Lane East car park	25	0
North Lane West car park	82	4
Total	**107**	**4**

Source: PMA Survey

Parking Survey Results

5.11 The overnight surveys were undertaken on Sunday 12th May, Tuesday 14th May and Wednesday 15th May 2019 at 02:30hrs, 01:45hrs and 04:00hrs respectively. Hourly parking beat surveys were also undertaken on Saturday 11th May 2019 from 10:00hrs-15:00hrs and 17:00hrs-20:00hrs as agreed in advance with Richmond Council.

5.12 The results of each parking survey are presented in Appendix G and have been produced to the standards prescribed within the Richmond methodology. As noted previously, the loss of nine parking spaces on St Mary's Avenue has been taken into account when calculating the parking stress results.

5.13 Table 14 presents the average results from three overnight surveys for unrestricted (during the overnight period) parking opportunities (kerb-side) within the study area.

Table 14. Average Overnight Parking Survey Results

Road	Unrestricted Kerb-side			
	Total Parking Spaces	Number of Cars Parked	Number of Free Spaces	Parking Stress
Elfin Grove	4	5	0	100%
Broad Street*	21	0	21	2%
Little Queens Road	33	25	8	77%
Middle Lane	0	0	0	0%
North Lane	21	23	1	94%
North Place	13	13	0	100%
Park Lane	19	13	8	61%
St Marys Avenue	31	29	4	87%
Total	**142**	**108**	**42**	**72%**

Source: PMA Survey
Note: Some arithmetic errors due to rounding's
*Parking on Broad Street is Pay and Display during 08:30hrs-18:30hrs (Mon-Sat)

5.14 In accordance with Richmond Methodology, illegally parked cars and those parked on dropped-kerbs have been included in the number of cars parked and calculation of parking stress. In turn, the sum of number of cars parked and number of free spaces may be greater than the total number of parking spaces recorded in the inventory.

5.15 Table 15 presents the average results from three overnight surveys for public car parks within the study area.

Table 15. Average Overnight Parking Survey Results

Road	Parking bays			
	Total Parking Spaces	Number of Cars Parked	Number of Free Spaces	Parking Stress
North Lane East car park	25	8	17	32%
North Lane West car park	82	1	81	2%
Total	**107**	**9**	**98**	**9%**

Source: PMA Survey
Note: Some arithmetic errors due to rounding's

5.16 The observed average overnight parking stress of available kerb side parking within the survey area is 72%. Of the 142 total kerb side parking opportunities within the study area, an average of 108 cars have been observed to be parked with 42 available spaces.

5.17 Where the site is located on North Lane East car park, an average of eight vehicles were observed to be parked here overnight. The redevelopment of North Lane East car park will therefore result in eight vehicles over-spilling onto the local highway or North Lane West car park. It may be the case that residents would prefer to park on the local highway due to safety reasons. In a worst-case scenario where residents prefer to park on the adjoining streets, the on-street parking stress levels would increase by 5% from 68% to 73%.

5.18 Table 16 presents the peak-hour (10:00hrs-11:00hrs) results from the 10:00hrs-15:00hrs surveys for kerbside parking opportunities within the study area.

Table 16. 10:00hrs-11:00hrs Parking Survey Results

Road	Total Kerb-side			
	Total Parking Spaces	Number of Cars Parked	Number of Free Spaces	Parking Stress
Elfin Grove	4	4	0	100%
Broad Street*	21	18	4	82%
Little Queens Road	33	29	7	81%
Middle Lane	0	0	0	0%
North Lane	21	27	1	96%
North Place	13	13	0	100%
Park Lane	19	16	5	76%
St Marys Avenue	31	33	0	100%
Total	**142**	**140**	**17**	**89%**

Source: PMA Survey
Note: Some arithmetic errors due to rounding's
*Parking on Broad Street is Pay and Display during 08:30hrs-18:30hrs (Mon-Sat)

5.19 Table 17 presents the peak-hour (10:00hrs-11:00hrs) results from the 10:00hrs-15:00hrs surveys for public car parks within the study area.

Table 17. 10:00hrs-11:00hrs Parking Survey Results

Road	Parking bays			
	Total Parking Spaces	Number of Cars Parked	Number of Free Spaces	Parking Stress
North Lane East car park	25	12	13	48%
North Lane West car park	82	56	26	68%
Total	**107**	**68**	**39**	**64%**

Source: PMA Survey
Note: Some arithmetic errors due to rounding's

5.20 The observed 10:00hrs-11:00hrs parking stress of kerb side parking within the survey area is 89%. Of the 142 total kerb side parking opportunities within the study area, an average of 140 cars have been observed to be parked with 17 available spaces.

5.21 Where the site is located on North Lane East car park, 25 restricted spaces are present with an average of 12 vehicles parked here in the AM peak period. The redevelopment of North Lane East car park will therefore result in 12 vehicles over-spilling onto North Lane West car park. North Lane West car park has 26 available spaces, and would be able to accommodate 12 additional vehicles as a result of the loss of North Lane East car park in the AM peak period.

5.22 Table 18 presents the peak-hour (17:00hrs-18:00hrs) results from the 17:00hrs-20:00hrs surveys for kerbside parking opportunities within the study area.

Table 18. 17:00hrs-18:00hrs Parking Survey Results

Road	Total Kerb-side			
	Total Parking Spaces	Number of Cars Parked	Number of Free Spaces	Parking Stress
Elfin Grove	4	5	0	100%
Broad Street*	21	20	2	91%
Little Queens Road	33	22	10	69%
Middle Lane	0	0	0	0%
North Lane	21	23	1	96%
North Place	13	12	1	92%
Park Lane	19	16	4	80%
St Marys Avenue	31	28	4	88%
Total	**142**	**126**	**22**	**85%**

Source: PMA Survey
Note: Some arithmetic errors due to rounding's
*Parking on Broad Street is Pay and Display during 08:30hrs-18:30hrs (Mon-Sat)

5.23 Table 19 presents the peak-hour (17:00hrs-18:00hrs) results from the 17:00hrs-20:00hrs surveys for public car parks within the study area.

Table 19. 17:00hrs-18:00hrs Parking Survey Results

Road	Parking bays			
	Total Parking Spaces	Number of Cars Parked	Number of Free Spaces	Parking Stress
North Lane East car park	25	9	16	36%
North Lane West car park	82	37	45	45%
Total	**107**	**46**	**61**	**43%**

Source: PMA Survey
Note: Some arithmetic errors due to rounding's

5.24 The observed 17:00hrs-18:00hrs parking stress of kerb side parking within the survey area is 85%. Of the 142 total kerb side parking opportunities within the study area, an average of 126 cars have been observed to be parked with 22 available spaces.

5.25 Where the site is located on North Lane East car park, 25 restricted spaces are present with an average of nine vehicles parked here in the PM peak period. The redevelopment of North Lane East car park will therefore result in nine vehicles over-spilling onto North Lane West car park. North Lane West car park has 45 available spaces, and would be able to accommodate nine additional vehicles as a result of the loss of North Lane East car park.

5.26 The Richmond methodology prescribes a threshold of 85% stress level for when a parking survey area is deemed to suffer from undue parking stress. The overnight parking surveys did not show a higher overall parking stress level than 77% when applying the spill-over of parking from North Lane East car park, which is 8% lower than the prescribed threshold.

5.27 The results of the overnight parking surveys therefore demonstrate that the uptake of kerb side parking in proximity to the application site is not at a level where parking stress is overly high or problematic.

5.28 It is noted that parking stress is currently above 85% during some periods in the daytime. However, the new CPZ on North Lane and the surrounding streets is likely to control non-resident parking in the local area. As such, it's anticipated that this will reduce parking stress levels further than those presented within our findings.

6.0 PARKING PROVISION & DEVELOPMENT IMPACT

Parking

6.1 The proposals seek the construction of a new community centre (Use Class: D1 / F2 (b), 519sqm GIA, 587sqm GEA) with on-site parking facilities (comprising of four standard parking bays, one designated blue badge bay and one minibus bay) at North Lane East car park/depot.

6.2 The expected opening hours for the proposed community centre will be 09:00hrs-22:00hrs Monday to Saturday and 10:00hrs-15:30hrs on Sundays. It's proposed that three Full-Time Equivalent (FTE) staff will be employed at the community centre.

6.3 A residential development of 16 affordable flats (comprising of 14 one-bedroom (two person) and two two-bedroom units) is also proposed with one on-site blue badge parking bay (0.06 spaces per dwelling), which will replace the existing Elleray Hall. Two of the one-bedroom units shall also be wheelchair accessible.

6.4 There is also potential for one of the standard parking bays within the community centre parking area to be converted into a blue badge bay for the proposed residential development if required.

6.5 The development plan for Richmond comprises of the adopted Local Plan (July 2018), which details the residential and public hall parking standards for the borough.

6.6 In accordance with the Council's residential parking policy requirements, the development can provide up to a maximum of one parking space per one or two-bedroom dwelling and up to two spaces per three or more-bedroom dwelling. The residential aspect of the development should therefore provide no more than 16 off-street car parking spaces.

6.7 The provision of one parking space under the proposal is within the Council's adopted maximum parking standards and can therefore be deemed to be complaint with policy requirements.

6.8 A S106 Legal Agreement will be signed by the applicant excluding all future occupiers of the dwellings from being able to obtain parking permits to CPZ 'Z1'.

6.9 In accordance with the Council's public halls (D1) parking policy requirements, the development can provide up to a maximum of one parking space per 10 persons/seats and one coach space per 50 persons/seats. In accordance with building regulation guidelines, the proposed community centre could provide an occupancy level of 300 people (maximum), and therefore, a maximum of 30 parking spaces and six coach spaces.

6.10 The provision of five parking spaces and one minibus bay under the proposal is within the Council's adopted maximum parking standards and can therefore be deemed to be complaint with policy requirements.

6.11 In accordance with the Council's residential blue badge parking requirements which are as per the new London Plan, one blue badge bay should be provided from the outset for the 16 dwellings and one enlarged bay should be shown to cater for future demand. From viewing the site plan, one designated blue badge bay is currently provided for the 16 dwellings. In addition, one of the standard parking bays within the community centre parking area to be converted into a blue badge bay for the proposed residential development if required.

6.12 In accordance with the Council's retail, recreation, hotels and leisure blue badge parking requirements which are as per the new London Plan, at least one blue badge bay should be provided from the outset for the community centre. From viewing the site plan, one designated blue badge bay is currently provided for the community centre.

6.13 To comply with the Council's residential EV (electric vehicle) parking standards (as per the London Plan), 20% of parking spaces are required to be provided with 'active' charging facilities with passive provision for the remaining 80% of parking spaces. As such, active charging facilities will be provided for one of the standard parking spaces at the proposed community centre and the residential development's blue badge space. Passive provision will be provided for the remaining parking spaces.

6.14 It's also proposed that three years car club membership is provided for all 16 new dwellings along with a one-year free business account for the new community centre. The anticipated provider of the car club car is Zipcar who currently provide a network of vehicles in the local area, with a flex product also likely to be introduced in the near future. A formal proposal document from Zipcar is presented at Appendix H of this report

6.15 In terms of cycle parking, the residential aspect of the development requires a minimum of 25 secure and sheltered 'long-stay' cycle storage spaces and two easily accessible 'short-stay' spaces in accordance with the Council's policy requirements, which are as per the London Plan. The proposed site plan in Appendix B demonstrates that 26 secure and sheltered long-stay cycle parking spaces (comprising of 20 vertical spaces, four standard Sheffield spaces and two larger Sheffield spaces) will be provided for the development within two communal cycle stores at ground level. Short-stay cycle parking will also be provided in accordance with London Plan requirements.

6.16 The proposed community centre also requires a minimum of one long-stay and six short-stay cycle storage spaces in accordance with the Council's policy requirements, which are as per the London Plan. The proposed site plan in Appendix B demonstrates that two long-stay cycle parking spaces will be provided for the development in the form of secure bike lockers located to the rear of the property. Six short-stay parking spaces will also be provided in the form of three Sheffield stands situated at the front of the building.

6.17 In summary the car, blue badge, EV and cycle parking provision is compliant with the Council's policy expectations and is therefore considered to be acceptable.

Development Impact

6.18 As request within Richmond Council's pre-application advice response for the development, *"to allow the transport planners to assess the likely demand for parking for the community centre, the submission would need to be accompanied with a TRICS survey of community hall land uses of a similar nature and location (in terms of PTAL) with a multi-modal analysis of those trips, and then use this data to complete a car park utilisation survey."*

6.19 In order to present further evidence to justify the proposed on-site parking provision for the community centre we have reviewed the TRICS vehicle trip generation data in Chapter 4. By adding the numbers of vehicle arrivals and subtracting vehicle departures it is possible to calculate an hourly car parking profile throughout the day using the TRICS data.

6.20 Prior to calculating the hourly parking profile, it's necessary to predict the baseline parking demand from employees at the development. Method of travel to work census data has been obtained for the Middle Layer Super Output Area (MSOA) adjoining the site, which measures how people in employment in the UK commute to this area for work.

6.21 Census data (2011) for place of work by method of travel to work for the MSOA of Richmond 021 (Nomis code: WU03EW) is shown in Table 20.

Table 20. Place of Work by Method of Travel to Work;

Method of Travel to Work (2011) - WU03EW	Place of Work (Richmond 021)	
	Raw Data	Modal Split
Underground	82	2%
Train	659	13%
Bus	530	11%
Taxi	3	0%
Motorcycle etc	48	1%
Driving a car or van	2,525	50%
Passenger in a car or van	122	2%
Bicycle	387	8%
On foot	669	13%
Other method of travel	11	0%
Total	**5,036**	**100%**

Source: Office for National Statistics

6.22 The table above indicates that 50% of people who commute to the local area for work, do so by car or van (driving). In additional, 26% of people commute to the local area by mode of public transport.

6.23 Based on operational information from the existing Elleray Hall community centre, it is anticipated that around three FTE staff will be employed at the proposed community. When applying the modal split percentage of people who commute to the local area for work by car/van (50%) to the three FTE staff employed under the proposals, it can be estimated that two staff will drive to work. As such, the proposed provision of five parking spaces should be sufficient to accommodate employee car parking demand.

6.24 Table 21 presents the parking profile of the proposed community centre (519sqm GIA) based on the weekday TRICS data as set out in Table 4 of this report. It should be noted though that parking accumulation forecast excludes public service vehicle trips as the proposed community centre will provide a dedicated minibus bay. Full details of the TRICS assessment are set out in Appendix D.

Table 21. Proposed Development Parking Accumulation Forecasts

Time Period	Vehicle Trips (Excluding PSVs)		
	Arr.	Dep.	Acc.
Baseline	0	0	2
08:00-09:00	3	0	5
09:00-10:00	2	1	6
10:00-11:00	4	4	5
11:00-12:00	3	3	5
12:00-13:00	3	3	5
13:00-14:00	3	3	5
14:00-15:00	1	4	2
15:00-16:00	1	2	2
16:00-17:00	2	1	3
17:00-18:00	1	2	2
18:00-19:00	1	1	3
19:00-20:00	0	0	3
20:00-21:00	0	0	3
21:00-22:00	0	0	3
Totals	**24**	**23**	-

NB: Minor arithmetic errors are due to rounding
Source: TRICS 7.7.4

6.25 The results in Table 21 demonstrate that the proposed community centre is likely to generate a peak demand of six car parking spaces between the hours of 09:00hrs to 10:00hrs. As a result, the proposed community centre is likely to generate overspill visitor parking demand of one vehicle during a one-hour period, which can be comfortably accommodated within North Lane West car park. As such, the parking impact of the proposed community centre will likely fall within daily/weekly fluctuations in parking flows in North Lane West car park.

6.26 With regard to residential parking impact, the implementation of a new CPZ on the local area and the subsequent exclusion of future occupiers from obtaining a permit (via the S106) should encourage sustainable travel and therefore discourage the use of the private car as a main mode of travel.

6.27 The new CPZ 'Area 5' ensures that all kerb-side parking within 200 metres walking distance of the site (as prescribed for residential parking surveys) will be situated within a CPZ, restricting future residents from parking in the local area. A signed S106 Agreement would then exclude the addresses at the proposed development from any newly formed CPZ.

6.28 The provision of a car club membership further reduces the likelihood of car ownership amongst future residents and employees of the development therefore benefiting the wider community.

6.29 Regional planning policy should also be taken into consideration when assessing this proposal. For example, Policy T6 Car Parking, paragraph C of the new London Plan states that *"An absence of local on-street parking controls should not be a barrier to new development, and boroughs should look to implement these controls wherever necessary to allow existing residents to maintain safe and efficient use of their streets."* Provided that Richmond Council will implement a CPZ on the streets adjoining the site, local parking will be managed more efficiently and safely than at present.

6.30 The proposals are also compliant with paragraph 108 of the NPPF, which states that:

> *"108. In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:*
>
> *a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;*
> *b) safe and suitable access to the site can be achieved for all users; and*
> *c) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree."*

6.31 In relation to part A of paragraph 108, sustainable modes of transport have been promoted through the provision of cycle parking for future residents. Paragraph B is also met through the design of safe access to the site for pedestrian and vehicles. With regard to paragraph C, the contents of this report have demonstrated that the development will not result in significant impacts on the highway network in terms of safety, congestion, or parking capacity.

6.32 The development is therefore projected to have no detrimental effects on parking capacity, highway safety and neighbouring amenity in the surrounding area.

7.0 ACCESS & DELIVERIES/SERVICING

Access

7.1 As detailed in the introduction, vehicle access to the new community centre will be provided from a re-positioned crossover onto North Lane, whilst pedestrian access will be served from the pedestrian only section of Middle Lane.

7.2 The proposed crossover measures approximately 4.5 metres in width at the back edge of the footway and 7.8 metres in width at the point of entry to the carriageway. In order to facilitate construction of the access, part of the current crossover access will be restored to the level of the adjoining footway.

7.3 In addition, vehicle access to the proposed residential development will be provided from a new dropped-kerb crossover onto Elleray Road, whilst pedestrian access will be served from the pedestrian only section of Middle Lane and Elleray Road for Plot 1 only.

7.4 The dropped-kerb crossover will measure approximately 2.4 metres at the back edge of the footway which accords with single crossover design guidelines set out in paragraph 5.11 of Richmond Council's Transport SPD (June 2020). In order to facilitate construction of the access, a street lamp and utility cover on the footway adjoining the site will require to be re-located under the proposals.

7.5 It's expected that the proposed highways works related to each access will be secured under a S278 agreement of any planning consent.

7.6 In order to determine the suitability of both proposed, pedestrian visibility sightlines have been plotted at the entrance from accesses each site.

7.7 The pedestrian visibility zone has been calculated in accordance with paragraph 5.6 of Richmond's Transport SPD. As per their guidance, pedestrian visibility splays of 2.1 metres from a setback distance of 2.4 metres should be provided on both sides of the access. No obstruction higher than 0.6m is permitted in this area

7.8 Figure 5 illustrates that the pedestrian visibility zones for each access in accordance with these standards are achievable. It should be noted that it has been agreed with the neighbouring property to the residential development (15 Middle Lane) that the length of fencing covered by the pedestrian visibility splay will be reduced to no more than 0.6m in height.

7.9 Figures 6a-c of this report present Auto Track generated vehicle swept path diagrams of a large family saloon car (Skoda Octavia) entering and exiting each parking space in a safe and convenient manner.

7.10 Figures 7 of this report present Auto Track generated vehicle swept path diagrams of a mini bus entering and exiting the mini bus bay in a safe and convenient manner.

Deliveries and Servicing

7.11 As previously noted, the application site is within very close proximity to a large number of shops, services and general amenities which will be readily accessible to future occupiers on-foot. In turn, this should reduce the potential number of delivery servicing trips generated by the proposed development.

7.12 The proposed residential development on Elleray Road is situated within CPZ 'Z1', which operates from Monday to Sunday (including bank holidays), 08:30hrs-22:00hrs. As such, delivery/servicing vehicles are currently limited to loading/unloading on-street on Elleray Road. It's proposed that deliveries and servicing trips for the proposed residential development are carried out on-street as per the existing arrangement for the neighbouring residential properties.

7.13 In order to estimate the demand for deliveries and servicing trips generated by the proposed residential development, TRICS derived delivery/servicing vehicle data presented in Appendix E has been applied to the 16 new dwellings. The findings are presented in Table 22 below:

Table 22. TRICS Delivery/Servicing Trips for Proposed 16 Residential Flats

Time Period	TRICS Vehicle Trip Rate Per Dwelling			Proposed 16 Residential Flats		
	Arr.	Dep.	Tot.	Arr.	Dep.	Tot.
07:00-08:00	0.02	0.02	0.03	0	0	0
08:00-09:00	0.02	0.02	0.04	0	0	1
09:00-10:00	0.02	0.03	0.05	0	0	1
10:00-11:00	0.02	0.01	0.02	0	0	0
11:00-12:00	0.02	0.02	0.05	0	0	1
12:00-13:00	0.00	0.01	0.01	0	0	0
13:00-14:00	0.03	0.03	0.05	0	0	1
14:00-15:00	0.00	0.00	0.00	0	0	0
15:00-16:00	0.02	0.02	0.04	0	0	1
16:00-17:00	0.04	0.04	0.09	1	1	1
17:00-18:00	0.01	0.01	0.01	0	0	0
18:00-19:00	0.01	0.01	0.02	0	0	0
19:00-20:00	0.01	0.01	0.02	0	0	0
20:00-21:00	0.00	0.00	0.00	0	0	0
Total	**0.22**	**0.22**	**0.44**	**3**	**4**	**7**

NB: Minor arithmetic errors are due to rounding

Source: TRICS 7.7.4

7.14 As can be seen in Table 22, the proposed 16 dwellings are predicted to generate between 3 and 4 daily delivery/servicing trips, which is an insignificant number of trips that will likely fall within daily/hourly traffic flow fluctuations on Elleray Road. Many of the delivery/servicing trips are likely to be linked trips, where an Amazon or Royal Mail van is stopping off at a number of properties on Elleray Road. In turn, the proposed development will not be exacerbating the on-street loading demand on Elleray Road.

7.15 North Lane is not situated within a CPZ at present, however double yellow lines are marked along both sides of the street, permitting loading/unloading of vehicles for a short period of time. As can be seen in the Google street view image below, there is currently precedent for delivery vehicles to load/unload on North Lane to service Tesco and other commercial uses on Broad Street. It's therefore proposed that deliveries and servicing trips for the proposed community are carried out on-street as per the existing arrangement for the neighbouring commercial uses.

Photograph 1. Existing Loading Arrangement on North Lane

Source: Google Street View

7.16 In order to estimate the demand for deliveries and servicing trips generated by the proposed community centre, TRICS derived delivery/servicing vehicle data presented in Appendix D has been applied to the 519sqm GIA community centre. The findings are presented in Table 23 below:

Table 23. TRICS Delivery/Servicing Trips for Proposed Community Centre

Time Period	TRICS Vehicle Trip Rate Per 100sqm			Proposed Community Centre		
	Arr.	Dep.	Tot.	Arr.	Dep.	Tot.
08:00-09:00	0.00	0.00	0.00	0	0	0
09:00-10:00	0.00	0.00	0.00	0	0	0
10:00-11:00	0.00	0.00	0.00	0	0	0
11:00-12:00	0.13	0.04	0.17	1	0	1
12:00-13:00	0.00	0.09	0.09	0	0	0
13:00-14:00	0.04	0.00	0.04	0	0	0
14:00-15:00	0.00	0.04	0.04	0	0	0
15:00-16:00	0.00	0.00	0.00	0	0	0
16:00-17:00	0.00	0.00	0.00	0	0	0
17:00-18:00	0.00	0.00	0.00	0	0	0
18:00-19:00	0.00	0.00	0.00	0	0	0
19:00-20:00	0.00	0.00	0.00	0	0	0
20:00-21:00	0.00	0.00	0.00	0	0	0
21:00-22:00	0.00	0.00	0.00	0	0	0
Total	**0.17**	**0.17**	**0.34**	**1**	**1**	**2**

NB: Minor arithmetic errors are due to rounding
Source: TRICS 7.7.4

7.17 As can be seen in Table 22, the proposed 519sqm community centre is predicted to generate 1 daily delivery/servicing trip, which is an insignificant volume of trips that will likely fall within daily/hourly traffic flow fluctuations on North Lane. In turn, the proposed development will not be exacerbating the on-street loading demand on North Lane.

7.18 The proposed residential development and community centre's refuse requirements are expected to be accommodated from Elleray Road and North Lane respectively, as per the existing arrangements for the neighbouring properties.

7.19 As shown on the site plan in Appendix B, two bin stores will be provided for the proposed residential development, situated within eight and 25 metres trundle distance of Elleray Road. Residents will not be required to carry waste/recycling further than 20 metres to their closest bin store. The bin store for the proposed community centre will also be located within a 15 metres trundle distance of North Lane.

7.20 The trundle and carry distances for both developments comply with national policy guidance set out in paragraph 1.8 of the government's Drainage and waste disposal: Approved Document H (December 2010), which requires that *"Storage areas for waste containers and chutes should be sited so that the distanced householders are required to carry refuse does not usually exceed 30m (excluding any vertical distance). Containers should be within 25m of the waste collection point specified by the waste collection authority."*

7.21 In the event of a fire a London Fire Brigade (LFB) fire tender will pull up adjacent to the proposed residential development or community centre on Elleray Road or North Lane respectively.

7.22 To summarise, all servicing arrangements are compliant with local or national policy requirements and are considered to be satisfactory.

8.0 SUMMARY

8.1 The proposals seek the construction of a new community centre (Use Class: D1 / F2 (b), 519sqm GIA, 587sqm GEA) with on-site parking facilities (comprising of four standard parking bays, one designated blue badge bay and one minibus bay) at North Lane East car park/depot. Vehicle access to the new community centre will be provided from a re-positioned access onto North Lane, whilst pedestrian access will be served from the pedestrian only section of Middle Lane.

8.2 The expected opening hours for the proposed community centre will be 09:00hrs-22:00hrs Monday to Saturday and 10:00hrs-15:30hrs on Sundays. It's proposed that three Full-Time Equivalent (FTE) staff will be employed at the community centre.

8.3 A residential development of 16 affordable flats (comprising of 14 one-bedroom (two person) and two two-bedroom units) is also proposed with one on-site blue badge parking bay (0.06 spaces per dwelling), which will replace the existing Elleray Hall. Two of the one-bedroom units shall also be wheelchair accessible. Vehicle access to the site will be provided from a new dropped-kerb crossover onto Elleray Road, whilst pedestrian access will be served from the pedestrian only section of Middle Lane and Elleray Road for Plot 1 only.

8.4 This Transport Assessment has been produced for submission with a full planning application to the local planning authority and follows on from formal pre-application consultations which have helped shape the proposals.

8.5 The closest bus stops to the site are situated on Broad Street, within a 190 and 150 metres walking distance of North Lane East car park/depot and Elleray Hall respectively. These stops serve access to bus routes 481, X 26, 281, 285, 33 and R68.

8.6 Teddington rail station is located within a 500 metres walking distance of both plots to the east on Victoria Road, and serves access to a number of rail services.

8.7 As detailed in Chapter 4, the proposals are predicted to result in 12 additional two-way vehicle trips over the course of a typical weekday. It is therefore anticipated that there will be a minimal and insignificant impact on the adjoining highway and that the vehicle trips generated by the development will likely fall within daily/weekly fluctuations in vehicle flows on North Lane and Elleray Road.

8.8 The proposed development's car, blue badge, EV and cycle parking provision is compliant with the Council's policy expectations and is therefore considered to be acceptable.

8.9 The results of the overnight parking surveys therefore demonstrate that the uptake of kerb side parking in proximity to the application site is not at a level where parking stress is overly high or problematic.

8.10 It is noted that parking stress is currently above 85% during some periods in the daytime. However, the new CPZ on North Lane and the surrounding streets is likely to control non-resident parking in the local area. As such, it's anticipated that this will reduce parking stress levels further than those presented within our findings.

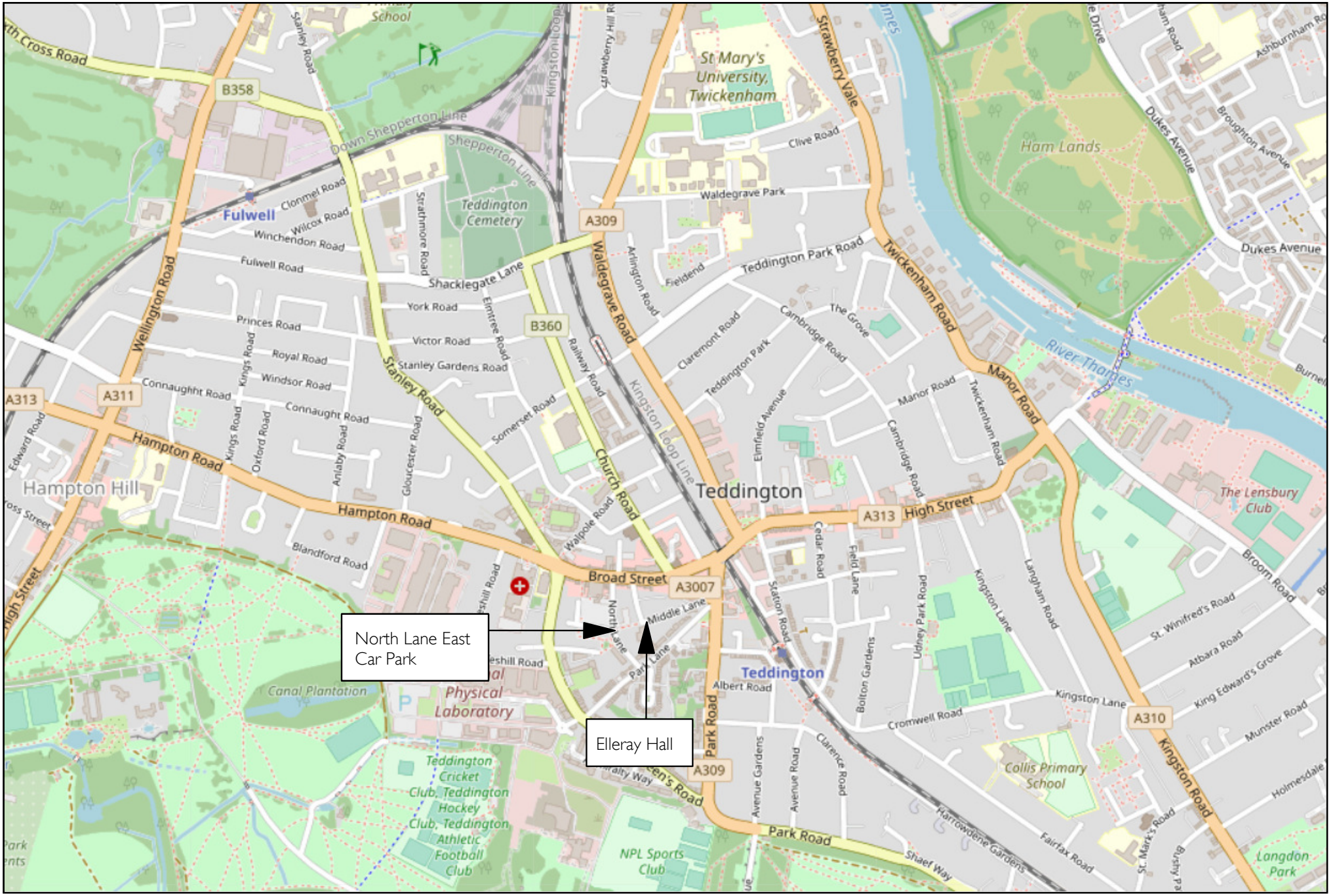
8.11 A S106 Legal Agreement will be signed by the applicant excluding all future occupiers of the dwellings from being able to obtain parking permits to the newly formed CPZ 'Area 5'.

8.12 The provision of a car club membership further reduces the likelihood of car ownership amongst future residents and employees of the development therefore benefiting the wider community.

8.13 It's proposed that deliveries and servicing trips for the proposed community centre and residential development are carried out on-street as per the existing arrangement for the neighbouring commercial and residential uses. All servicing arrangements are compliant with local or national policy requirements and are considered to be satisfactory.

8.14 The proposals are considered to be acceptable on all highway's aspects.

FIGURES



Date: 30 September 2020
Scale: NTS
Source: OpenStreetMap
Drawing No: P2379/TS/01

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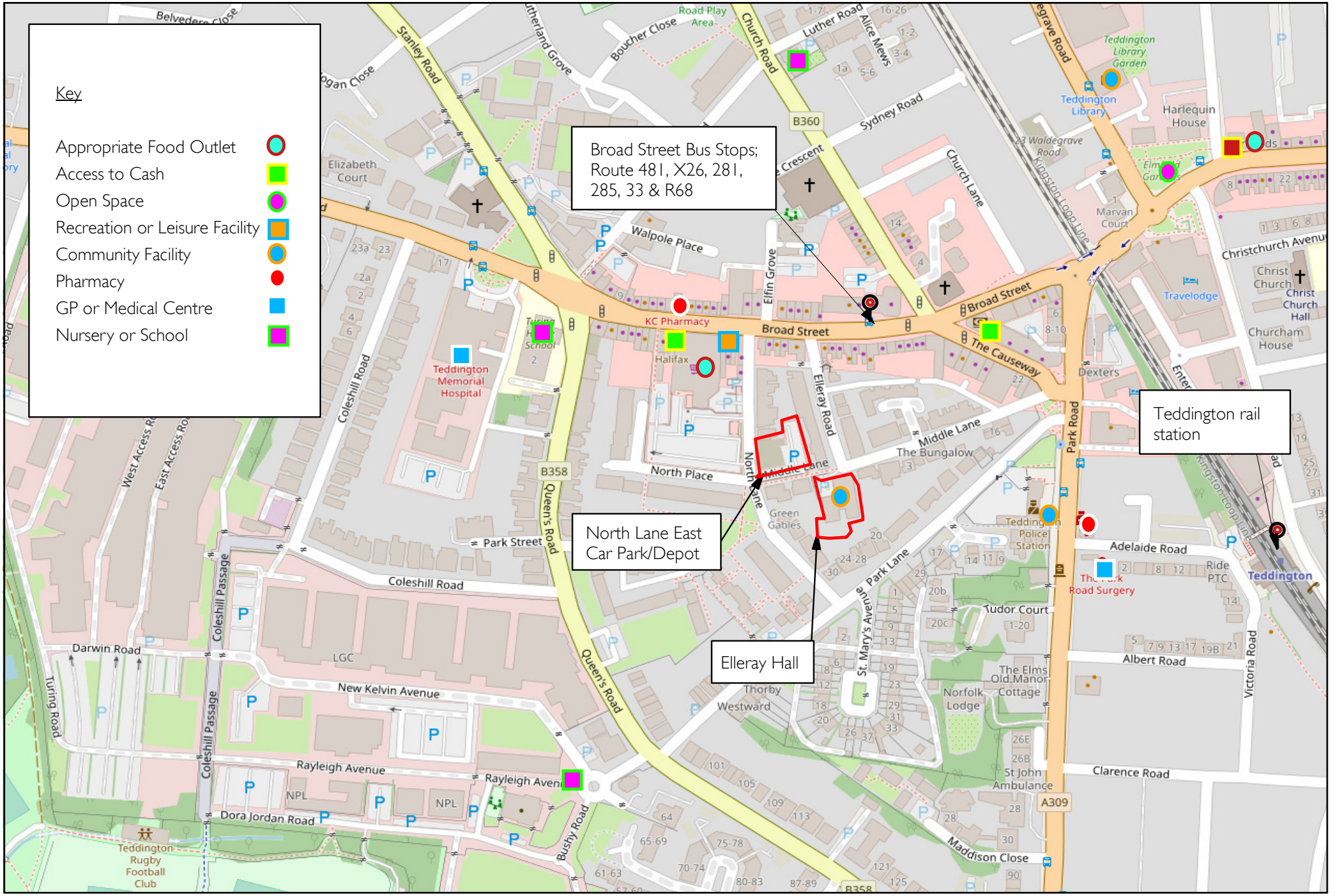
P2379: Elleray Hall & North Lane East Car Park/Depot, Teddington, TW11

Figure 1.
Site Location

PAUL MEW ASSOCIATES
TRAFFIC CONSULTANTS



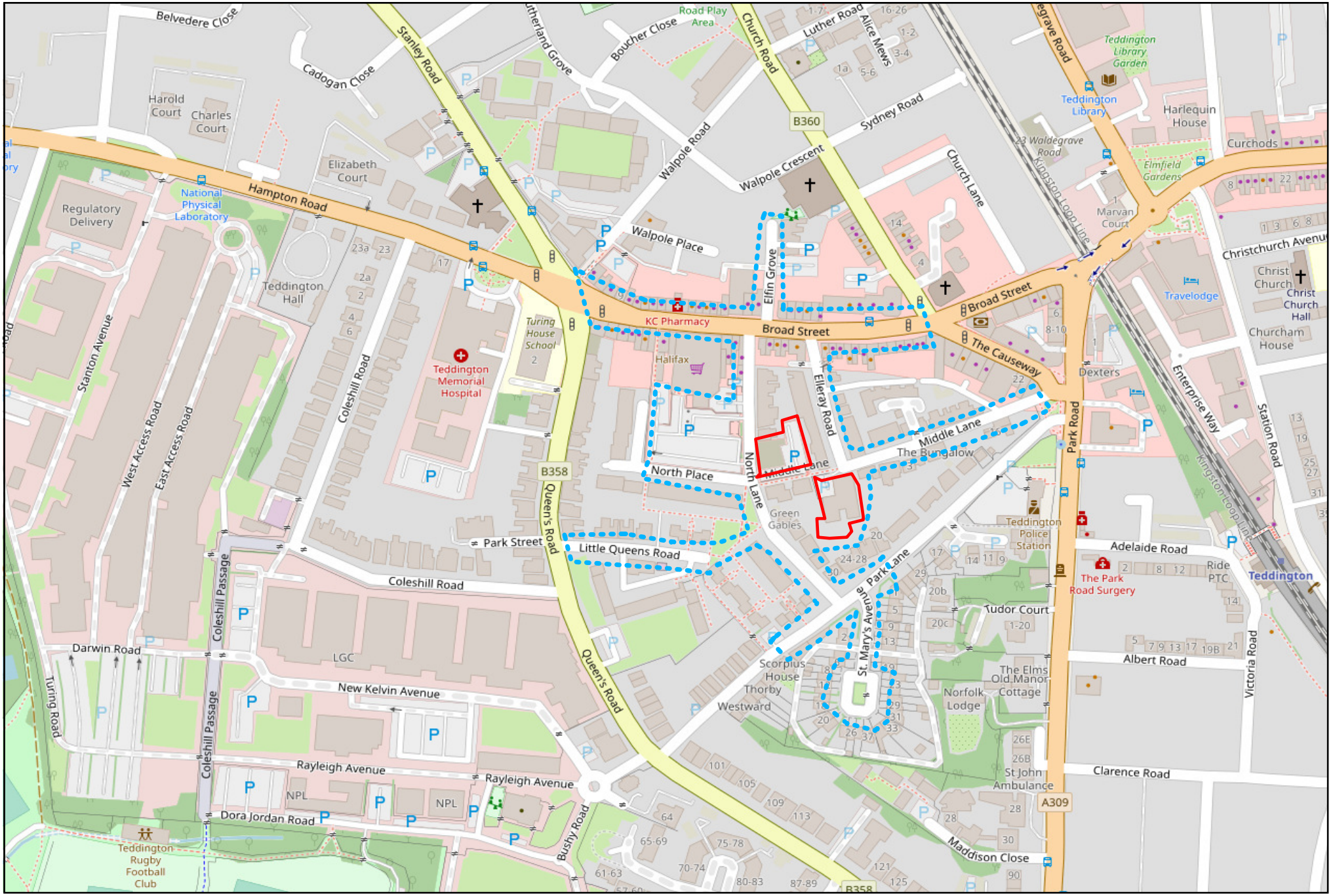
Date: 11 March 2021
Scale: NTS
Source: OpenStreetMap
Drawing No: P2379/TS/02

P2379: Elleray Hall & North Lane East Car Park/Depot, Teddington, TW11

Figure 2.

Local Amenities & Public Transport Accessibility Map

PAUL MEW ASSOCIATES
TRAFFIC CONSULTANTS

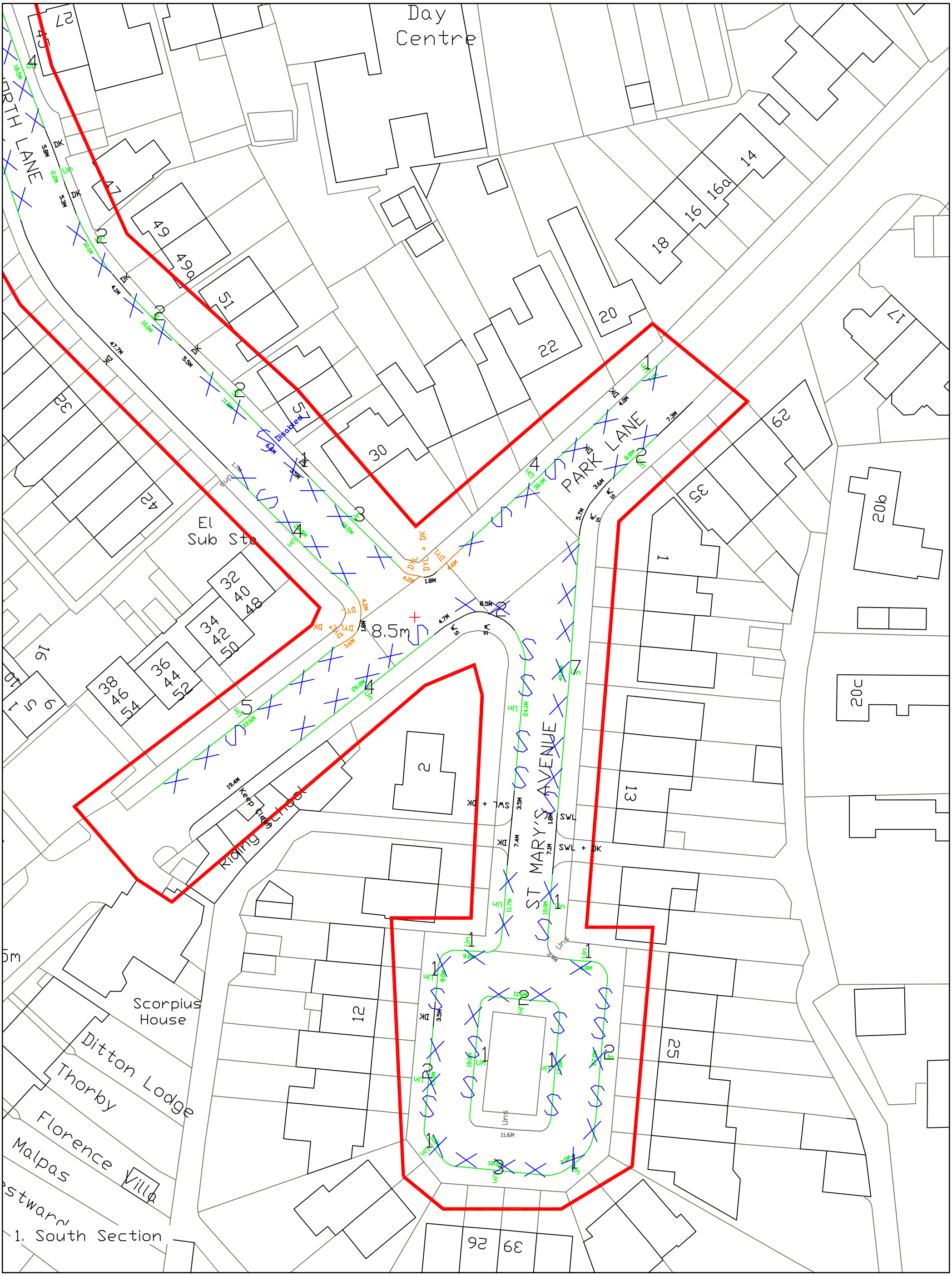


Date: 05 May 2021
Scale: NTS
Source: OpenStreetMap
Drawing No: P2379/TA/03

P2379: Elleray Hall & North Lane East Car Park/Depot, Teddington, TW11

Figure 3.
Parking Survey Area

PAUL MEW ASSOCIATES
TRAFFIC CONSULTANTS



Date: 30 September 2020
Scale: 1:500@A3
Source: Ordnance Survey
Drawing No. P2379/TS/04

N

P2126: ELLERAY HALL, TEDDINGTON

Figure. 4a

Parking Survey Inventory

PAUL MEW ASSOCIATES
TRAFFIC CONSULTANTS
Unit 1, Plym House, 21 Enterprise Way, London SW18 1FZ
Tel: 020 8780 0426
E-mail: paul.mew@pma-traffic.co.uk Website: www.pma-traffic.co.uk

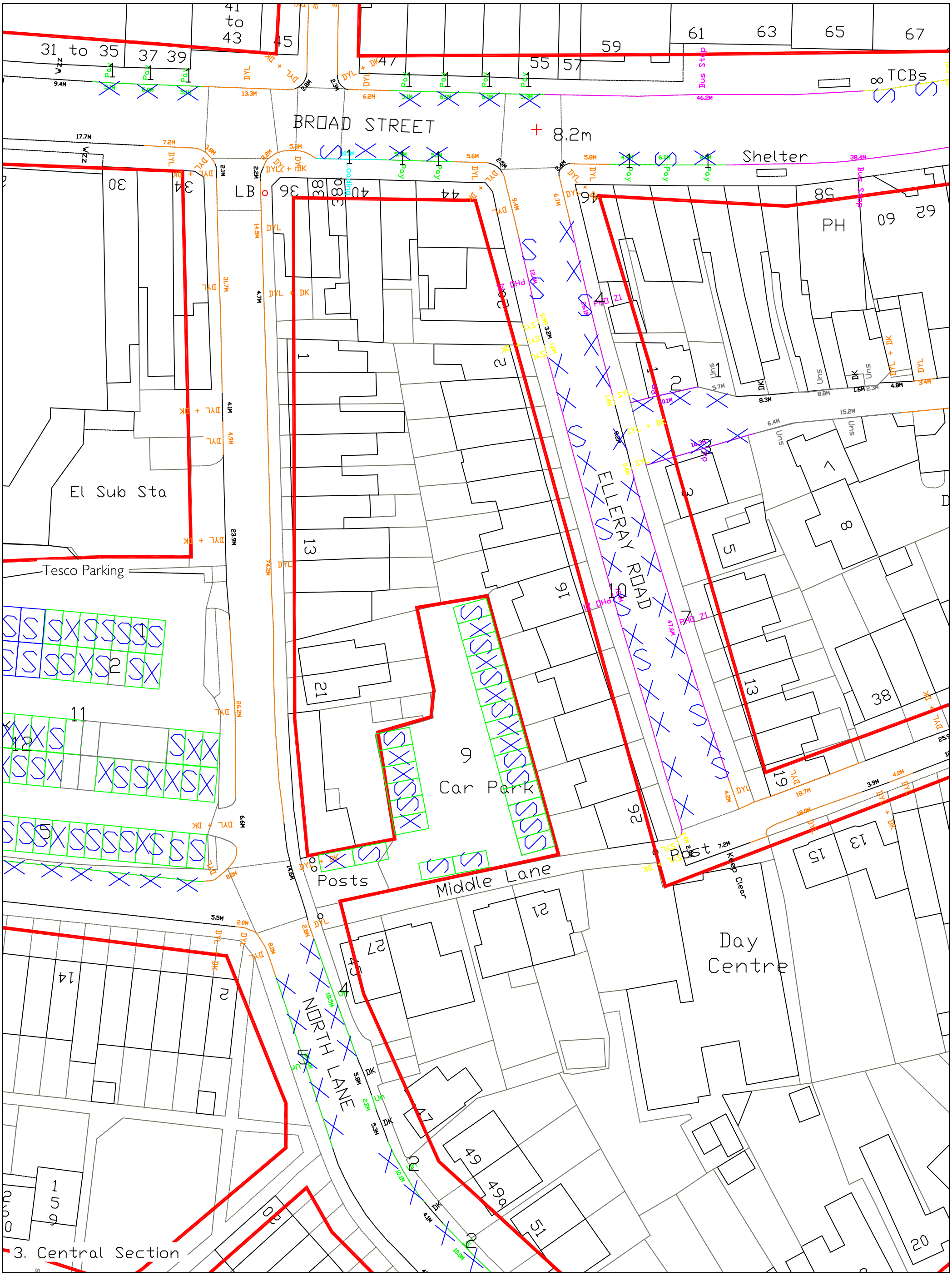
Date: 30 September 2020
Scale: 1:500@A3
Source: Ordnance Survey
Drawing No. P2379/TS/04

P2126: ELLERAY HALL, TEDDINGTON

Figure. 4b

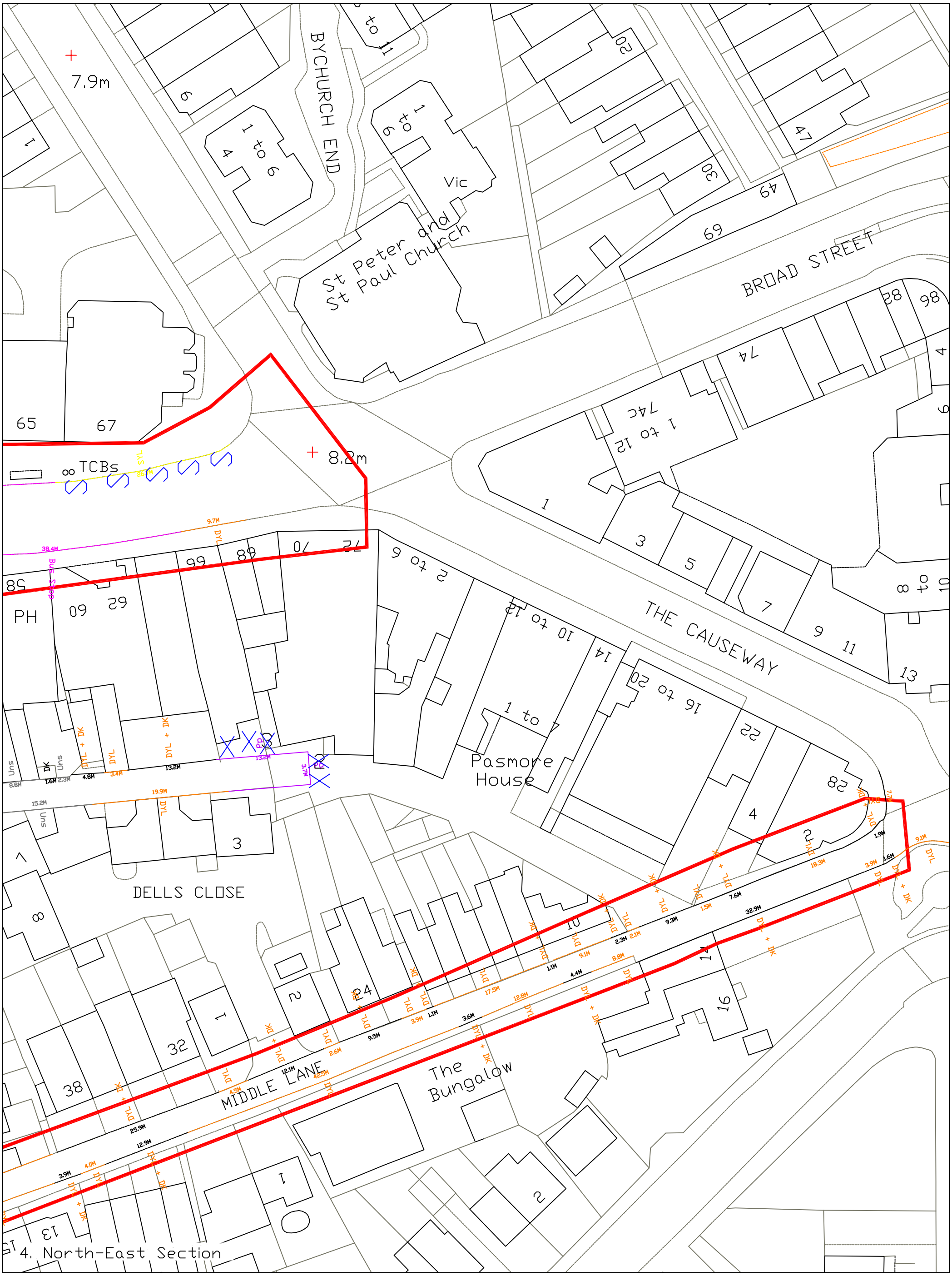
Parking Survey Inventory

PAUL MEW ASSOCIATES
TRAFFIC CONSULTANTS
Unit 1, Plym House, 21 Enterprise Way, London SW18 1FZ
Tel: 020 8780 0426
E-mail: paul.mew@pma-traffic.co.uk Website: www.pma-traffic.co.uk



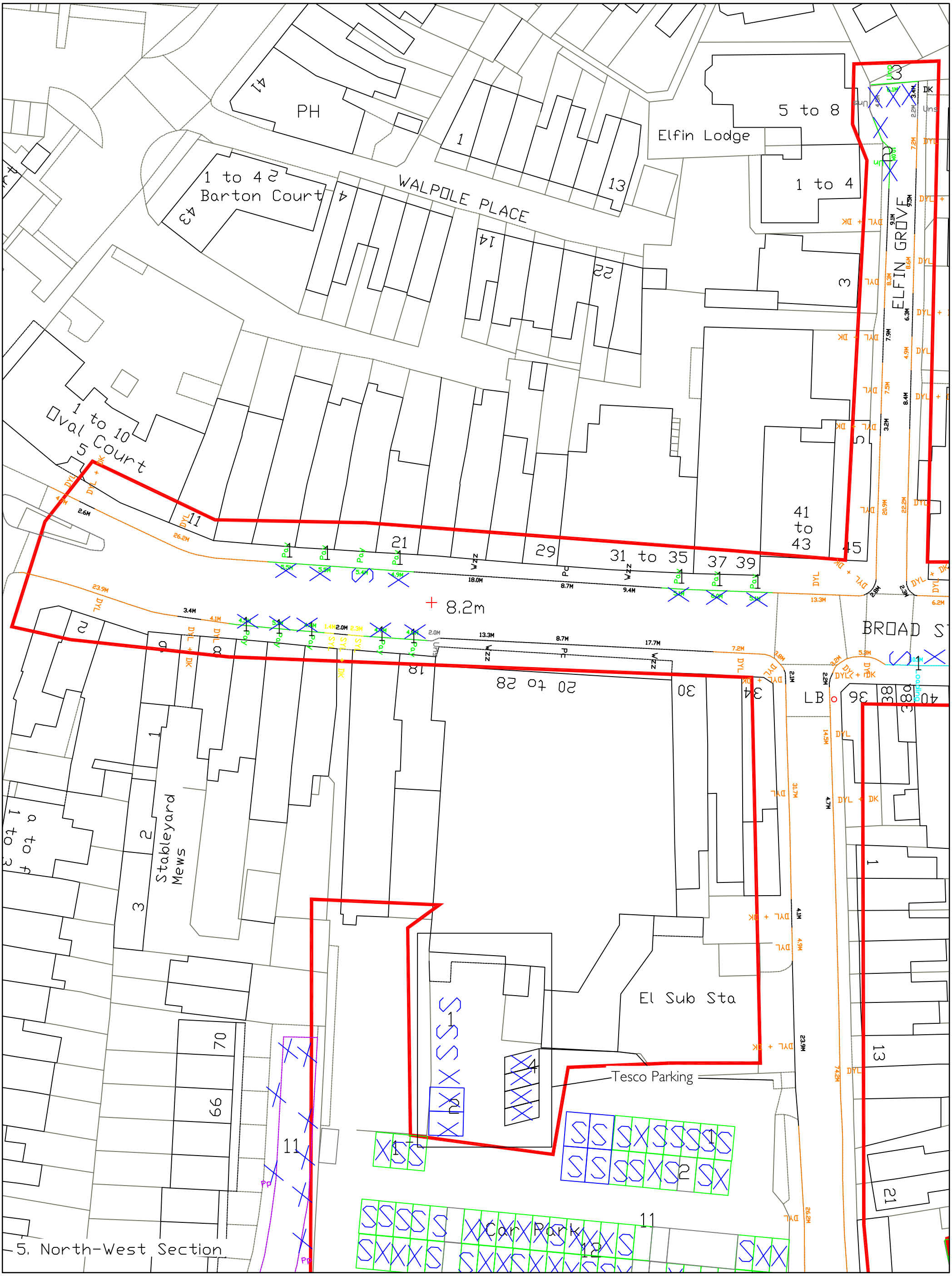
Date: 18 May 2021 Scale: 1:500@A3 Source: Ordnance Survey Drawing No. P2379/TS/04	N	P2126: ELLERAY HALL, TEDDINGTON Figure. 4c Parking Survey Inventory

PAUL MEW ASSOCIATES
TRAFFIC CONSULTANTS
Unit 1, Plym House, 21 Enterprise Way, London SW18 1FZ
Tel: 020 8780 0426
E-mail: paul.mew@pma-traffic.co.uk Website: www.pma-traffic.co.uk



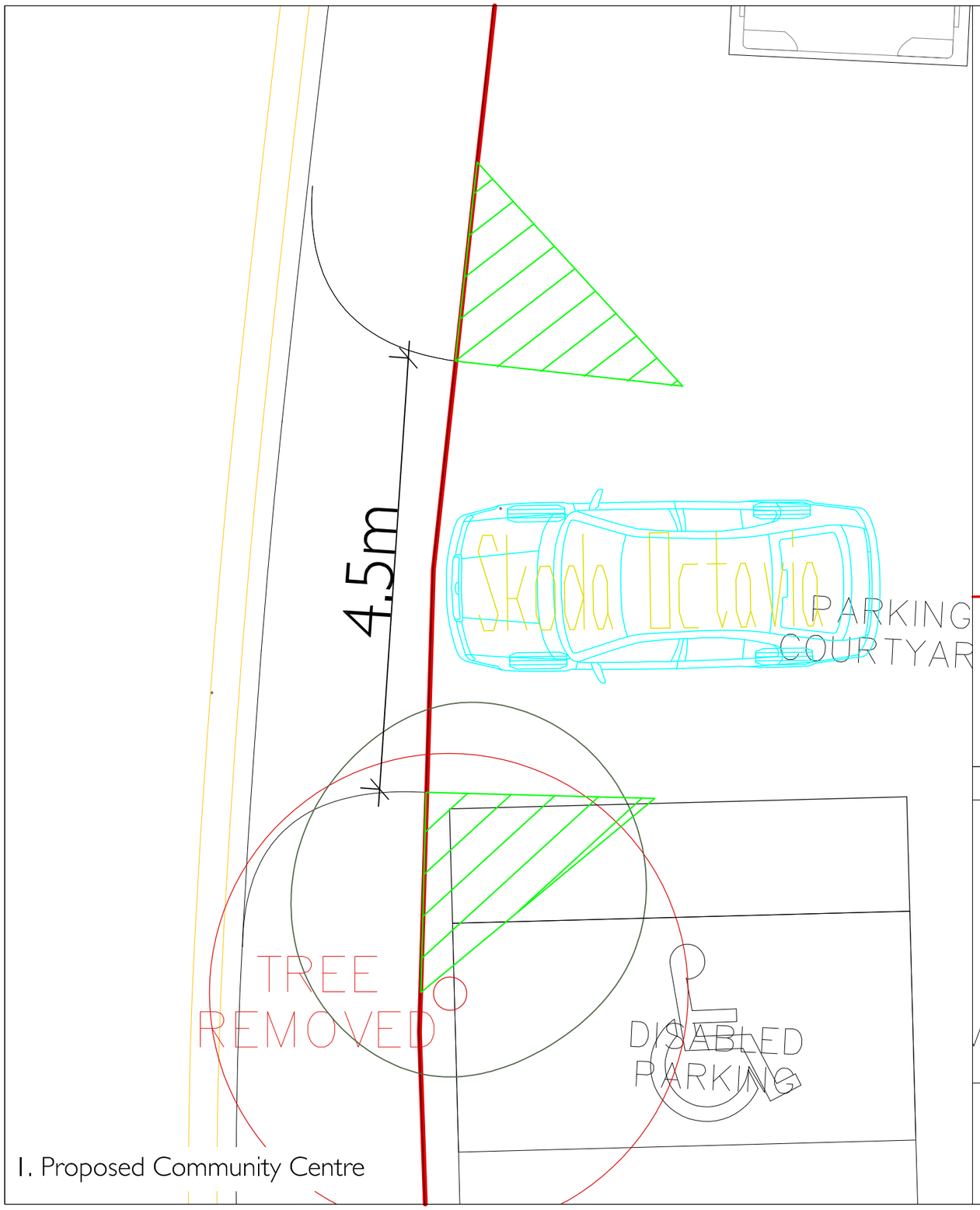
Date: 30 September 2020 Scale: 1:500@A3 Source: Ordnance Survey Drawing No. P2379/TS/04	N	P2126: ELLERAY HALL, TEDDINGTON Figure. 4d Parking Survey Inventory

PAUL MEW ASSOCIATES
TRAFFIC CONSULTANTS
Unit 1, Plym House, 21 Enterprise Way, London SW18 1FZ
Tel: 020 8780 0426
E-mail: paul.mew@pma-traffic.co.uk Website: www.pma-traffic.co.uk

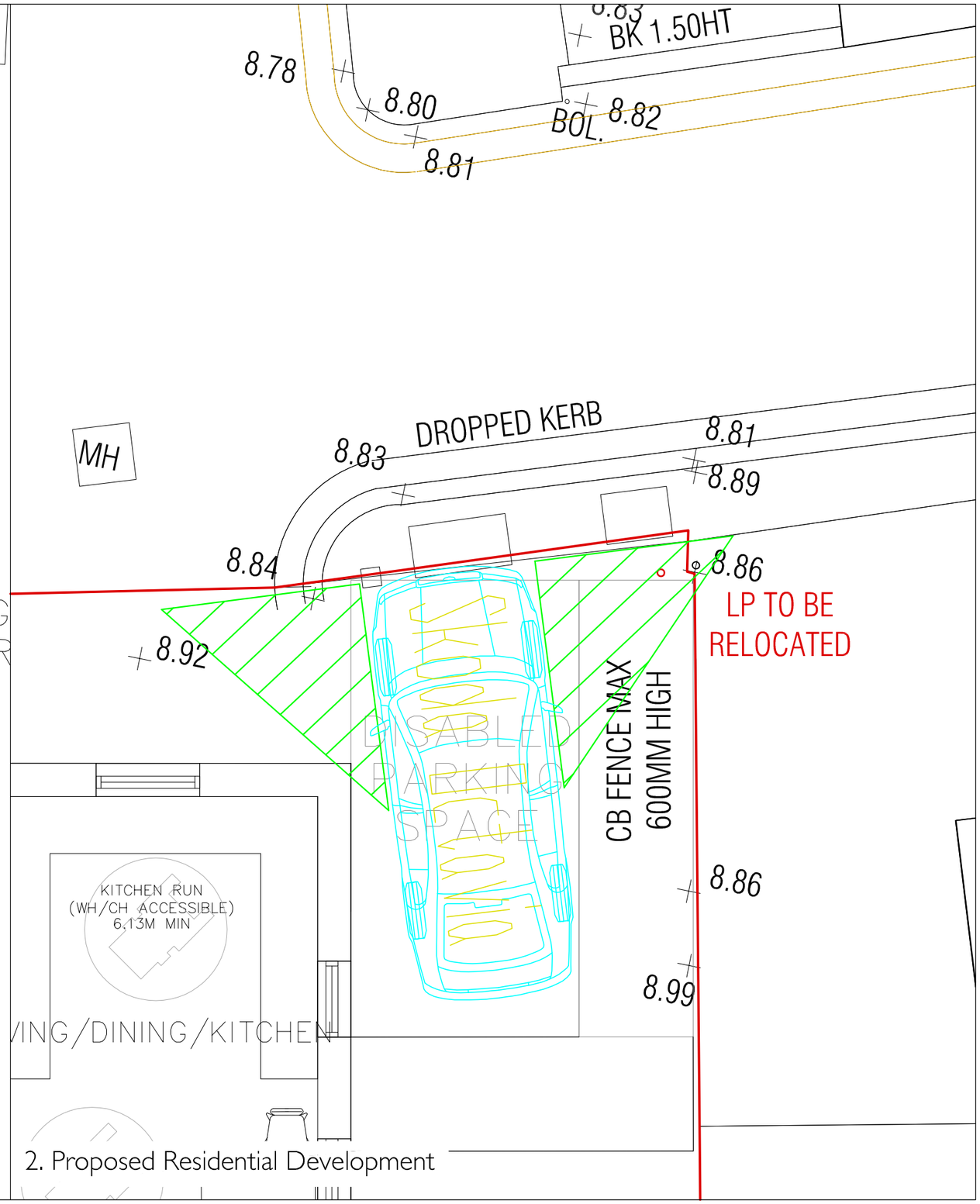


Date: 18 May 2021 Scale: 1:500@A3 Source: Ordnance Survey Drawing No. P2379/TS/04	N	P2126: ELLERAY HALL, TEDDINGTON Figure. 4e Parking Survey Inventory

PAUL MEW ASSOCIATES
TRAFFIC CONSULTANTS
Unit 1, Plym House, 21 Enterprise Way, London SW18 1FZ
Tel: 020 8780 0426
E-mail: paul.mew@pma-traffic.co.uk Website: www.pma-traffic.co.uk



1. Proposed Community Centre



2. Proposed Residential Development

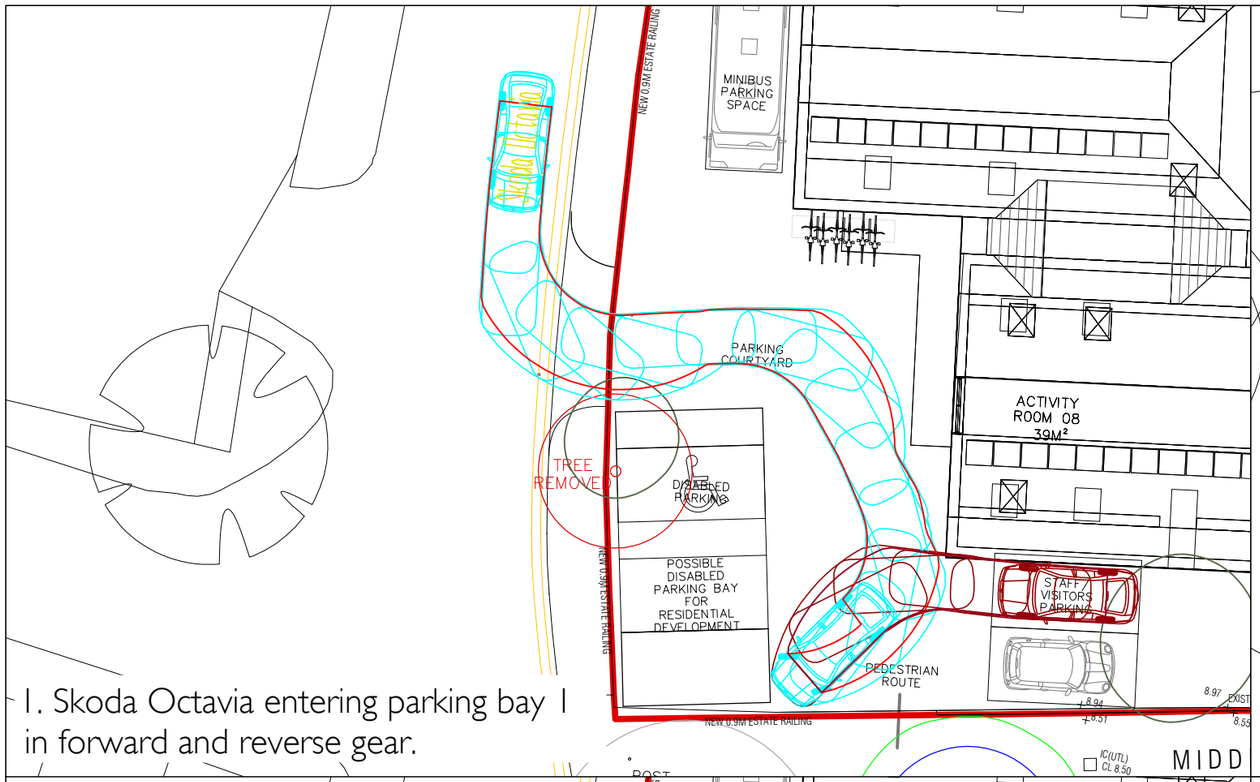
Date: 06 May 2021
Scale: 1:50@A3
Source: CCA
Drawing No. P2379/TA/05

N

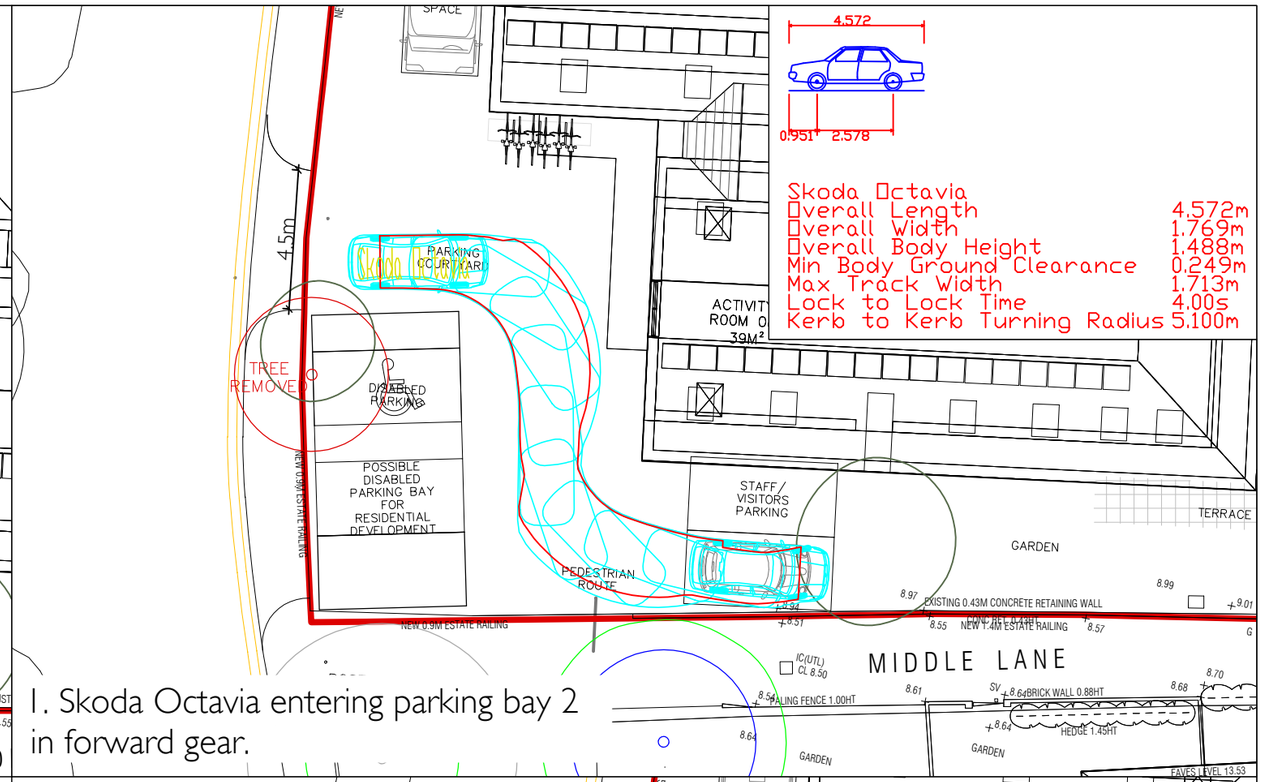
P2379: Elleray Hall & North Lane East Car Park/Depot, Teddington, TW11

Figure 5.
Pedestrian Visibility Sightlines

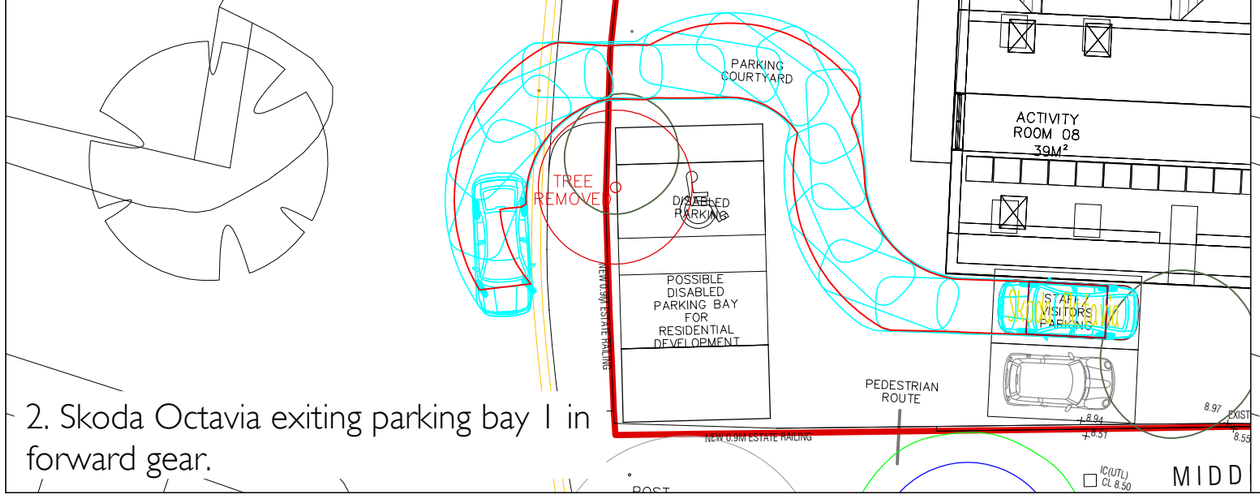
PAUL MEW ASSOCIATES
TRAFFIC CONSULTANTS
Unit 1, Plym House, 21 Enterprise Way, London, SW18 1FZ
Tel: 020 8780 0426
E-mail: paul.mew@pma-traffic.co.uk Website: www.pma-traffic.co.uk



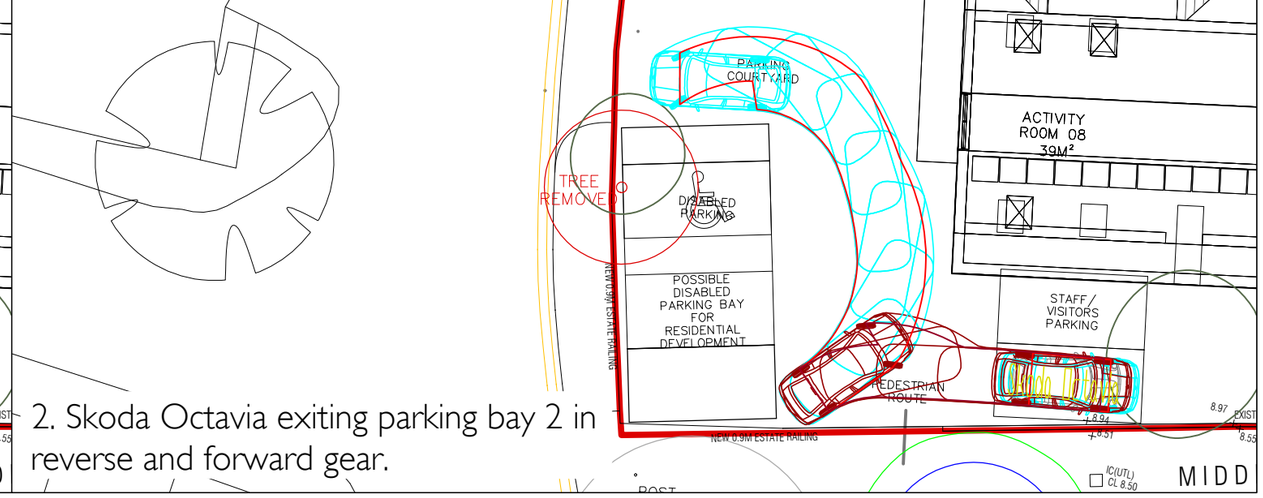
1. Skoda Octavia entering parking bay 1 in forward and reverse gear.



1. Skoda Octavia entering parking bay 2 in forward gear.



2. Skoda Octavia exiting parking bay 1 in forward gear.



2. Skoda Octavia exiting parking bay 2 in reverse and forward gear.

Date: 06 May 2021
Scale: 1:200@A3
Source: CCA
Drawing No. P2379/TA/06a

N

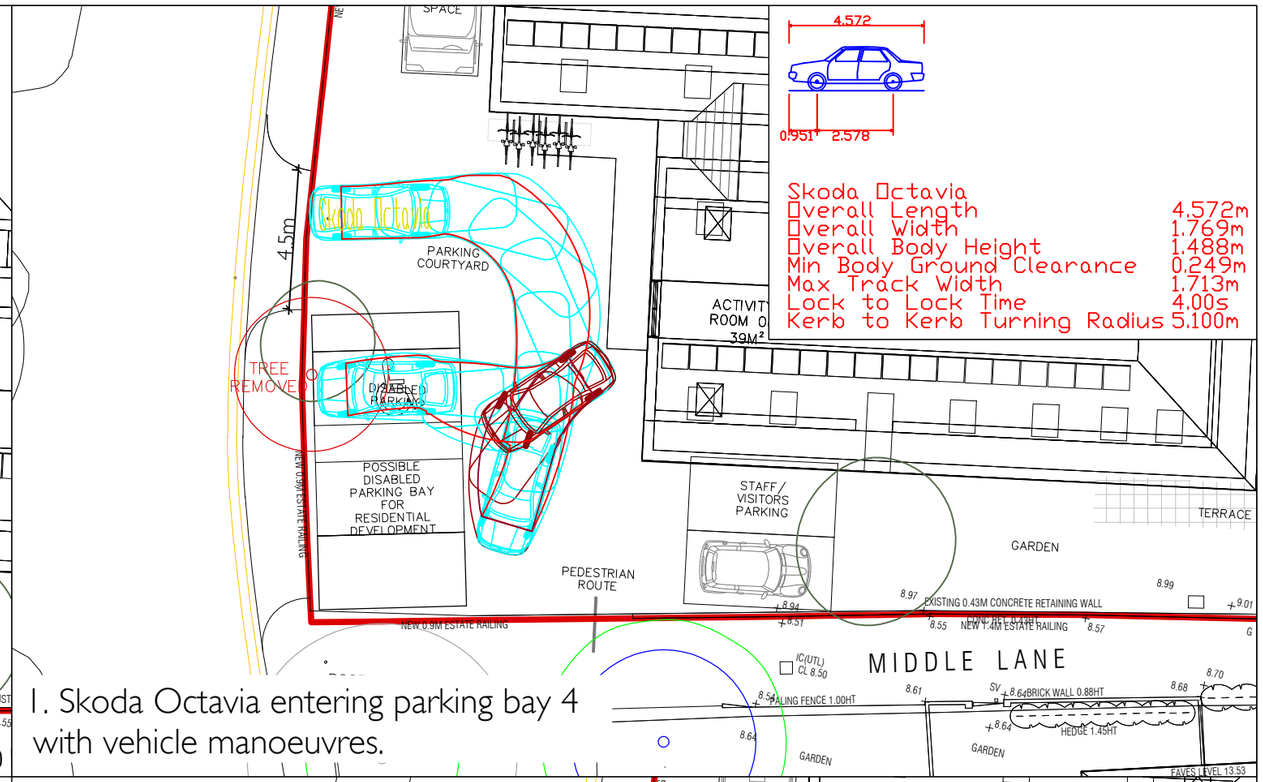
P2379: Elleray Hall & North Lane East Car Park/Depot, Teddington, TW11

Figure 6a.

Swept-Path Analysis: Skoda Octavia

PAUL MEW ASSOCIATES
TRAFFIC CONSULTANTS
Unit 1, Plym House, 21 Enterprise Way, London, SW18 1FZ
Tel: 020 8780 0426
E-mail: paul.mew@pma-traffic.co.uk Website: www.pma-traffic.co.uk

1. Skoda Octavia entering parking bay 3 with vehicle manoeuvres.



1. Skoda Octavia entering parking bay 4 with vehicle manoeuvres.

2. Skoda Octavia exiting parking bay 3 in reverse and forward gear.

2. Skoda Octavia exiting parking bay 4 in reverse and forward gear.

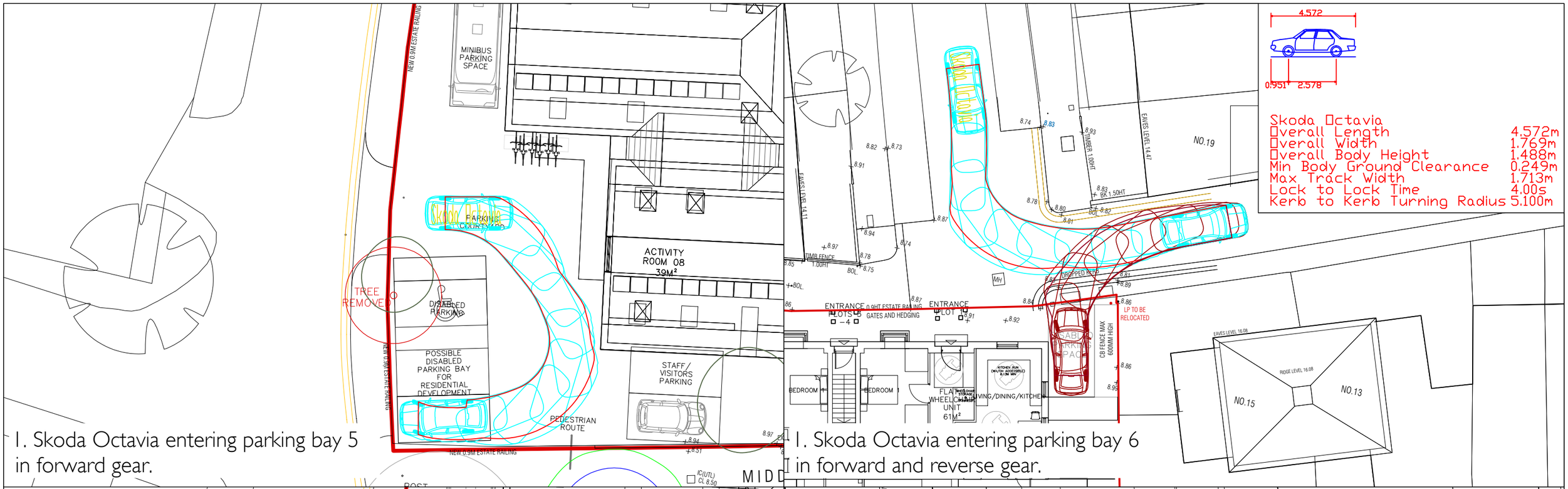
Date: 06 May 2021
Scale: 1:200@A3
Source: CCA
Drawing No. P2379/TA/06b

N

P2379: Elleray Hall & North Lane East Car Park/Depot, Teddington, TW11

Figure 6b.
Swept-Path Analysis: Skoda Octavia

PAUL MEW ASSOCIATES
TRAFFIC CONSULTANTS
Unit 1, Plym House, 21 Enterprise Way, London, SW18 1FZ
Tel: 020 8780 0426
E-mail: paul.mew@pma-traffic.co.uk Website: www.pma-traffic.co.uk



1. Skoda Octavia entering parking bay 5 in forward gear.

1. Skoda Octavia entering parking bay 6 in forward and reverse gear.

2. Skoda Octavia exiting parking bay 5 in reverse and forward gear.

2. Skoda Octavia exiting parking bay 6 in forward gear.

Date: 06 May 2021
Scale: 1:200@A3
Source: CCA
Drawing No. P2379/TA/06c

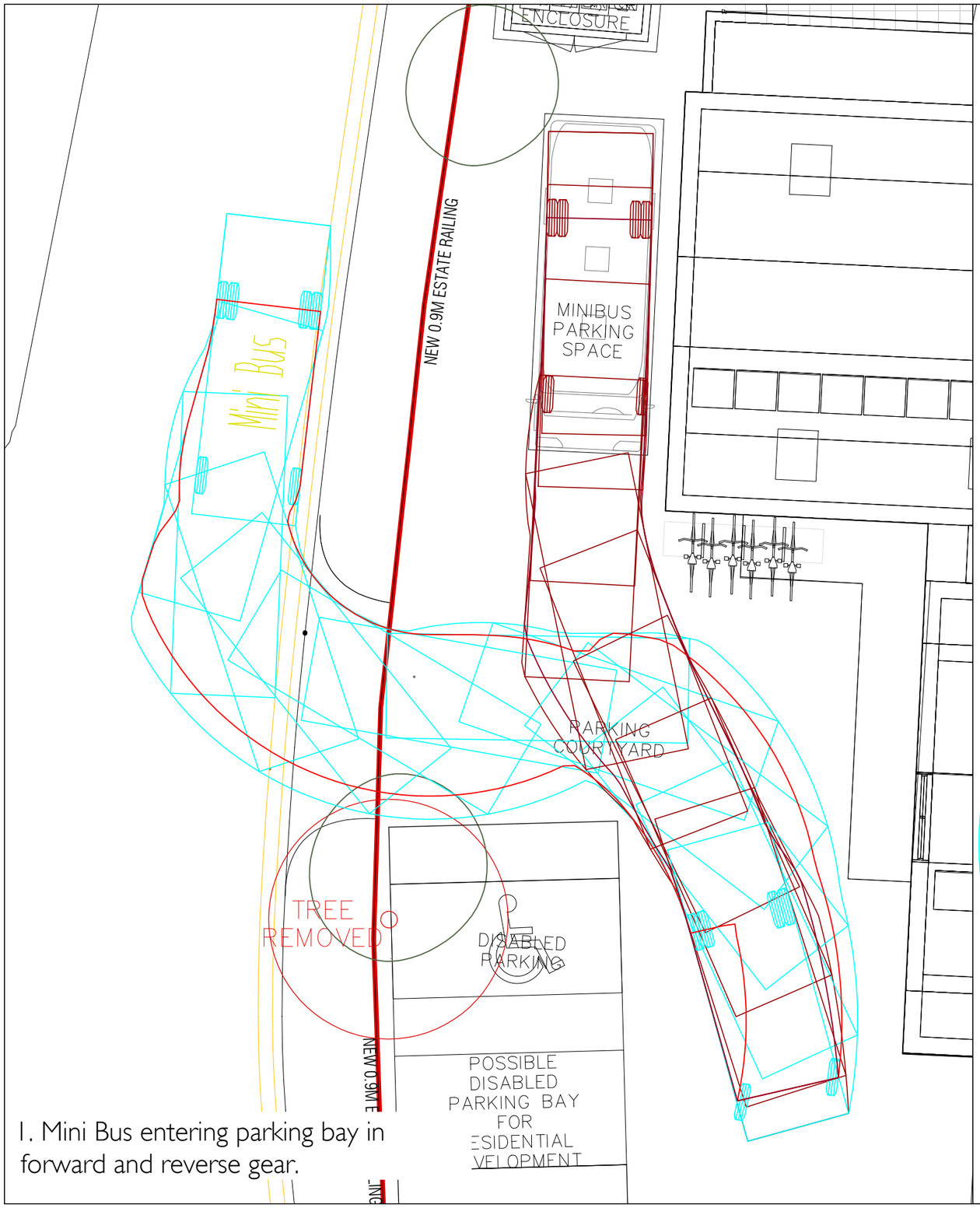
N

P2379: Elleray Hall & North Lane East Car Park/Depot, Teddington, TW11

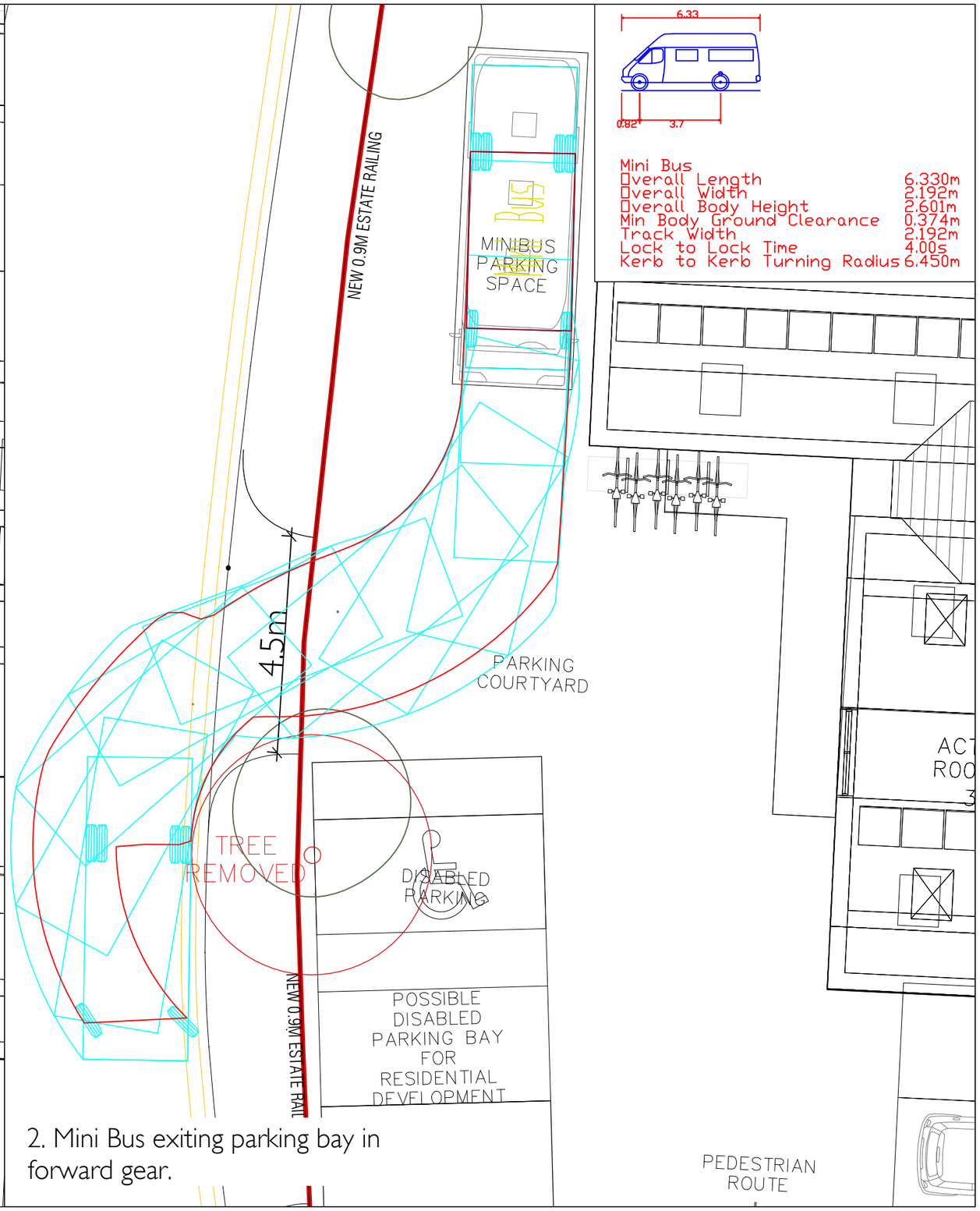
Figure 6c.

Swept-Path Analysis: Skoda Octavia

PAUL MEW ASSOCIATES
TRAFFIC CONSULTANTS
Unit 1, Plym House, 21 Enterprise Way, London, SW18 1FZ
Tel: 020 8780 0426
E-mail: paul.mew@pma-traffic.co.uk Website: www.pma-traffic.co.uk



1. Mini Bus entering parking bay in forward and reverse gear.



2. Mini Bus exiting parking bay in forward gear.

Date: 06 May 2021
Scale: 1:200@A3
Source: CCA
Drawing No. P2379/TA/07

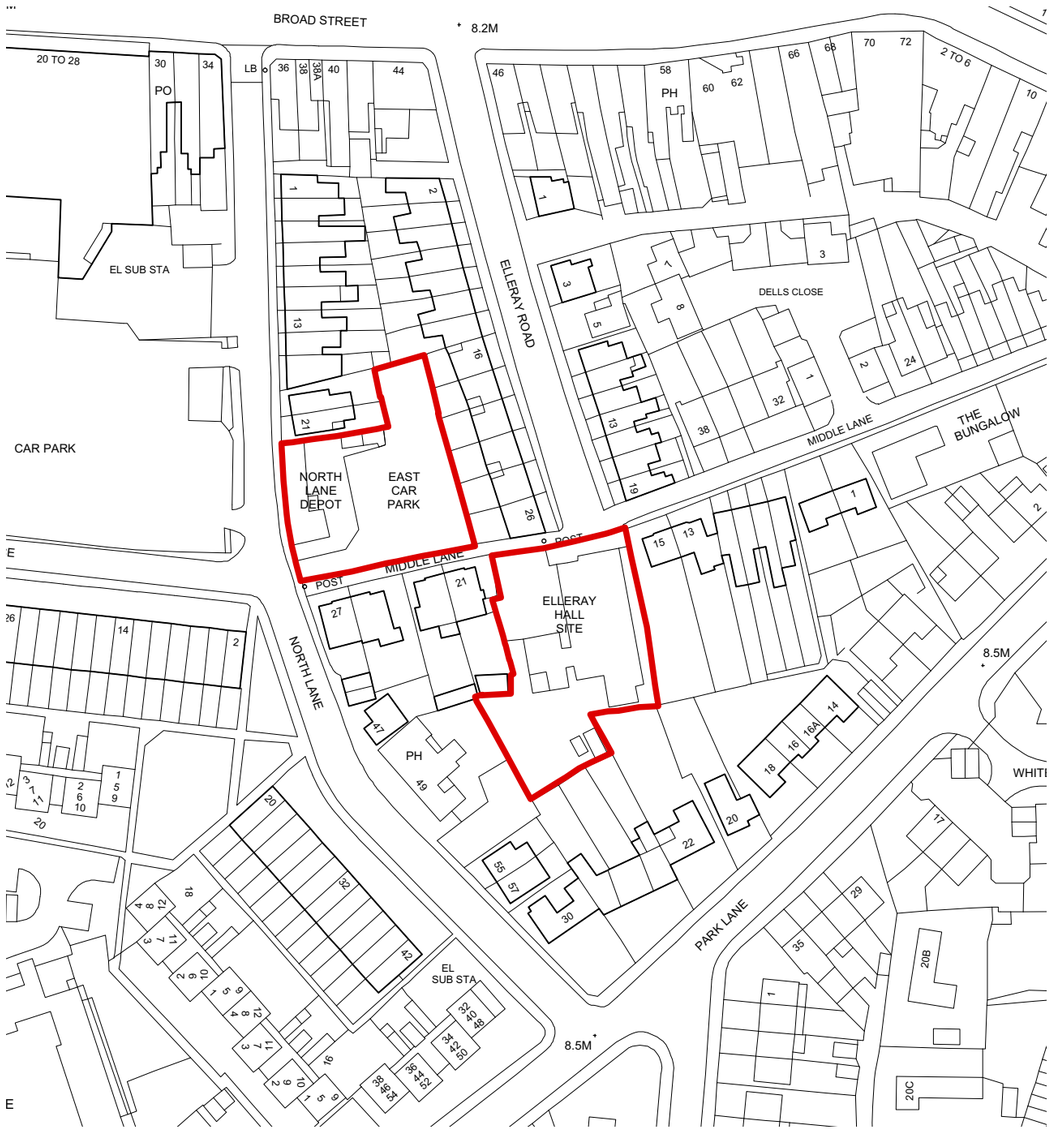
N

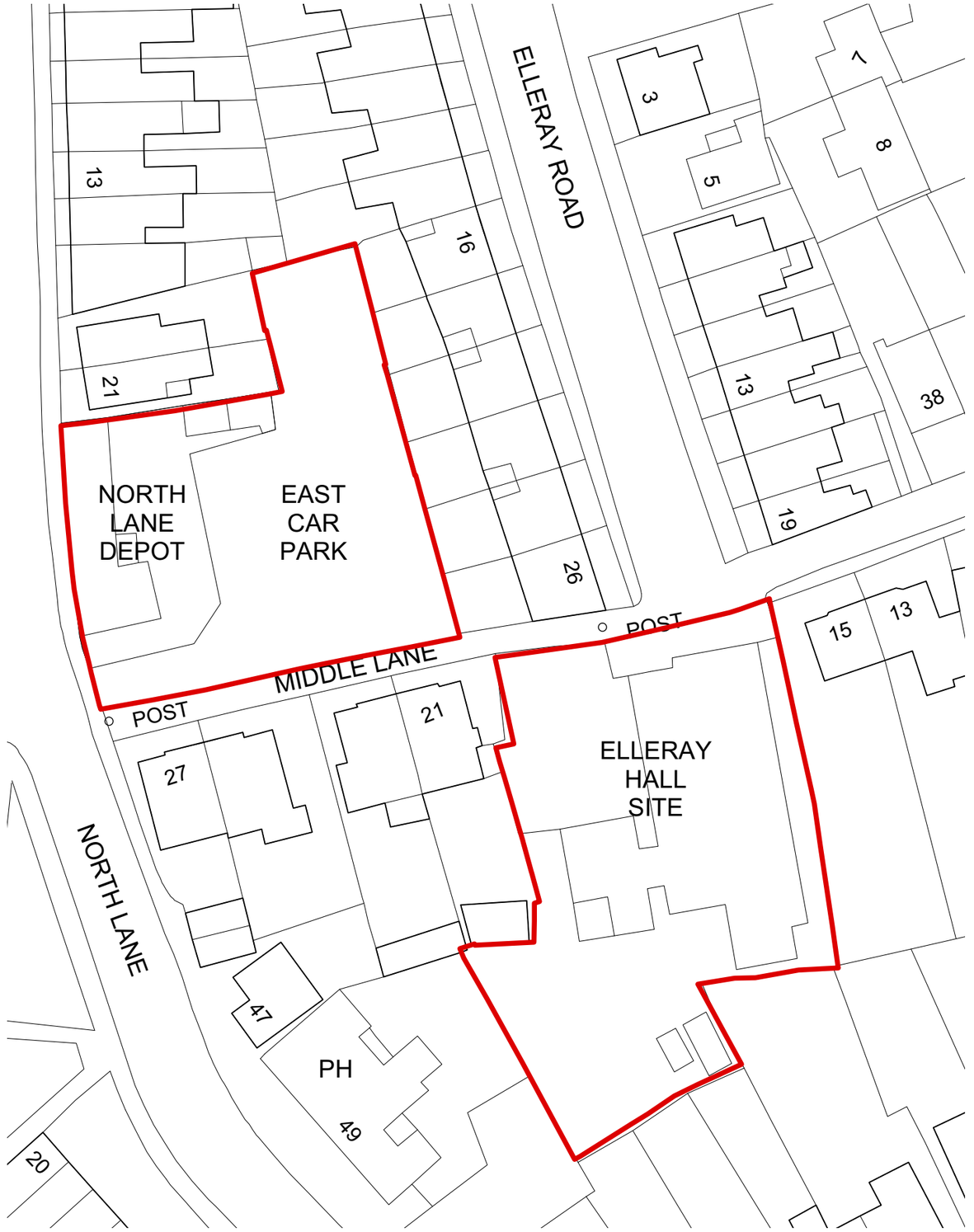
P2379: Elleray Hall & North Lane East Car Park/Depot, Teddington, TW11

Figure 7.
Swept-Path Analysis: Mini Bus

PAUL MEW ASSOCIATES
TRAFFIC CONSULTANTS
Unit 1, Plym House, 21 Enterprise Way, London, SW18 1FZ
Tel: 020 8780 0426
E-mail: paul.mew@pma-traffic.co.uk Website: www.pma-traffic.co.uk

APPENDIX A
Site Boundary





N

1:1250 SCALE BAR

0 20 40 60 80M

N

1:500 SCALE BAR

0 10 20 30M

PRE-APPLICATION

Project: ELLERAY HALL & NORTH LANE DEPOT/EAST CAR PARK, TEDDINGTON TW11		
Drawing: LOCATION PLAN		
Drawing No.: EHT-01	Scale: 1:1250/500 @ A3	Date: 07.08.20

APPENDIX B
Proposed Site Plan

SCHEDULE OF ACCOMMODATION

RESIDENTIAL DEVELOPMENT (USE CLASS C3(A)):

12 No. 1B/2P apartments @ 50.0M²
2 No. 2B/3P apartments @ 61.0M²
2 No. 1B/2P wheelchair unit @ 61.0M²
Communal Circulation (current) @ 31.0m²

Density: 120 Dwellings Per Hectare

TOTAL GIA - 949m2

COMMUNITY CENTRE (USE CLASS F2(B)):

· Foyer / Reception / Office – 20m² & 15m²
· Toilets - 2 female / 2 male / 1 disabled
· 2 Specialist rooms – 10m² each
· Kitchen - 30m²
· Café - 33m²
· Lounge - 41m²
· Quiet Room – 10m²
· Hall & Storage – 143m²
· 1st Floor Activity Rooms x 2 – 39m² & 28m²
· 1st Floor Office /admin – 17m²
· Garden - 268m²
· Sheddington – external store/workshop

TOTAL GIA - 519m2

NEW
RESIDENTIAL
DEVELOPMENT
2 STOREYS

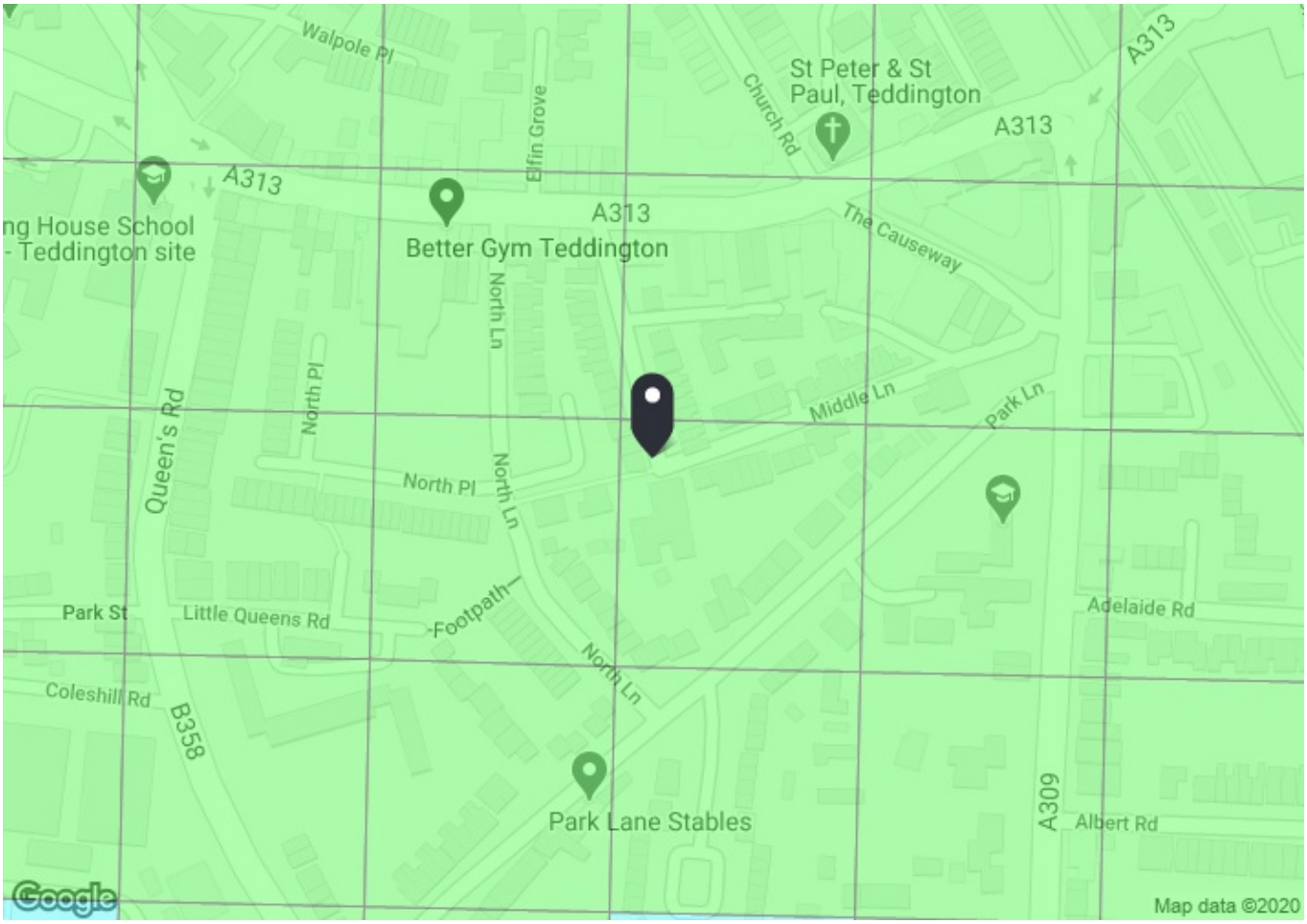
PLANNING

Project		
ELLERAY HALL SITE, TEDDINGTON		
Drawing: MASTERPLAN - PROPOSED SITE LAYOUT & ROOF PLANS		
Drawing No.	Scale	Date
EHT-02	1:200 @ A1	19.04.2021

CLIVE CHAPMAN
ARCHITECTS
SUSTAINABILITY CONSULTANTS
4 EEL PIE ISLAND
TWICKENHAM MIDDX
TW1 3DY
TELEPHONE 020 8891 4837
EMAIL INFO@CCAR.CO.UK
WEBSITE WWW.CCAR.CO.UK

APPENDIX C
TfL PTAL Report

TRANSPORT FOR LONDON



PTAL output for Base Year
3

26 Elleray Rd, Teddington TW11 0HG, UK
Easting: 515710, Northing: 170878

Grid Cell: 35347

Report generated: 25/09/2020

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

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	TEDDINGTON BROAD STREET	481	199.12	1	2.49	32	34.49	0.87	0.5	0.43
Bus	TEDDINGTON BROAD STREET	X26	199.12	2	2.49	17	19.49	1.54	0.5	0.77
Bus	TEDDINGTON BROAD STREET	281	199.12	7.5	2.49	6	8.49	3.53	0.5	1.77
Bus	TEDDINGTON BROAD STREET	285	199.12	6	2.49	7	9.49	3.16	0.5	1.58
Bus	TEDDINGTON BROAD STREET	33	199.12	7.5	2.49	6	8.49	3.53	1	3.53
Bus	TEDDINGTON BROAD STREET	R68	199.12	4	2.49	9.5	11.99	2.5	0.5	1.25
Rail	Teddington	'WATRLMN-SHEPRTN 2H09'	436.12	2	5.45	15.75	21.2	1.41	1	1.41
Rail	Teddington	'SHEPRTN-WATRLMN 2H10'	436.12	2	5.45	15.75	21.2	1.41	0.5	0.71
Rail	Teddington	'WDON-WATRLMN 2K03 '	436.12	0.33	5.45	91.66	97.11	0.31	0.5	0.15
Rail	Teddington	'WATRLMN-WATRLMN 2K09'	436.12	2	5.45	15.75	21.2	1.41	0.5	0.71
Rail	Teddington	'WATRLMN-WATRLMN 2O09'	436.12	2	5.45	15.75	21.2	1.41	0.5	0.71
Rail	Teddington	'TEDNGTN-WATRLMN 2O90'	436.12	0.33	5.45	91.66	97.11	0.31	0.5	0.15
Rail	Teddington	'TWCKNHM-WATRLMN 2O92'	436.12	0.67	5.45	45.53	50.98	0.59	0.5	0.29
									Total Grid Cell AI:	**13.47**

APPENDIX D
TRICS Trip Generation Results – Community Centre

Calculation Reference: AUDIT-711001-210311-0300

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 07 - LEISURE
Category : Q - COMMUNITY CENTRE
MULTI-MODAL TOTAL VEHICLES

Selected regions and areas:
06 WEST MIDLANDS
ST STAFFORDSHIRE 1 days

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

Primary 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: 2329 to 2329 (units: sqm)
Range Selected by User: 100 to 2329 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/12 to 07/06/18

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:
Friday 1 days

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

Selected survey types:
Manual count 1 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 undertaking using machines.

Selected Locations:
Edge of Town Centre 1

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:
Built-Up Zone 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:
D2 1 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 500m Range:
All Surveys Included

Secondary Filtering selection (Cont.):

Population within 1 mile:
25,001 to 50,000 1 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

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

Car ownership within 5 miles:
0.6 to 1.0 1 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 1 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

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

LIST OF SITES relevant to selection parameters

1 ST-07-Q-01 COMMUNITY CENTRE STAFFORDSHIRE
DUDLEY ROAD
WOLVERHAMPTON

Edge of Town Centre
Built-Up Zone
Total Gross floor area: 2329 sqm
Survey date: FRIDAY *09/05/14* *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.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
CA-07-Q-02	Location not suitable
SH-07-Q-01	Location not suitable

TRIP RATE for Land Use 07 - LEISURE/Q - COMMUNITY CENTRE
MULTI-MODAL TOTAL VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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									
08:00 - 09:00	1	2329	0.558	1	2329	0.043	1	2329	0.601
09:00 - 10:00	1	2329	0.386	1	2329	0.215	1	2329	0.601
10:00 - 11:00	1	2329	0.687	1	2329	0.730	1	2329	1.417
11:00 - 12:00	1	2329	0.601	1	2329	0.601	1	2329	1.202
12:00 - 13:00	1	2329	0.558	1	2329	0.601	1	2329	1.159
13:00 - 14:00	1	2329	0.515	1	2329	0.601	1	2329	1.116
14:00 - 15:00	1	2329	0.343	1	2329	0.773	1	2329	1.116
15:00 - 16:00	1	2329	0.258	1	2329	0.301	1	2329	0.559
16:00 - 17:00	1	2329	0.386	1	2329	0.258	1	2329	0.644
17:00 - 18:00	1	2329	0.172	1	2329	0.301	1	2329	0.473
18:00 - 19:00	1	2329	0.258	1	2329	0.129	1	2329	0.387
19:00 - 20:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
20:00 - 21:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
21:00 - 22:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			4.722			4.553			9.275

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.*

Parameter summary

Trip rate parameter range selected:	2329 - 2329 (units: sqm)
Survey date date range:	01/01/12 - 07/06/18
Number of weekdays (Monday-Friday):	1
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	2

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.

TRIP RATE for Land Use 07 - LEISURE/Q - COMMUNITY CENTRE
MULTI-MODAL TAXIS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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									
08:00 - 09:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
09:00 - 10:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
10:00 - 11:00	1	2329	0.043	1	2329	0.043	1	2329	0.086
11:00 - 12:00	1	2329	0.043	1	2329	0.043	1	2329	0.086
12:00 - 13:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
13:00 - 14:00	1	2329	0.043	1	2329	0.043	1	2329	0.086
14:00 - 15:00	1	2329	0.086	1	2329	0.086	1	2329	0.172
15:00 - 16:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
16:00 - 17:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
17:00 - 18:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
18:00 - 19:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
19:00 - 20:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
20:00 - 21:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
21:00 - 22:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.215			0.215			0.430

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.*

TRIP RATE for Land Use 07 - LEISURE/Q - COMMUNITY CENTRE
MULTI-MODAL PSVS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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									
08:00 - 09:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
09:00 - 10:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
10:00 - 11:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
11:00 - 12:00	1	2329	0.043	1	2329	0.000	1	2329	0.043
12:00 - 13:00	1	2329	0.000	1	2329	0.043	1	2329	0.043
13:00 - 14:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
14:00 - 15:00	1	2329	0.086	1	2329	0.086	1	2329	0.172
15:00 - 16:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
16:00 - 17:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
17:00 - 18:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
18:00 - 19:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
19:00 - 20:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
20:00 - 21:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
21:00 - 22:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.129			0.129			0.258

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.*

TRIP RATE for Land Use 07 - LEISURE/Q - COMMUNITY CENTRE
MULTI-MODAL VEHICLE OCCUPANTS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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									
08:00 - 09:00	1	2329	0.644	1	2329	0.043	1	2329	0.687
09:00 - 10:00	1	2329	0.558	1	2329	0.215	1	2329	0.773
10:00 - 11:00	1	2329	0.816	1	2329	0.988	1	2329	1.804
11:00 - 12:00	1	2329	0.730	1	2329	0.773	1	2329	1.503
12:00 - 13:00	1	2329	0.644	1	2329	0.601	1	2329	1.245
13:00 - 14:00	1	2329	0.515	1	2329	0.687	1	2329	1.202
14:00 - 15:00	1	2329	0.343	1	2329	0.988	1	2329	1.331
15:00 - 16:00	1	2329	0.343	1	2329	0.386	1	2329	0.729
16:00 - 17:00	1	2329	0.429	1	2329	0.301	1	2329	0.730
17:00 - 18:00	1	2329	0.172	1	2329	0.386	1	2329	0.558
18:00 - 19:00	1	2329	0.301	1	2329	0.172	1	2329	0.473
19:00 - 20:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
20:00 - 21:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
21:00 - 22:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			5.495			5.540			11.035

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.*

TRIP RATE for Land Use 07 - LEISURE/Q - COMMUNITY CENTRE
MULTI-MODAL PEDESTRIANS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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									
08:00 - 09:00	1	2329	0.472	1	2329	0.086	1	2329	0.558
09:00 - 10:00	1	2329	0.558	1	2329	0.172	1	2329	0.730
10:00 - 11:00	1	2329	1.331	1	2329	0.859	1	2329	2.190
11:00 - 12:00	1	2329	0.816	1	2329	0.429	1	2329	1.245
12:00 - 13:00	1	2329	1.288	1	2329	1.503	1	2329	2.791
13:00 - 14:00	1	2329	0.945	1	2329	1.073	1	2329	2.018
14:00 - 15:00	1	2329	0.386	1	2329	1.030	1	2329	1.416
15:00 - 16:00	1	2329	0.301	1	2329	0.601	1	2329	0.902
16:00 - 17:00	1	2329	0.902	1	2329	0.730	1	2329	1.632
17:00 - 18:00	1	2329	0.215	1	2329	0.258	1	2329	0.473
18:00 - 19:00	1	2329	0.258	1	2329	0.258	1	2329	0.516
19:00 - 20:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
20:00 - 21:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
21:00 - 22:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			7.472			6.999			14.471

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.*

TRIP RATE for Land Use 07 - LEISURE/Q - COMMUNITY CENTRE
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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									
08:00 - 09:00	1	2329	1.116	1	2329	0.129	1	2329	1.245
09:00 - 10:00	1	2329	1.116	1	2329	0.386	1	2329	1.502
10:00 - 11:00	1	2329	2.147	1	2329	1.846	1	2329	3.993
11:00 - 12:00	1	2329	1.546	1	2329	1.202	1	2329	2.748
12:00 - 13:00	1	2329	1.932	1	2329	2.104	1	2329	4.036
13:00 - 14:00	1	2329	1.460	1	2329	1.760	1	2329	3.220
14:00 - 15:00	1	2329	0.730	1	2329	2.018	1	2329	2.748
15:00 - 16:00	1	2329	0.644	1	2329	0.988	1	2329	1.632
16:00 - 17:00	1	2329	1.331	1	2329	1.030	1	2329	2.361
17:00 - 18:00	1	2329	0.386	1	2329	0.644	1	2329	1.030
18:00 - 19:00	1	2329	0.558	1	2329	0.429	1	2329	0.987
19:00 - 20:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
20:00 - 21:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
21:00 - 22:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			12.966			12.536			25.502

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.*

TRIP RATE for Land Use 07 - LEISURE/Q - COMMUNITY CENTRE
MULTI-MODAL LGVS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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									
08:00 - 09:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
09:00 - 10:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
10:00 - 11:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
11:00 - 12:00	1	2329	0.129	1	2329	0.043	1	2329	0.172
12:00 - 13:00	1	2329	0.000	1	2329	0.086	1	2329	0.086
13:00 - 14:00	1	2329	0.043	1	2329	0.000	1	2329	0.043
14:00 - 15:00	1	2329	0.000	1	2329	0.043	1	2329	0.043
15:00 - 16:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
16:00 - 17:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
17:00 - 18:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
18:00 - 19:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
19:00 - 20:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
20:00 - 21:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
21:00 - 22:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.172			0.172			0.344

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.*

TRIP RATE for Land Use 07 - LEISURE/Q - COMMUNITY CENTRE
MULTI-MODAL MOTOR CYCLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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									
08:00 - 09:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
09:00 - 10:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
10:00 - 11:00	1	2329	0.043	1	2329	0.000	1	2329	0.043
11:00 - 12:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
12:00 - 13:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
13:00 - 14:00	1	2329	0.000	1	2329	0.043	1	2329	0.043
14:00 - 15:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
15:00 - 16:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
16:00 - 17:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
17:00 - 18:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
18:00 - 19:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
19:00 - 20:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
20:00 - 21:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
21:00 - 22:00	1	2329	0.000	1	2329	0.000	1	2329	0.000
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.043			0.043			0.086

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 E
TRICS Trip Generation Results – Residential Development

Calculation Reference: AUDIT-711001-210311-0349

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

01	GREATER LONDON		
	HM	HAMMERSMITH AND FULHAM	1 days
	IS	ISLINGTON	1 days

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

Primary 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: No of Dwellings
Actual Range: 157 to 194 (units:)
Range Selected by User: 6 to 493 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: Selected: 0.07 to 0.3 Actual: 0.07 to 2.30

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/12 to 06/03/20

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:

Tuesday	1 days
Thursday	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 undertaking using machines.

Selected Locations:

Town Centre	1
Edge of Town Centre	1

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	1
Built-Up Zone	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	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 500m Range:
All Surveys Included

Secondary Filtering selection (Cont.):

Population within 1 mile:

50,001 to 100,000	1 days
100,001 or More	1 days

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

Population within 5 miles:

500,001 or More	2 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

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	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:

6a Excellent	1 days
6b (High) Excellent	1 days

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

LIST OF SITES relevant to selection parameters

1	HM-03-C-02 GLENTHORNE ROAD HAMMERSMITH	BLOCKS OF FLATS		HAMMERSMITH AND FULHAM
	Town Centre Built-Up Zone Total No of Dwellings:		194	
	Survey date: TUESDAY		*30/04/19*	*Survey Type: MANUAL*
2	IS-03-C-04 CITY ROAD ISLINGTON	BLOCK OF FLATS		ISLINGTON
	Edge of Town Centre Development Zone Total No of Dwellings:		157	
	Survey date: THURSDAY		*14/07/16*	*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 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL TOTAL VEHICLES
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	2	176	0.023	2	176	0.034	2	176	0.057
08:00 - 09:00	2	176	0.017	2	176	0.020	2	176	0.037
09:00 - 10:00	2	176	0.026	2	176	0.028	2	176	0.054
10:00 - 11:00	2	176	0.026	2	176	0.023	2	176	0.049
11:00 - 12:00	2	176	0.026	2	176	0.031	2	176	0.057
12:00 - 13:00	2	176	0.014	2	176	0.017	2	176	0.031
13:00 - 14:00	2	176	0.028	2	176	0.037	2	176	0.065
14:00 - 15:00	2	176	0.009	2	176	0.009	2	176	0.018
15:00 - 16:00	2	176	0.020	2	176	0.017	2	176	0.037
16:00 - 17:00	2	176	0.048	2	176	0.034	2	176	0.082
17:00 - 18:00	2	176	0.028	2	176	0.014	2	176	0.042
18:00 - 19:00	2	176	0.040	2	176	0.026	2	176	0.066
19:00 - 20:00	2	176	0.031	2	176	0.031	2	176	0.062
20:00 - 21:00	2	176	0.014	2	176	0.014	2	176	0.028
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.350			0.335			0.685

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.*

Parameter summary

Trip rate parameter range selected:	157 - 194 (units:)
Survey date date range:	01/01/12 - 06/03/20
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.

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	2	176	0.009	2	176	0.009	2	176	0.018
08:00 - 09:00	2	176	0.003	2	176	0.003	2	176	0.006
09:00 - 10:00	2	176	0.006	2	176	0.006	2	176	0.012
10:00 - 11:00	2	176	0.009	2	176	0.009	2	176	0.018
11:00 - 12:00	2	176	0.006	2	176	0.006	2	176	0.012
12:00 - 13:00	2	176	0.003	2	176	0.003	2	176	0.006
13:00 - 14:00	2	176	0.009	2	176	0.009	2	176	0.018
14:00 - 15:00	2	176	0.000	2	176	0.000	2	176	0.000
15:00 - 16:00	2	176	0.003	2	176	0.003	2	176	0.006
16:00 - 17:00	2	176	0.006	2	176	0.006	2	176	0.012
17:00 - 18:00	2	176	0.000	2	176	0.000	2	176	0.000
18:00 - 19:00	2	176	0.006	2	176	0.006	2	176	0.012
19:00 - 20:00	2	176	0.009	2	176	0.009	2	176	0.018
20:00 - 21:00	2	176	0.009	2	176	0.009	2	176	0.018
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.078			0.078			0.156

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	2	176	0.000	2	176	0.000	2	176	0.000
08:00 - 09:00	2	176	0.003	2	176	0.003	2	176	0.006
09:00 - 10:00	2	176	0.003	2	176	0.003	2	176	0.006
10:00 - 11:00	2	176	0.000	2	176	0.000	2	176	0.000
11:00 - 12:00	2	176	0.003	2	176	0.003	2	176	0.006
12:00 - 13:00	2	176	0.000	2	176	0.000	2	176	0.000
13:00 - 14:00	2	176	0.000	2	176	0.000	2	176	0.000
14:00 - 15:00	2	176	0.000	2	176	0.000	2	176	0.000
15:00 - 16:00	2	176	0.000	2	176	0.000	2	176	0.000
16:00 - 17:00	2	176	0.000	2	176	0.000	2	176	0.000
17:00 - 18:00	2	176	0.000	2	176	0.000	2	176	0.000
18:00 - 19:00	2	176	0.000	2	176	0.000	2	176	0.000
19:00 - 20:00	2	176	0.000	2	176	0.000	2	176	0.000
20:00 - 21:00	2	176	0.000	2	176	0.000	2	176	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.009			0.009			0.018

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	2	176	0.003	2	176	0.009	2	176	0.012
08:00 - 09:00	2	176	0.000	2	176	0.009	2	176	0.009
09:00 - 10:00	2	176	0.000	2	176	0.000	2	176	0.000
10:00 - 11:00	2	176	0.003	2	176	0.009	2	176	0.012
11:00 - 12:00	2	176	0.000	2	176	0.000	2	176	0.000
12:00 - 13:00	2	176	0.003	2	176	0.006	2	176	0.009
13:00 - 14:00	2	176	0.000	2	176	0.000	2	176	0.000
14:00 - 15:00	2	176	0.006	2	176	0.003	2	176	0.009
15:00 - 16:00	2	176	0.000	2	176	0.000	2	176	0.000
16:00 - 17:00	2	176	0.006	2	176	0.000	2	176	0.006
17:00 - 18:00	2	176	0.009	2	176	0.003	2	176	0.012
18:00 - 19:00	2	176	0.003	2	176	0.000	2	176	0.003
19:00 - 20:00	2	176	0.006	2	176	0.006	2	176	0.012
20:00 - 21:00	2	176	0.009	2	176	0.003	2	176	0.012
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.048			0.048			0.096

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	2	176	0.023	2	176	0.043	2	176	0.066
08:00 - 09:00	2	176	0.014	2	176	0.026	2	176	0.040
09:00 - 10:00	2	176	0.026	2	176	0.037	2	176	0.063
10:00 - 11:00	2	176	0.026	2	176	0.031	2	176	0.057
11:00 - 12:00	2	176	0.023	2	176	0.040	2	176	0.063
12:00 - 13:00	2	176	0.017	2	176	0.020	2	176	0.037
13:00 - 14:00	2	176	0.028	2	176	0.048	2	176	0.076
14:00 - 15:00	2	176	0.009	2	176	0.009	2	176	0.018
15:00 - 16:00	2	176	0.023	2	176	0.017	2	176	0.040
16:00 - 17:00	2	176	0.068	2	176	0.028	2	176	0.096
17:00 - 18:00	2	176	0.043	2	176	0.020	2	176	0.063
18:00 - 19:00	2	176	0.051	2	176	0.034	2	176	0.085
19:00 - 20:00	2	176	0.031	2	176	0.040	2	176	0.071
20:00 - 21:00	2	176	0.020	2	176	0.011	2	176	0.031
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.402			0.404			0.806

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	2	176	0.009	2	176	0.048	2	176	0.057
08:00 - 09:00	2	176	0.014	2	176	0.094	2	176	0.108
09:00 - 10:00	2	176	0.014	2	176	0.057	2	176	0.071
10:00 - 11:00	2	176	0.031	2	176	0.017	2	176	0.048
11:00 - 12:00	2	176	0.040	2	176	0.034	2	176	0.074
12:00 - 13:00	2	176	0.020	2	176	0.031	2	176	0.051
13:00 - 14:00	2	176	0.031	2	176	0.040	2	176	0.071
14:00 - 15:00	2	176	0.028	2	176	0.051	2	176	0.079
15:00 - 16:00	2	176	0.054	2	176	0.031	2	176	0.085
16:00 - 17:00	2	176	0.074	2	176	0.057	2	176	0.131
17:00 - 18:00	2	176	0.048	2	176	0.031	2	176	0.079
18:00 - 19:00	2	176	0.114	2	176	0.080	2	176	0.194
19:00 - 20:00	2	176	0.054	2	176	0.043	2	176	0.097
20:00 - 21:00	2	176	0.054	2	176	0.071	2	176	0.125
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.585			0.685			1.270

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	2	176	0.003	2	176	0.028	2	176	0.031
08:00 - 09:00	2	176	0.009	2	176	0.048	2	176	0.057
09:00 - 10:00	2	176	0.003	2	176	0.017	2	176	0.020
10:00 - 11:00	2	176	0.011	2	176	0.020	2	176	0.031
11:00 - 12:00	2	176	0.000	2	176	0.020	2	176	0.020
12:00 - 13:00	2	176	0.003	2	176	0.017	2	176	0.020
13:00 - 14:00	2	176	0.011	2	176	0.009	2	176	0.020
14:00 - 15:00	2	176	0.011	2	176	0.009	2	176	0.020
15:00 - 16:00	2	176	0.020	2	176	0.014	2	176	0.034
16:00 - 17:00	2	176	0.017	2	176	0.006	2	176	0.023
17:00 - 18:00	2	176	0.026	2	176	0.006	2	176	0.032
18:00 - 19:00	2	176	0.043	2	176	0.009	2	176	0.052
19:00 - 20:00	2	176	0.014	2	176	0.006	2	176	0.020
20:00 - 21:00	2	176	0.003	2	176	0.017	2	176	0.020
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.174			0.226			0.400

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	2	176	0.026	2	176	0.125	2	176	0.151
08:00 - 09:00	2	176	0.017	2	176	0.177	2	176	0.194
09:00 - 10:00	2	176	0.020	2	176	0.026	2	176	0.046
10:00 - 11:00	2	176	0.040	2	176	0.046	2	176	0.086
11:00 - 12:00	2	176	0.020	2	176	0.048	2	176	0.068
12:00 - 13:00	2	176	0.028	2	176	0.028	2	176	0.056
13:00 - 14:00	2	176	0.026	2	176	0.020	2	176	0.046
14:00 - 15:00	2	176	0.028	2	176	0.017	2	176	0.045
15:00 - 16:00	2	176	0.006	2	176	0.017	2	176	0.023
16:00 - 17:00	2	176	0.011	2	176	0.028	2	176	0.039
17:00 - 18:00	2	176	0.048	2	176	0.020	2	176	0.068
18:00 - 19:00	2	176	0.117	2	176	0.017	2	176	0.134
19:00 - 20:00	2	176	0.077	2	176	0.009	2	176	0.086
20:00 - 21:00	2	176	0.043	2	176	0.003	2	176	0.046
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.507			0.581			1.088

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	2	176	0.028	2	176	0.154	2	176	0.182
08:00 - 09:00	2	176	0.026	2	176	0.225	2	176	0.251
09:00 - 10:00	2	176	0.023	2	176	0.043	2	176	0.066
10:00 - 11:00	2	176	0.051	2	176	0.066	2	176	0.117
11:00 - 12:00	2	176	0.020	2	176	0.068	2	176	0.088
12:00 - 13:00	2	176	0.031	2	176	0.046	2	176	0.077
13:00 - 14:00	2	176	0.037	2	176	0.028	2	176	0.065
14:00 - 15:00	2	176	0.040	2	176	0.026	2	176	0.066
15:00 - 16:00	2	176	0.026	2	176	0.031	2	176	0.057
16:00 - 17:00	2	176	0.028	2	176	0.034	2	176	0.062
17:00 - 18:00	2	176	0.074	2	176	0.026	2	176	0.100
18:00 - 19:00	2	176	0.160	2	176	0.026	2	176	0.186
19:00 - 20:00	2	176	0.091	2	176	0.014	2	176	0.105
20:00 - 21:00	2	176	0.046	2	176	0.020	2	176	0.066
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.681			0.807			1.488

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	2	176	0.063	2	176	0.254	2	176	0.317
08:00 - 09:00	2	176	0.054	2	176	0.353	2	176	0.407
09:00 - 10:00	2	176	0.063	2	176	0.137	2	176	0.200
10:00 - 11:00	2	176	0.111	2	176	0.123	2	176	0.234
11:00 - 12:00	2	176	0.083	2	176	0.142	2	176	0.225
12:00 - 13:00	2	176	0.071	2	176	0.103	2	176	0.174
13:00 - 14:00	2	176	0.097	2	176	0.117	2	176	0.214
14:00 - 15:00	2	176	0.083	2	176	0.088	2	176	0.171
15:00 - 16:00	2	176	0.103	2	176	0.080	2	176	0.183
16:00 - 17:00	2	176	0.177	2	176	0.120	2	176	0.297
17:00 - 18:00	2	176	0.174	2	176	0.080	2	176	0.254
18:00 - 19:00	2	176	0.328	2	176	0.140	2	176	0.468
19:00 - 20:00	2	176	0.182	2	176	0.103	2	176	0.285
20:00 - 21:00	2	176	0.128	2	176	0.105	2	176	0.233
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.717			1.945			3.662

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	2	176	0.009	2	176	0.020	2	176	0.029
08:00 - 09:00	2	176	0.003	2	176	0.011	2	176	0.014
09:00 - 10:00	2	176	0.009	2	176	0.006	2	176	0.015
10:00 - 11:00	2	176	0.003	2	176	0.009	2	176	0.012
11:00 - 12:00	2	176	0.009	2	176	0.011	2	176	0.020
12:00 - 13:00	2	176	0.011	2	176	0.009	2	176	0.020
13:00 - 14:00	2	176	0.009	2	176	0.017	2	176	0.026
14:00 - 15:00	2	176	0.003	2	176	0.000	2	176	0.003
15:00 - 16:00	2	176	0.003	2	176	0.000	2	176	0.003
16:00 - 17:00	2	176	0.017	2	176	0.003	2	176	0.020
17:00 - 18:00	2	176	0.026	2	176	0.011	2	176	0.037
18:00 - 19:00	2	176	0.026	2	176	0.011	2	176	0.037
19:00 - 20:00	2	176	0.011	2	176	0.011	2	176	0.022
20:00 - 21:00	2	176	0.006	2	176	0.006	2	176	0.012
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.145			0.125			0.270

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	2	176	0.006	2	176	0.006	2	176	0.012
08:00 - 09:00	2	176	0.009	2	176	0.003	2	176	0.012
09:00 - 10:00	2	176	0.009	2	176	0.014	2	176	0.023
10:00 - 11:00	2	176	0.006	2	176	0.003	2	176	0.009
11:00 - 12:00	2	176	0.009	2	176	0.009	2	176	0.018
12:00 - 13:00	2	176	0.000	2	176	0.003	2	176	0.003
13:00 - 14:00	2	176	0.011	2	176	0.011	2	176	0.022
14:00 - 15:00	2	176	0.000	2	176	0.003	2	176	0.003
15:00 - 16:00	2	176	0.011	2	176	0.011	2	176	0.022
16:00 - 17:00	2	176	0.020	2	176	0.020	2	176	0.040
17:00 - 18:00	2	176	0.003	2	176	0.003	2	176	0.006
18:00 - 19:00	2	176	0.003	2	176	0.003	2	176	0.006
19:00 - 20:00	2	176	0.006	2	176	0.006	2	176	0.012
20:00 - 21:00	2	176	0.000	2	176	0.000	2	176	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.093			0.095			0.188

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	2	176	0.000	2	176	0.000	2	176	0.000
08:00 - 09:00	2	176	0.000	2	176	0.000	2	176	0.000
09:00 - 10:00	2	176	0.000	2	176	0.000	2	176	0.000
10:00 - 11:00	2	176	0.009	2	176	0.003	2	176	0.012
11:00 - 12:00	2	176	0.000	2	176	0.003	2	176	0.003
12:00 - 13:00	2	176	0.000	2	176	0.003	2	176	0.003
13:00 - 14:00	2	176	0.000	2	176	0.000	2	176	0.000
14:00 - 15:00	2	176	0.006	2	176	0.006	2	176	0.012
15:00 - 16:00	2	176	0.003	2	176	0.003	2	176	0.006
16:00 - 17:00	2	176	0.006	2	176	0.006	2	176	0.012
17:00 - 18:00	2	176	0.000	2	176	0.000	2	176	0.000
18:00 - 19:00	2	176	0.006	2	176	0.006	2	176	0.012
19:00 - 20:00	2	176	0.006	2	176	0.006	2	176	0.012
20:00 - 21:00	2	176	0.000	2	176	0.000	2	176	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.036			0.036			0.072

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	2	176	0.026	2	176	0.105	2	176	0.131
08:00 - 09:00	2	176	0.017	2	176	0.165	2	176	0.182
09:00 - 10:00	2	176	0.017	2	176	0.020	2	176	0.037
10:00 - 11:00	2	176	0.031	2	176	0.040	2	176	0.071
11:00 - 12:00	2	176	0.017	2	176	0.043	2	176	0.060
12:00 - 13:00	2	176	0.026	2	176	0.028	2	176	0.054
13:00 - 14:00	2	176	0.023	2	176	0.017	2	176	0.040
14:00 - 15:00	2	176	0.026	2	176	0.017	2	176	0.043
15:00 - 16:00	2	176	0.006	2	176	0.017	2	176	0.023
16:00 - 17:00	2	176	0.009	2	176	0.020	2	176	0.029
17:00 - 18:00	2	176	0.046	2	176	0.020	2	176	0.066
18:00 - 19:00	2	176	0.103	2	176	0.017	2	176	0.120
19:00 - 20:00	2	176	0.071	2	176	0.009	2	176	0.080
20:00 - 21:00	2	176	0.037	2	176	0.003	2	176	0.040
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.455			0.521			0.976

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	2	176	0.000	2	176	0.003	2	176	0.003
08:00 - 09:00	2	176	0.000	2	176	0.000	2	176	0.000
09:00 - 10:00	2	176	0.000	2	176	0.003	2	176	0.003
10:00 - 11:00	2	176	0.006	2	176	0.000	2	176	0.006
11:00 - 12:00	2	176	0.000	2	176	0.000	2	176	0.000
12:00 - 13:00	2	176	0.000	2	176	0.000	2	176	0.000
13:00 - 14:00	2	176	0.000	2	176	0.000	2	176	0.000
14:00 - 15:00	2	176	0.003	2	176	0.000	2	176	0.003
15:00 - 16:00	2	176	0.000	2	176	0.000	2	176	0.000
16:00 - 17:00	2	176	0.000	2	176	0.000	2	176	0.000
17:00 - 18:00	2	176	0.000	2	176	0.000	2	176	0.000
18:00 - 19:00	2	176	0.000	2	176	0.000	2	176	0.000
19:00 - 20:00	2	176	0.000	2	176	0.000	2	176	0.000
20:00 - 21:00	2	176	0.000	2	176	0.000	2	176	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.009			0.006			0.015

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	2	176	0.000	2	176	0.017	2	176	0.017
08:00 - 09:00	2	176	0.000	2	176	0.011	2	176	0.011
09:00 - 10:00	2	176	0.003	2	176	0.003	2	176	0.006
10:00 - 11:00	2	176	0.003	2	176	0.006	2	176	0.009
11:00 - 12:00	2	176	0.003	2	176	0.006	2	176	0.009
12:00 - 13:00	2	176	0.003	2	176	0.000	2	176	0.003
13:00 - 14:00	2	176	0.003	2	176	0.003	2	176	0.006
14:00 - 15:00	2	176	0.000	2	176	0.000	2	176	0.000
15:00 - 16:00	2	176	0.000	2	176	0.000	2	176	0.000
16:00 - 17:00	2	176	0.003	2	176	0.009	2	176	0.012
17:00 - 18:00	2	176	0.003	2	176	0.000	2	176	0.003
18:00 - 19:00	2	176	0.014	2	176	0.000	2	176	0.014
19:00 - 20:00	2	176	0.006	2	176	0.000	2	176	0.006
20:00 - 21:00	2	176	0.006	2	176	0.000	2	176	0.006
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.047			0.055			0.102

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	2	176	0.003	2	176	0.028	2	176	0.031
08:00 - 09:00	2	176	0.009	2	176	0.048	2	176	0.057
09:00 - 10:00	2	176	0.003	2	176	0.017	2	176	0.020
10:00 - 11:00	2	176	0.011	2	176	0.020	2	176	0.031
11:00 - 12:00	2	176	0.000	2	176	0.020	2	176	0.020
12:00 - 13:00	2	176	0.003	2	176	0.017	2	176	0.020
13:00 - 14:00	2	176	0.011	2	176	0.009	2	176	0.020
14:00 - 15:00	2	176	0.011	2	176	0.009	2	176	0.020
15:00 - 16:00	2	176	0.020	2	176	0.014	2	176	0.034
16:00 - 17:00	2	176	0.017	2	176	0.006	2	176	0.023
17:00 - 18:00	2	176	0.026	2	176	0.006	2	176	0.032
18:00 - 19:00	2	176	0.043	2	176	0.009	2	176	0.052
19:00 - 20:00	2	176	0.014	2	176	0.006	2	176	0.020
20:00 - 21:00	2	176	0.003	2	176	0.017	2	176	0.020
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.174			0.226			0.400

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.*

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	2	176	0.009	2	176	0.009	2	176	0.018
08:00 - 09:00	2	176	0.011	2	176	0.009	2	176	0.020
09:00 - 10:00	2	176	0.011	2	176	0.014	2	176	0.025
10:00 - 11:00	2	176	0.009	2	176	0.006	2	176	0.015
11:00 - 12:00	2	176	0.011	2	176	0.011	2	176	0.022
12:00 - 13:00	2	176	0.000	2	176	0.003	2	176	0.003
13:00 - 14:00	2	176	0.014	2	176	0.014	2	176	0.028
14:00 - 15:00	2	176	0.000	2	176	0.000	2	176	0.000
15:00 - 16:00	2	176	0.011	2	176	0.011	2	176	0.022
16:00 - 17:00	2	176	0.023	2	176	0.023	2	176	0.046
17:00 - 18:00	2	176	0.003	2	176	0.003	2	176	0.006
18:00 - 19:00	2	176	0.006	2	176	0.006	2	176	0.012
19:00 - 20:00	2	176	0.006	2	176	0.006	2	176	0.012
20:00 - 21:00	2	176	0.000	2	176	0.000	2	176	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.114			0.115			0.229

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
Richmond Parking Methodology

Appendix A

Richmond parking survey methodology

Richmond parking survey methodology

The Council has set maximum parking standards for developments in Their Local Plan and these are expected to be met, unless it can be shown that there will not be an adverse effect on on-street parking. Where there is a shortfall of parking on site, a parking survey of the surrounding streets will be required. The Council will use an independent survey company; however applicants may provide their own surveys as long as they follow the methodology outlined below.

Extent of survey area

The area to be surveyed must cover a 200m/2 minute walking distance around the site. This area can be extended/amended in the following ways:

1 If the survey reaches the middle of a street at 200m, the survey area could be extended to the next junction or curtailed to the previous junction with agreement of Transport Planning officers

2 If there are areas within 200m where parking is restricted due to on street restrictions or undesirable (for which justification must be given) the area is to be curtailed

3 Areas outside of Richmond will be excluded

4 Roads in CPZ's adjacent to the site, for which the site would not be able to access parking permits, may be excluded depending on CPZ start time and these roads are to be agreed with Transport Planning officers prior to the survey being undertaken

The Council may require amending of surveys which reveal anomalies or require further investigation once scrutinised.

Survey times

Surveys must only be undertaken during term time and not within public/school holidays/half term or the week before/after to take into account independent school holidays. It is best to contact the Council to confirm acceptable survey dates and dates which coincide with an event in the area, which must also be avoided as these could impact on the results.

For residential surveys 2 x weekday surveys (Monday to Thursday) and one weekend survey on a Sunday between 01h00 and 05h30 are required. This will capture the residential peak parking time.

Commercial and other land use applications will require surveys at other times which are to be agreed with the Council in advance of the survey being undertaken. Similarly, times may be amended for residential surveys where the site is within close proximity to commercial uses or a town centre in which case morning and early evening surveys may also be requested. More detailed surveys may be required if the operational times clash with nearby restaurants, in which case 15 minute interval surveys between 18h00 and 22h00 will also be required. In order to assess commuter parking morning and evening

peak hour surveys will be required for sites within close proximity to railway stations. These should be undertaken between 06h30 – 08h00 and 17h30 – 19h00.

Required information

Surveys must be provided in map form, examples are included at the end of this appendix.

One map shows the inventory for the area and notes all individual bay lengths and types.

Another shows x's as parked cars and s's as empty spaces exactly where they are parked on the night. This will give us a snapshot of exactly how cars are parked in that area, rather than a calculated assumption, which is often incorrect. S's can only be shown where each 's' represents 5.0m.

Noted on the survey maps should be the date and time the survey was undertaken as well as whether the area is within a Community Parking Zone (CPZ) or not. All parking restrictions on street must be noted Double/Single Yellow Lines (D/SYL's), bus lay-by's, zig-zags, kerb build outs, legal footway parking, dropped kerbs, disabled/doctors/loading bays, suspensions/temporary restrictions, skips and road works, narrow roads, where parking is not possible or subject to flooding etc. If there are marked bays on street these must be shown and dimensioned on the map. The space between crossovers should also be dimensioned although areas of less than 5.0m should not be included in the calculations.

The first 7.5m of a junction is to be omitted, but cars parked within will be considered in the calculations as contributing to on street stress. Illegally parked cars must be shown on the plan and these will be included in the stress calculation.

Surveys undertaken within CPZ's during CPZ hours will need to clearly define various types of bays (Resident permit holders/shared use bays/Business Bays etc).

Where restrictions start early in the morning we may not consider these areas for overnight parking if the surveys show that residents do not park there as they will have to move their cars before the restriction commences. This includes single yellow lines.

The above information can be tabulated, but this table must reflect the information on the inventory map in terms of the available bay numbers i.e. individual lengths of bays divided by 5.0m.

The stress figures must be taken from the results maps and illegally parked cars should be counted. If spaces are noted and tabulated these must only be included if each space represents at least 5.0m. Tabulated results should be by road and include a 'Total' column.

Results

In order to assess the parking stress the tabulation must calculate the number of parked cars shown on the results map of each survey, against total available space calculated from the inventory survey and add the shortfall anticipated from the development using the Council's parking standard maximums.

LBRuT will consider appropriate extant planning permissions in the area and if stress levels are calculated at 85% stress* or more LBRuT will raise an objection on the grounds of saturated parking, highway safety and undue harm to neighbour amenity.

Example of survey inventory sheet and results maps

Road Name	No Bays	17/6/14 @ 5am	19/7/14 @ 5am	Ave		
	43	37	45	41		
	16	20	21	20.5		
	28	28	28	28		
	34	29	26	27.5		
	22	19	19	19		
	21	13	15	14		
	11	14	11	12.5		
	16	19	19	19		
TOTAL	**191**	**179**	**184**	**181.5**	**All % stress**	**95.02617801**
plus anticipated shortfall of proposal	**191**	**192**	**197**	**194.5**	**plus x cars stress%**	**101.8324607**
plus x cars from approved applications yet to be implemented within the survey area	191	195	200	**197.5**	plus another x cars stress%	**103.4031414**

Example of results table

*As per parking survey study undertaken across LBRuT to assess parking stress levels and parking survey methodology.

APPENDIX G
Parking Survey Results

P2379: ELLERAY HALL & NORTH LANE EAST CAR PARK/DEPOT, TEDDINGTON, TW11

Table 1 - Parking Stress Calculations Based on the Richmond Survey Methodology

Road Name	Inventory		Hourly Parking Beat Survey Results - Saturday 11th May 10:00-15:00																					
	Disabled	Unrestricted	Saturday 11th May 2019 @ 10:00				Saturday 11th May 2019 @ 11:00				Saturday 11th May 2019 @ 12:00				Saturday 11th May 2019 @ 13:00				Saturday 11th May 2019 @ 14:00				Average			
	Based on Marked Bays	**Based on 5.0m & End-On Parking**	Cars parked 'x'	Free spaces 's'	Parking Stress based on inventory	Parking Stress based on Xs and Ss	Cars parked 'x'	Free spaces 's'	Parking Stress based on inventory	Parking Stress based on Xs and Ss	Cars parked 'x'	Free spaces 's'	Parking Stress based on inventory	Parking Stress based on Xs and Ss	Cars parked 'x'	Free spaces 's'	Parking Stress based on inventory	Parking Stress based on Xs and Ss	Cars parked 'x'	Free spaces 's'	Parking Stress based on inventory	Parking Stress based on Xs and Ss	Cars parked 'x'	Free spaces 's'	Parking Stress based on inventory	Parking Stress based on Xs and Ss
Elfin Grove	0	4	4	0	100%	100%	5	0	125%	100%	5	0	125%	100%	5	0	125%	100%	5	0	125%	100%	5	0	120%	100%
Elleray Road	0	0	0	0	0%	0%	0	0	0%	0%	0	0	0%	0%	0	0	0%	0%	0	0	0%	0%	0	0	0%	0%
Broad Street	0	21	18	4	86%	82%	17	6	81%	74%	20	2	95%	91%	22	0	105%	100%	21	0	100%	100%	20	2	93%	89%
Little Queens Road	0	33	29	7	88%	81%	28	6	85%	82%	26	7	79%	79%	24	9	73%	73%	27	6	82%	82%	27	7	81%	79%
Middle Lane	0	0	0	0	0%	0%	0	0	0%	0%	0	0	0%	0%	0	0	0%	0%	0	0	0%	0%	0	0	0%	0%
North Lane	1	21	27	1	129%	96%	26	3	124%	90%	27	1	129%	96%	22	3	105%	88%	23	2	110%	92%	25	2	119%	93%
North Place	0	13	13	0	100%	100%	13	0	100%	100%	12	1	92%	92%	13	0	100%	100%	13	0	100%	100%	13	0	98%	98%
Park Lane	0	19	16	5	84%	76%	16	4	84%	80%	18	4	95%	82%	16	4	84%	80%	16	4	84%	80%	16	4	86%	80%
St Marys Avenue	0	31	33	0	106%	100%	26	6	84%	81%	24	8	77%	75%	22	8	71%	73%	23	10	74%	70%	26	6	83%	80%
Totals	**1**	**142**	**140**	**17**	**99%**	**89%**	**131**	**25**	**92%**	**84%**	**132**	**23**	**93%**	**85%**	**124**	**24**	**87%**	**84%**	**128**	**22**	**90%**	**85%**	**131**	**22**	**92%**	**86%**

Source: PMA Survey

Note: Parking Stress based on Xs and Ss is produced based on the Richmond Methodology whilst Parking Stress based on inventory accords with the Lambeth Methodology

Table 2 - Parking Stress Calculations Based on the Richmond Survey Methodology

Road Name	Inventory		Hourly Parking Beat Survey Results - Saturday 11th May 17:00-20:00															
	Disabled	Unrestricted	Saturday 11th May 2019 @ 17:00				Saturday 11th May 2019 @ 18:00				Saturday 11th May 2019 @ 19:00				Average			
	Based on Marked Bays	**Based on 5.0m & End-On Parking**	Cars parked 'x'	Free spaces 's'	Parking Stress based on inventory	Parking Stress based on Xs and Ss	Cars parked 'x'	Free spaces 's'	Parking Stress based on inventory	Parking Stress based on Xs and Ss	Cars parked 'x'	Free spaces 's'	Parking Stress based on inventory	Parking Stress based on Xs and Ss	Cars parked 'x'	Free spaces 's'	Parking Stress based on inventory	Parking Stress based on Xs and Ss
Elfin Grove	0	4	5	0	125%	100%	5	0	125%	100%	5	0	125%	100%	5	0	125%	100%
Elleray Road	0	0	0	0	0%	0%	0	0	0%	0%	0	0	0%	0%	0	0	0%	0%
Broad Street	0	21	20	2	95%	91%	16	7	76%	70%	15	6	71%	71%	17	5	81%	77%
Little Queens Road	0	33	22	10	67%	69%	24	9	73%	73%	23	9	70%	72%	23	9	70%	71%
Middle Lane	0	0	0	0	0%	0%	0	0	0%	0%	0	0	0%	0%	0	0	0%	0%
North Lane	1	21	23	1	110%	96%	21	3	100%	88%	21	3	100%	88%	22	2	103%	90%
North Place	0	13	12	1	92%	92%	10	3	77%	77%	9	3	69%	75%	10	2	79%	82%
Park Lane	0	19	16	4	84%	80%	16	4	84%	80%	15	5	79%	75%	16	4	82%	78%
St Marys Avenue	0	31	28	4	90%	88%	29	4	94%	88%	28	5	90%	85%	28	4	91%	87%
Totals	**1**	**142**	**126**	**22**	**89%**	**85%**	**121**	**30**	**85%**	**80%**	**116**	**31**	**82%**	**79%**	**121**	**28**	**85%**	**81%**

Source: PMA Survey

Note: Parking Stress based on Xs and Ss is produced based on the Richmond Methodology whilst Parking Stress based on inventory accords with the Lambeth Methodology

Table 3 - Parking Stress Calculations Based on the Richmond Survey Methodology

Road Name	Inventory		Overnight Parking Survey Results															
	Disabled	Unrestricted	Sunday 12th May 2019 @ 02:30				Tuesday 14th May 2019 @ 01:45				Wednesday 15th May 2019 @ 04:00				Average			
	Based on Marked Bays	**Based on 5.0m & End-On Parking**	Cars parked 'x'	Free spaces 's'	Parking Stress based on inventory	Parking Stress based on Xs and Ss	Cars parked 'x'	Free spaces 's'	Parking Stress based on inventory	Parking Stress based on Xs and Ss	Cars parked 'x'	Free spaces 's'	Parking Stress based on inventory	Parking Stress based on Xs and Ss	Cars parked 'x'	Free spaces 's'	Parking Stress based on inventory	Parking Stress based on Xs and Ss
Elfin Grove	0	4	5	0	125%	100%	5	0	125%	100%	5	0	125%	100%	5	0	125%	100%
Elleray Road	0	0	0	0	0%	0%	0	0	0%	0%	0	0	0%	0%	0	0	0%	0%
Broad Street	0	21	1	20	5%	5%	0	21	0%	0%	0	21	0%	0%	0	21	2%	2%
Little Queens Road	0	33	26	8	79%	76%	24	8	73%	75%	25	7	76%	78%	25	8	76%	77%
Middle Lane	0	0	0	0	0%	0%	0	0	0%	0%	0	0	0%	0%	0	0	0%	0%
North Lane	1	21	22	2	105%	92%	22	1	105%	96%	24	1	114%	96%	23	1	108%	94%
North Place	0	13	13	0	100%	100%	13	0	100%	100%	13	0	100%	100%	13	0	100%	100%
Park Lane	0	19	14	7	74%	67%	12	8	63%	60%	12	9	63%	57%	13	8	67%	61%
St Marys Avenue	0	31	29	5	94%	85%	28	5	90%	85%	31	3	100%	91%	29	4	95%	87%
Totals	**1**	**142**	**110**	**42**	**77%**	**72%**	**104**	**43**	**73%**	**71%**	**110**	**41**	**77%**	**73%**	**108**	**42**	**76%**	**72%**

Source: PMA Survey

Note: Parking Stress based on Xs and Ss is produced based on the Richmond Methodology whilst Parking Stress based on inventory accords with the Lambeth Methodology

P2379: ELLERAY HALL & NORTH LANE EAST CAR PARK/DEPOT, TEDDINGTON, TW11

Table 4 - Parking Stress Calculations Based on the Richmond Survey Methodology

Road Name	Inventory		Hourly Parking Beat Survey Results - Saturday 11th May 10:00-15:00																					
	Disabled	Unrestricted	Saturday 11th May 2019 @ 10:00				Saturday 11th May 2019 @ 11:00				Saturday 11th May 2019 @ 12:00				Saturday 11th May 2019 @ 13:00				Saturday 11th May 2019 @ 14:00				Average			
	Based on Marked Bays	Based on 5.0m & End-On Parking	Cars parked 'x'	Free spaces 's'	Parking Stress based on inventory	Parking Stress based on Xs and Ss	Cars parked 'x'	Free spaces 's'	Parking Stress based on inventory	Parking Stress based on Xs and Ss	Cars parked 'x'	Free spaces 's'	Parking Stress based on inventory	Parking Stress based on Xs and Ss	Cars parked 'x'	Free spaces 's'	Parking Stress based on inventory	Parking Stress based on Xs and Ss	Cars parked 'x'	Free spaces 's'	Parking Stress based on inventory	Parking Stress based on Xs and Ss	Cars parked 'x'	Free spaces 's'	Parking Stress based on inventory	Parking Stress based on Xs and Ss
North Lane East car park	0	25	12	13	48%	48%	14	11	56%	56%	16	9	64%	64%	9	16	36%	36%	8	17	32%	32%	12	13	47%	47%
North Lane West car park	4	82	56	26	68%	68%	59	23	72%	72%	62	20	76%	76%	52	30	63%	63%	49	33	60%	60%	56	26	68%	68%
Totals	4	107	68	39	64%	64%	73	34	68%	68%	78	29	73%	73%	61	46	57%	57%	57	50	53%	53%	67	40	63%	63%

Table 5 - Parking Stress Calculations Based on the Richmond Survey Methodology

Road Name	Inventory		Hourly Parking Beat Survey Results - Saturday 11th May 17:00-20:00															
	Disabled	Unrestricted	Saturday 11th May 2019 @ 17:00				Saturday 11th May 2019 @ 18:00				Saturday 11th May 2019 @ 19:00				Average			
	Based on Marked Bays	Based on 5.0m & End-On Parking	Cars parked 'x'	Free spaces 's'	Parking Stress based on inventory	Parking Stress based on Xs and Ss	Cars parked 'x'	Free spaces 's'	Parking Stress based on inventory	Parking Stress based on Xs and Ss	Cars parked 'x'	Free spaces 's'	Parking Stress based on inventory	Parking Stress based on Xs and Ss	Cars parked 'x'	Free spaces 's'	Parking Stress based on inventory	Parking Stress based on Xs and Ss
North Lane East car park	0	25	9	16	36%	36%	8	17	32%	32%	9	16	36%	36%	9	16	35%	35%
North Lane West car park	4	82	37	45	45%	45%	31	51	38%	38%	22	60	27%	27%	30	52	37%	37%
Totals	4	107	46	61	43%	43%	39	68	36%	36%	31	76	29%	29%	39	68	36%	36%

Table 6 - Parking Stress Calculations Based on the Richmond Survey Methodology

Road Name	Inventory		Overnight Parking Survey Results															
	Disabled	Unrestricted	Sunday 12th May 2019 @ 02:30				Tuesday 14th May 2019 @ 01:45				Wednesday 15th May 2019 @ 04:00				Average			
	Based on Marked Bays	Based on 5.0m & End-On Parking	Cars parked 'x'	Free spaces 's'	Parking Stress based on inventory	Parking Stress based on Xs and Ss	Cars parked 'x'	Free spaces 's'	Parking Stress based on inventory	Parking Stress based on Xs and Ss	Cars parked 'x'	Free spaces 's'	Parking Stress based on inventory	Parking Stress based on Xs and Ss	Cars parked 'x'	Free spaces 's'	Parking Stress based on inventory	Parking Stress based on Xs and Ss
North Lane East car park	0	25	7	18	28%	28%	9	16	36%	36%	8	17	32%	32%	8	17	32%	32%
North Lane West car park	4	82	1	81	1%	1%	1	81	1%	1%	2	80	2%	2%	1	81	2%	2%
Totals	4	107	8	99	7%	7%	10	97	9%	9%	10	97	9%	9%	9	98	9%	9%

APPENDIX H
Zip Car Membership Proposal

North Lane
London Borough of Richmond upon Thames
Paul Mew Associates

Proposal: April 21

David Lang DD: 0203 004 7860
UK Property Developments dlang@zipcar.co.uk

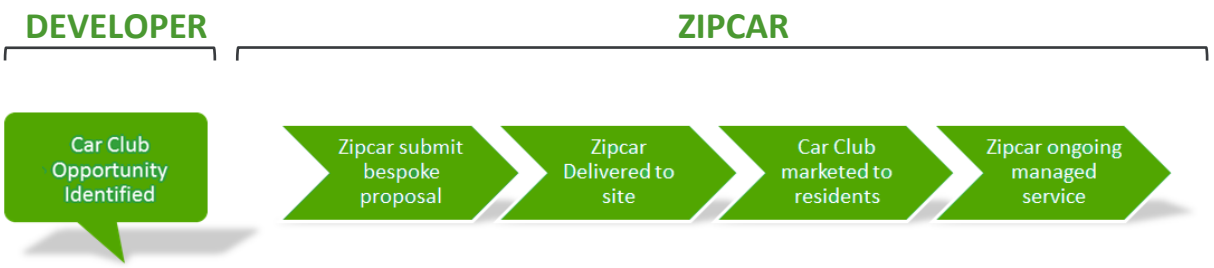
zipcar®

Zipcar & Property Developments

Zipcar works with an ever increasing number of Property Developers, Transport Consultants and Housing Associations across the UK to:

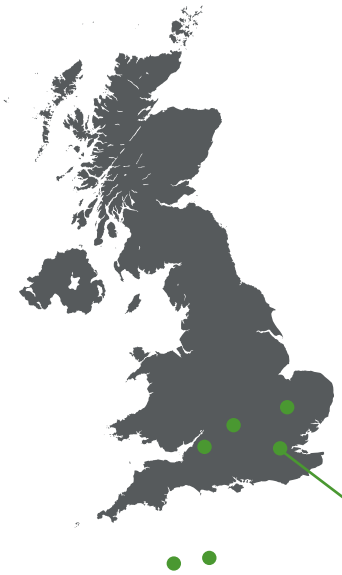
- ✓ Increase the likelihood of gaining planning permission on a site.
- ✓ Addressing specific Section 106 or Travel Plan requirements.
- ✓ Reducing the need to provide costly private parking.
- ✓ Act as a useful marketing tool to help sell properties with a limited parking provision.

Working with Zipcar – 5 Simple Steps



What is Zipcar?

Zipcar is a pay-as-you-go car club designed to provide members with access to cars and vans as quickly and conveniently as possible with the least amount of hassle. Our team is passionate about bringing this innovative concept to every urban street as a simpler, more efficient, more sustainable way to use a car.



2010
Zipcar merged with Streetcar and is the World's largest car-sharing club

Over 1,000,000 members
worldwide

4 UK cities
London, Bristol, Cambridge & Oxford,

London is the largest UK network with 1,700 bays; 5 times more locations than Starbucks!

Zipcar users are ABC1 adults aged between 25-44 yrs old.

71% use Zipcar for leisure/spontaneous & activities.

Zipcar users are urban-dwellers that like to explore the city & jump at the chance to engage with nature and the outdoors.

Members use Zipcar as an alternative to the costs and hassles of owning or hiring a car.

Best of both worlds

Zipcar is the only operator that give residents access to both a flexible per minute hire and long term hourly and daily model. Residents can just pick and choose whichever suits their trip. The Flex model has launched in 13 boroughs and we are looking to roll this across the city over the next 18 months.

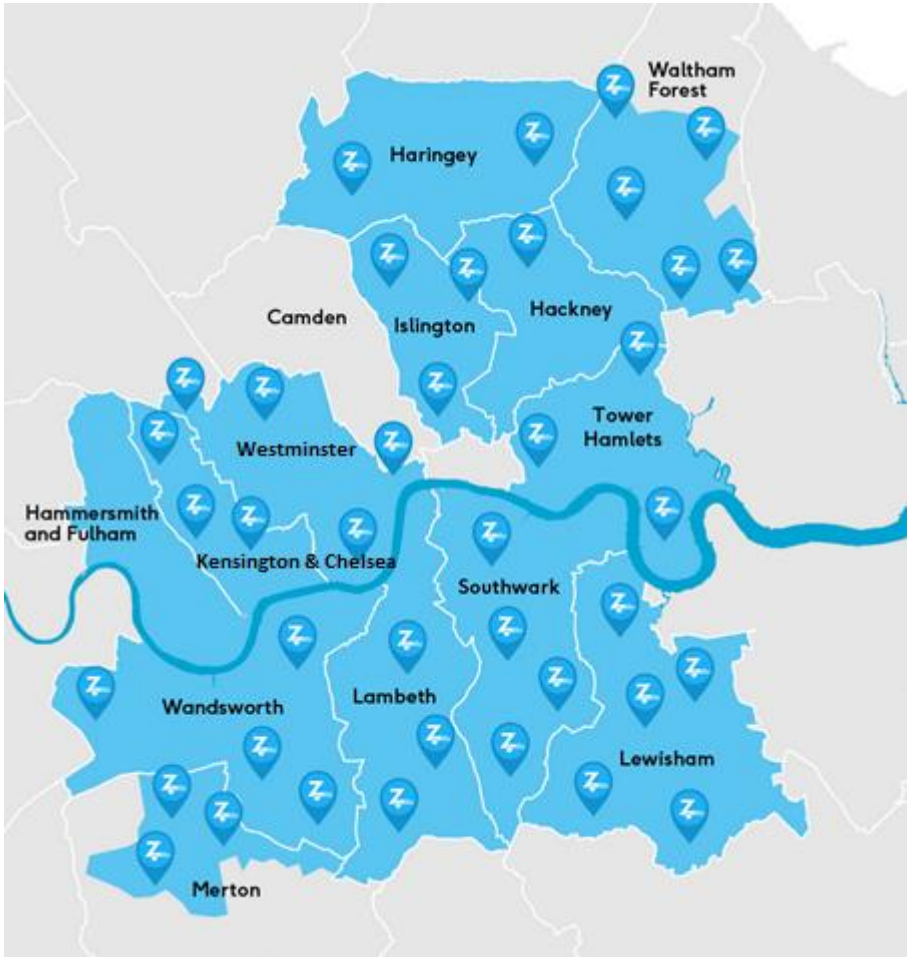
Roundtrip

Perfect for longer trips that go full circle. Need to lug some flat-pack back from Ikea? Or escaping to the country for a weekend? A Roundtrip is the easy way to do it. Book a vehicle, drive and return to the bay you picked it up from.

Flex

Ideal for spontaneous one-way journeys. Pick up a Flex vehicle from the home zone and your friends enroute. Dashing to a meeting across town? Flex it in no time.

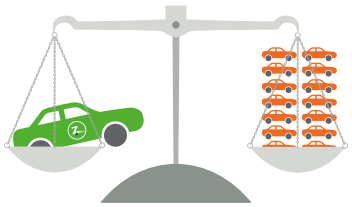
Current Flex Home Zone



A Sustainable Transport Solution

A large proportion of your future residents may have a private vehicle, but may not really need one. They may commute to work using public transport and just have a car for occasional use. A relationship with the world's largest car sharing club would definitely assist in reducing the carbon footprint of your residents, provide a convenient and easily-used service, and save them a substantial amount of money.

Every Zipcar takes an average of 10-14 privately owned cars off the roads of the UK, because members often sell (or don't replace) a car when they join.



Zipcar is a service that benefits the whole community. We have found that car club members choose to drive a car less after joining Zipcar; the average car club member only actually clocks up between 403 and 414 miles a year which is significantly less than private vehicle owners. This is because they both make better use of public transport and think much harder about their transport options according to what they need to achieve and the cost associated with that decision.

Not only this but car club vehicles are typically between 10% and 33% more efficient in terms of carbon dioxide emissions per KM travelled, in comparison to the average car, because operators chose new and fuel efficient models.

Using Zipcar

The Zipcar process has been designed to provide simplicity and little administration – there are no depots or deposits involved (headaches typically found with regular car hire). Once the person has become a member there is no further form filling required to hire a vehicle anywhere in the world.

Development Viability

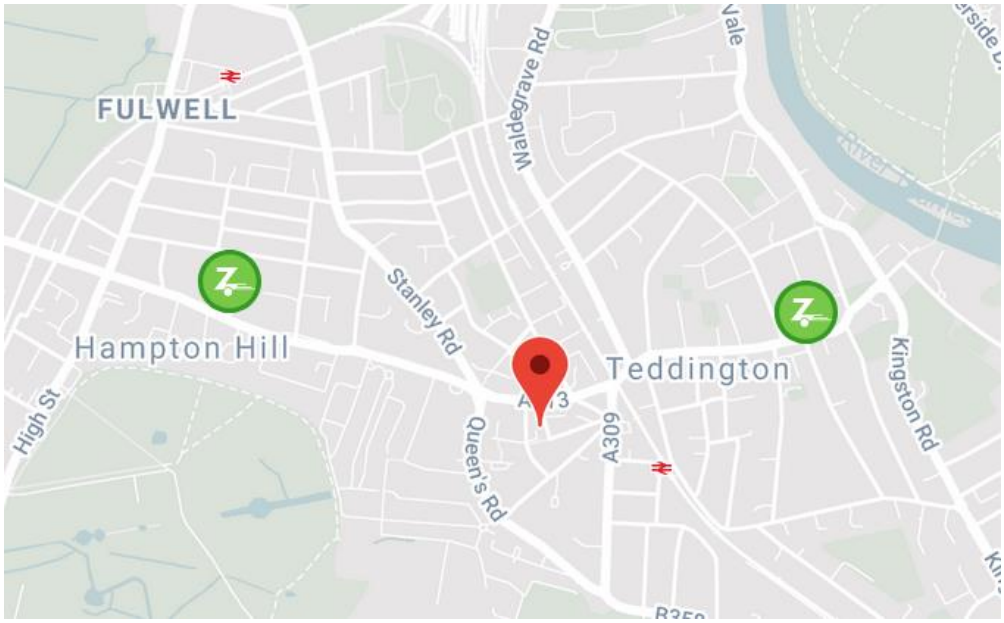
Zipcar has been operating in the borough of Richmond upon Thames since 2006 and is now working in partnership with the council to provide car clubs on-street to residents. We currently have 51 locations in the borough and over 9,000 members. The cars are performing well, being used approximately 8-10 hours a day.

In our opinion a car club could work well at this location given support from the developer in the early phases of the development. The current proximity to local transport links is very good (approximately PTAL 3) which is encouraging for the car club's chances of success, as synergy with public transport links is a key contributor to good car club performance. This makes it likely that the residents of this development will not need a car for work – essential to the success of the scheme.

The low parking on site should ultimately ensure good uptake of the car club. We normally rely on a parking ratio of less than 0.7 to guarantee car club success.

A developer funded marketing package will help ensure demand for the car club on site; the more we are able to incentivise people to try the service, the more people will use it and consequently use other green mobility options. As the map below indicates, there is a network of Zipcar vehicles in the vicinity of the development and as a result, Zipcar would not seek to immediately add further vehicles on site, the existing network is more than sufficient to meet the car club needs of residents. However, as demand grows, we would evaluate the necessity to install a vehicle near the development when required.

Existing Network



North Lane Proposal

Zipcar recommends that residents use the existing network. Zipcar will provide a fully managed service, which includes the following:

- Offering three years' membership to all 16 homes
- Designing all marketing collateral for the development communications team
- Managing the sign-up process (including licence and insurance eligibility processes)
- Monitoring resident and development queries and providing reports (if required as part of S106 requirements) post launch

This comes to a total contribution of **£1,300 +VAT**. This sum is to be paid prior to the date of first occupation.

In exchange Zipcar would commit to a contractual obligation to run the car club operation at the development for a minimum of three years. Each resident that signs up during the three years will receive three years' free membership and Zipcar will offer £50+VAT driving credit per unit at no further cost to the developer. A contribution of **£800 +VAT from Zipcar**.

Zipcar will provide 1 year's free business account (usually £119) for any commercial entity operating from or in conjunction with the site at no further cost to the developer.

The Zipcar development product

Zipcar have over 16 years of experience working with developers, travel planners and local authorities and have met the car club commitment on over 1,000 sites, ranging from ten to thousands of new homes. You will have dedicated support from our London based development specialists and we will support you from planning stage, through to installation and activation at the development.

Zipcar will create bespoke marketing collateral for the development managers and residents and work with our marketing partners to deliver a package that will create awareness of the car club on-site. Where required, Zipcar's operation team will install signage and branding for the Zipcar bays at no further cost to the developer.

Post launch, Zipcar will ensure that there are vehicles in the area to support development trip requests, not a feature of the standard product. We will also provide any necessary reporting data that is required to discharge any reporting clauses of the S106.

Marketing Proposal

A free membership to Zipcar is an excellent marketing tool to utilise with prospective buyers who, due to low parking ratios and parking restrictions, are unable to have their own vehicle on site. We would market the free memberships as a benefit paid for by the developer that provides residents with a cheaper, greener more convenient alternative to private car ownership. In this way Zipcar adds real value to the development and is an excellent solution to the recurring problem of prospective residents not being able to have their own vehicle on site due to a lack of space.

Developer communication

It is vital that the development's communications team promotes and supports the growth of the car club on site. Having a presence online either on the development website or through the residents' portal will ensure that all residents are aware of the transport modes and offers available to them and speed up uptake. Historically we have found most residents will use the service either to move into the property or for the subsequent furniture run within the first three months of occupation. Our marketing team will be able to provide copy or banners for the site, all of which will direct residents to a bespoke landing page educating them about the service.

Bespoke marketing material: This would outline the offers your residents are entitled to. We find that this is crucial in generating early interest in the scheme; these would be part of each residents welcome pack. Additionally we would recommend that a mail shot is sent at a later date reminding residents of the service.

The Zipcar Fleet

Zipcar has a vehicle type for every occasion. This will ensure that your residents get the best possible service, and can find a vehicle to suit their needs. Zipcar membership also includes Zipvan membership – providing our members with convenient access to larger vehicles when required.

Our vehicles are best in class from an emissions perspective. A Zipcar lives in the fleet for a maximum of eight months, ensuring our members are diving the most modern and efficient fleet in any car club across the world.

Model	Weekday Hourly / Daily	Weekend Hourly / Daily
Hyundai i20 / Ford Fiesta	£6 / £54	£7.50 / £65
VW Golf / Ford Focus	£7 / £64	£8.50 /£75
VW GTE (PHEV)	£7 / £64	£8.50 /£75
Audi A3	£8 / £74	£9.50 / £85
Ford CMAX (7 Seater)	£10 / £94	£11.50 / £105
VW Transporter	£10 / £89	£11.50 / £105

Fuel, insurance and 60 free miles per 24 hours are included. Additional miles are 25p per mile (29p for premium vehicles and vans).