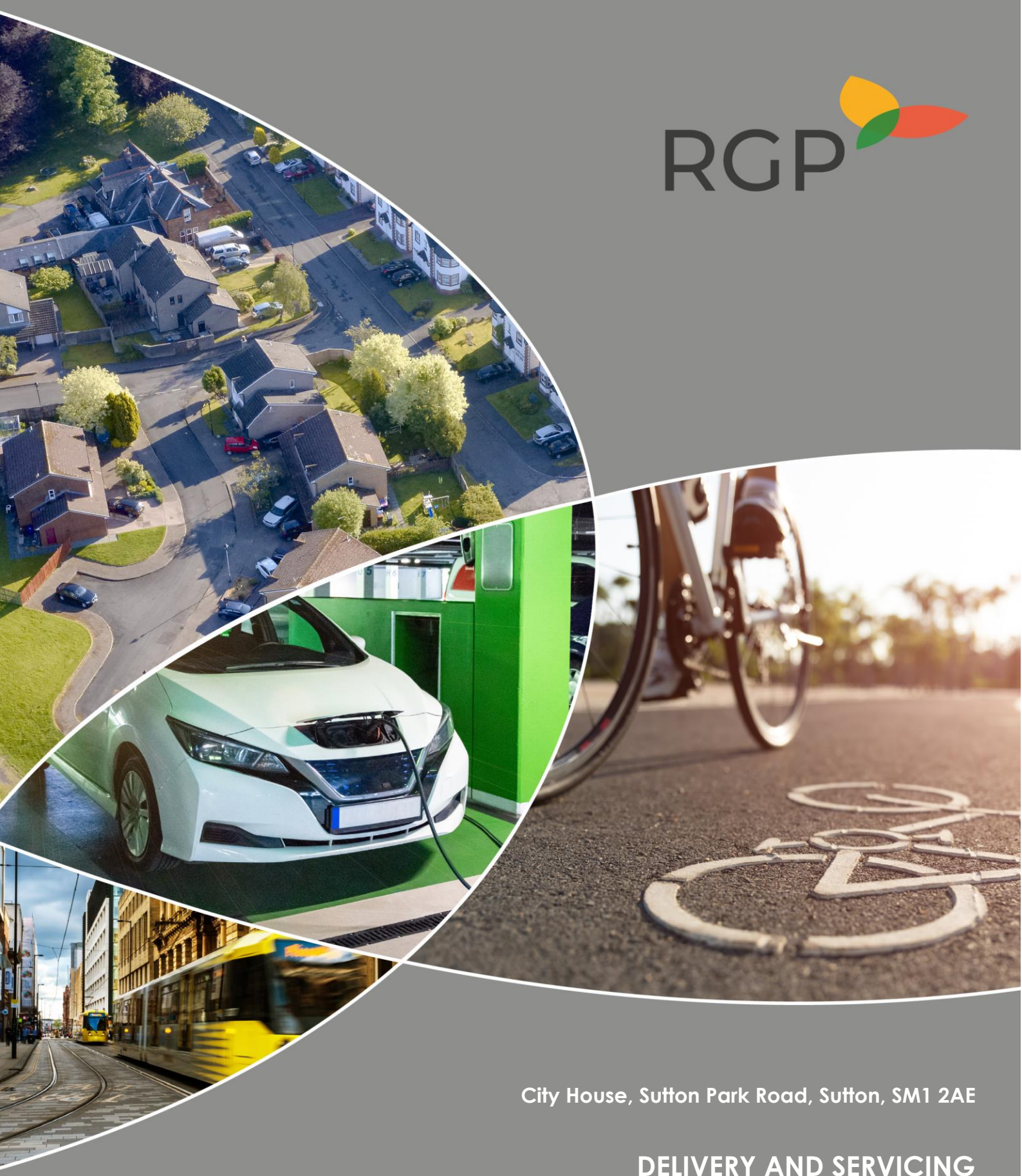

City House, Sutton Park Road, Sutton, SM1 2AE

DELIVERY AND SERVICING MANAGEMENT PLAN

for Proposed Mixed Use Development

on behalf of Macar Living (City House) Ltd

2022/6805/DSMP04

February 2024

www.rgp.co.uk

DOCUMENT CONTROL

Project:	City House, Sutton Park Road, Sutton, SM1 2AE for Proposed Mixed Use Development
Report Type:	Delivery and Servicing Management Plan
Client:	Macar Living (City House) Ltd
Reference:	2022/6805/DSMP04

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1.	22/12/23	Draft	WT
2.	01/02/2024	Final	WT
3.			
4.			
5.			
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1 INTRODUCTION

1.1 Background

1.1.1 RGP is instructed by Macar Living (City House) Ltd to provide highway and transport planning advice in relation to a proposed mixed-use development at City House, Sutton Park Road, Sutton. The site lies within the London Borough of Sutton (LBS).

1.1.2 The site is located on the eastern side of the one-way section of the A232 gyratory within the town centre of Sutton and currently comprises an office building with a total floor area of approximately 1,117 sqm. Vehicular access to the site is provided from the eastern side of the A232 Sutton Park Road via a shared service road with the adjacent Morrisons, over which the applicant has suitable rights of access.

1.1.3 The development proposals comprise the redevelopment of the site in order to re-provide circa 220 sqm of office space at ground floor level and 70 residential flats, including a mix of 1-3 bedroom units, on the upper floors. A copy of the latest proposed site plan is attached hereto at **Appendix A**.

1.1.4 The proposed development would be car-free (except for 2 disabled spaces), owing to the site's highly accessible location via public transport (PTAL 6a), its town centre location and reflective of the London Plan (2021) parking standards. Cycle parking would also be provided on the site, in accordance with London Plan 2021 standards and LCDS.

1.1.5 A dedicated delivery bay would be provided on the site, allowing sufficient turning space on the site to accommodate a typical goods online delivery van. It is anticipated that refuse collection would continue to be undertaken from the shared service road, which would be no different from the existing and established arrangement for City House, thereby allowing all delivery and servicing vehicles to enter and egress the site in a forward gear to avoid any impact on Sutton Park Road.

1.1.6 A separate Transport Assessment, Travel Plan, Waste Management Plan and Outline Demolition/Construction Logistics Plan have also been prepared by RGP as part of the planning application and these reports should therefore be read in conjunction with this report.

1.2 What is a DSMP?

1.2.1 A Delivery and Servicing Management Plan (DSMP) sets out a number of clear and consistent delivery and servicing measures that are to be monitored throughout the lifetime of the property.

1.2.2 A DSMP needs to be bespoke to the site it is developed for and it should aim to improve the efficiency of activities such as deliveries, refuse collection and servicing trips. This DSMP also ensures that all delivery and servicing activity is managed effectively.

1.2.3 In preparing this report, consideration has been given to relevant national, regional and local delivery and servicing policy guidance, including TfL's DSMP guidance (December 2020).

1.2.4 Once in place, a DSMP will:

- Ensure that goods and services can be delivered and waste removed, in a safe, efficient and environmentally-friendly way;
- Identify deliveries that could be reduced, re-timed or even consolidated, particularly during busy periods;
- Help cut congestion and ease pressure on the environment;
- Improve the reliability of deliveries to the site;
- Reduce the operating costs of building occupants and freight companies; and
- Reduce the impact of delivery activity on other residential dwellings within the vicinity of the site on Bramley Hill.

1.2.5 A DSMP is therefore capable of providing benefits not just to the site occupiers, but also to the local community and delivery operator.

2 SITE DESCRIPTION

2.1 Site Location

2.1.1 The location of the site in the context of the surrounding area is illustrated on **Figure 2.1** below. As shown, the site lies within the town centre of Sutton where a wide range of commercial uses and high street retailers can be found.

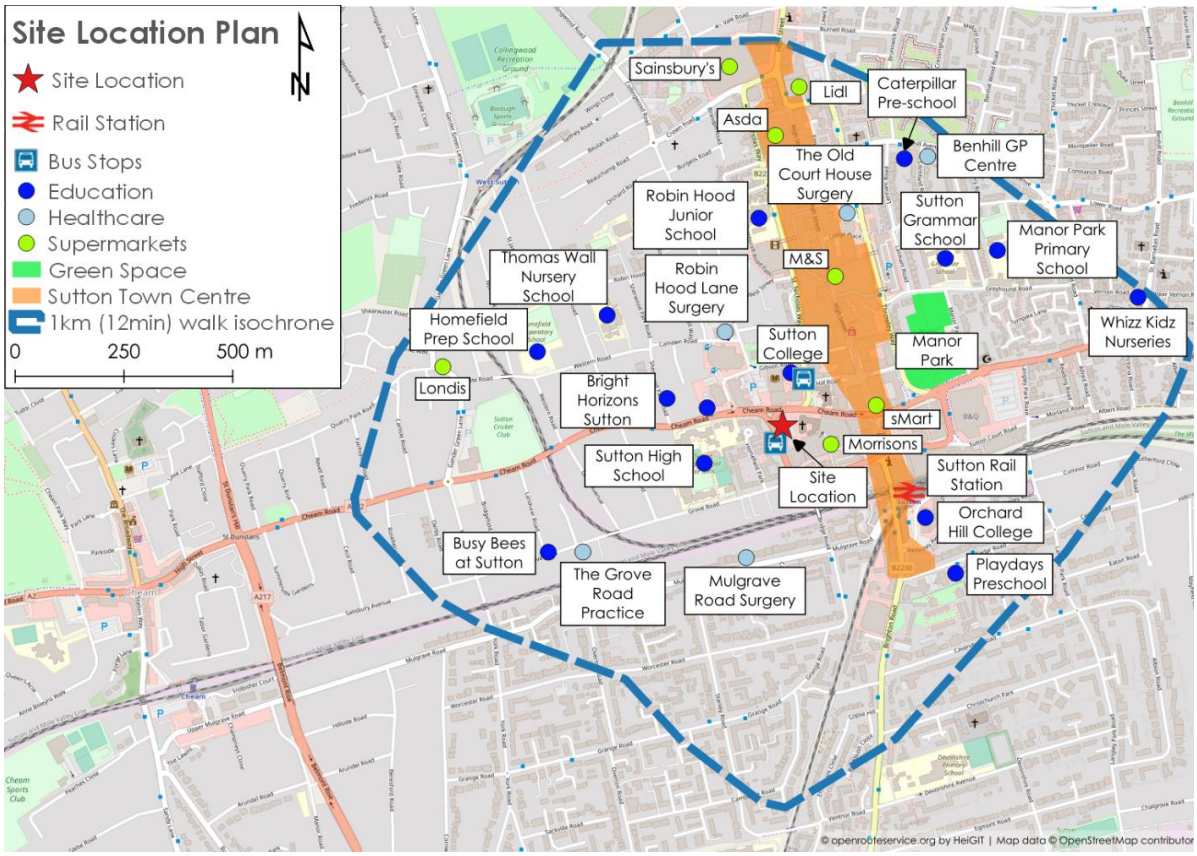


Figure 2.1: Site Location Plan

2.1.2 The site is bound by the A232 Sutton Park Road which loops around the eastern and northern boundary of the site, Sutton Baptist Church on its eastern side and the shared service road with Morrisons to the south of the site.

2.1.3 Vehicular access to the site is provided from the eastern side of the A232 Sutton Park Road. The service road serves two loading bays associated with the Morrisons supermarket as well as gated entrance to City House, as shown in **photograph 1** later in this report. The applicant has suitable rights of access over the access road.

2.1.4 There are also two additional points of pedestrian access from the site's northern boundary with the A232, providing a good level of permeability across the site.

2.1.5 The A232 Sutton Park Road forms part of Transport for London's Red Route Network (TLRN) with double red line markings located along both sides of the carriageway which prohibit stopping at any time.

2.1.6 The A232 Sutton Park Road provides a one-way route which operates in a clockwise direction through the town centre of Sutton. At the north-western corner of the site, the A232 gyratory meets via a signalised junction, facilitating access west towards the A217 and Cheam.

3 EXISTING DELIVERY AND SERVICING ARRANGEMENTS

3.1 Existing Office Use

3.1.1 The site entrance is currently gated and it is understood that most delivery and servicing activity associated with the existing site currently takes place from the shared service road outside the site frontage. Some smaller transit type deliveries can be undertaken on the site once permitted through the telecom system, although in practice most vehicles currently wait on the service road.

3.1.2 To understand the likely level of deliveries associated with the existing office space, the TRICS data used as part of the Transport Assessment has been interrogated. Based on the TRICS assessment outputs used as part of the TA, it is evident that the existing office could generate up to 1 delivery vehicle arrival per day.

3.1.3 Most office deliveries are generally undertaken by transit type vans comprising deliveries of office equipment and supplies as well as a weekly refuse service which would be accommodated on the shared service road.

3.2 Morrisons

3.2.1 As discussed, the service road is shared with the adjacent Morrisons supermarket which benefits from two roller shutter service bays whereby vehicles currently reverse off Sutton Park Road into the service yard and into part of the building for servicing needs.

3.2.2 As illustrated in **photograph 1** below, from RGP's on-site observations and based on the applicant's day to day observations of Morrisons delivery activity, the southern loading bay (right) is utilised for all day-to-day delivery and servicing needs whilst the northern bay (left) is used for the storage of bins and goods only.

Photograph 1: Service Yard

3.2.3 In order to establish the existing level of occupancy and usage of the Morrisons loading bays, RGP commissioned an independent professional traffic survey company, Modal Data Ltd, to conduct a survey of the loading bays for a 24 hour period between Wednesday 6th December and Thursday 7th December 2023, which represented a neutral weekday period of activity. It is also notable that December is typically a time where supermarkets such as Morrisons experience the highest demand for deliveries during the Christmas period and therefore the results are considered particularly robust.

3.2.4 Full results from the loading bay survey are attached hereto at **Appendix B** and are discussed below. **Figure 3.1** below summarises the results of the loading bay survey.

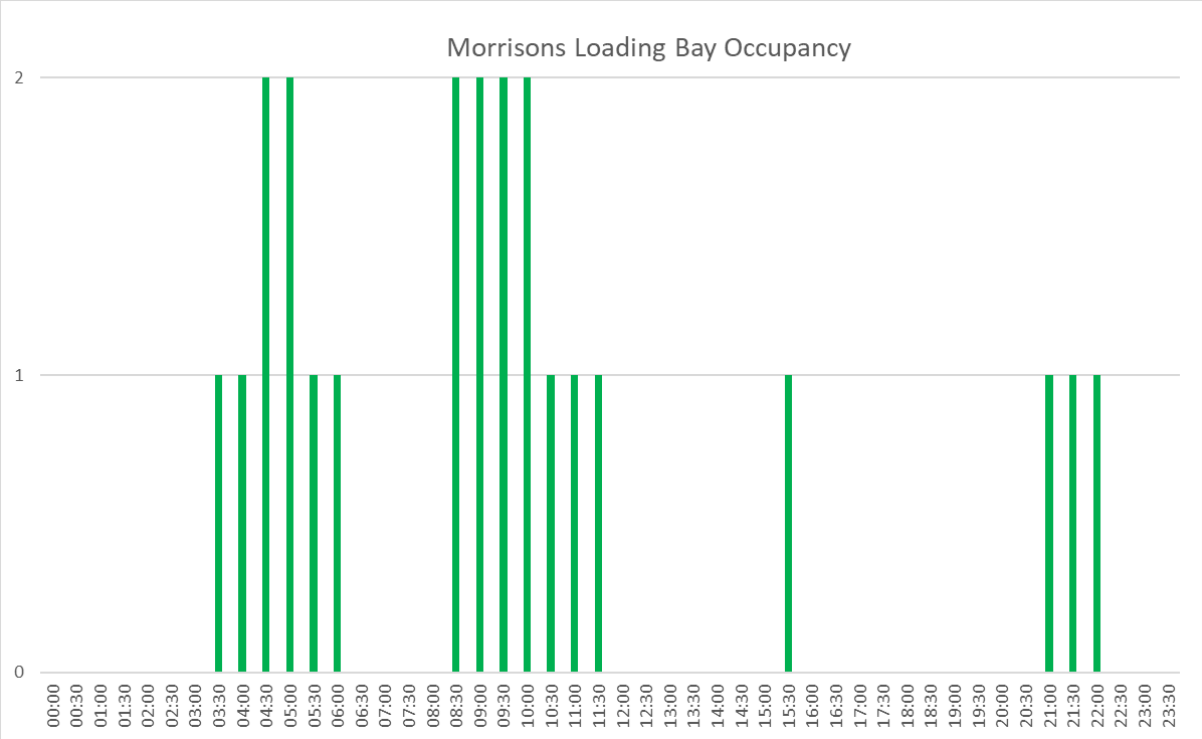


Figure 3.1: Summary of Morrisons Loading Bay Occupancy

3.2.5 The Morrisons loading bays (and the service yard) were moderately used over the course of a typical weekday with 11 observed deliveries across a typical weekday. The loading bays were used for a total of 6 hours and 17 minutes across a 24 hour period, equivalent to a 26% occupancy, which is not significant. Throughout the remainder of the survey period the loading bays were unoccupied (i.e. 74%).

3.2.6 Most deliveries occurred throughout the early morning period with minimal activity taking place during the afternoon and evening.

3.2.7 As shown in **Figure 3.1** above (attached at **Appendix B**), there were no more than two deliveries observed on the service yard at any given time, which used the same loading bay each time, which is consistent with RGP's and the applicant's on-site observations. The northern loading bay was not used throughout the survey period.

3.2.8 There were three separate occasions where the loading bay was occupied by two vehicles at the same time, parking side by side on the service yard, without restricting access onto the service yard or into the application site. The simultaneous deliveries lasted for up to 33 minutes as a worst case, although most simultaneous deliveries lasted for 5-10 minutes only. The service yard was only occupied by two vehicles for a total of 59 minutes across the entire survey. The majority of loading activity (i.e. 5 hrs 16 mins) comprised one vehicle loading/unloading.

3.2.9 RGP has also undertaken extensive research of other Morrisons developments/planning applications to understand the likely frequency of delivery and servicing vehicles to other sites in order to validate the above survey data, including planning applications in Camden, Clacton on Sea and Hillingdon for example. These developments are all served by HGVs up to 16.5 long and generate up to 8 deliveries per day, which is very comparable to above survey results and further highlights its robustness.

3.2.10 It is therefore evident that the Morrisons loading bays are moderately used over the course of a typical day but retain significant spare capacity on the service yard. The Morrisons loading activity has been demonstrated to offer minimal impact on the operation of the application site.

4 PROPOSED DELIVERY AND SERVICING ARRANGEMENTS

4.1 Overview

4.1.1 As part of the proposals a dedicated delivery bay would be provided on the site to enable a typical goods online delivery van to access the site in a forward gear, turn around on the site and egress the site in a forward gear, as illustrated on **Drawing 2022/6805/001** attached.

4.1.2 The residential units would typically generate deliveries of an ad-hoc nature, such as general postal services and occasional supermarket or other internet-based deliveries, for example. The vast majority of deliveries to the residential units would be carried out using 3.5t 'sprinter' or transit vans, which would be comfortably accommodated on the site.

4.1.3 Refuse collection for the site would continue to be undertaken on the service yard outside the site frontage in the same manner as the existing and established servicing arrangement for City House. A refuse vehicle would simply service the development in the same way it would service the office use currently without highway safety issue.

4.2 Residential Deliveries

4.2.1 To understand the likely frequency of deliveries made to the residential units, reference is made to RGP's Study of Household Deliveries for residential developments In London. The study was carried out during 2022 and comprises detailed delivery / servicing data obtained from two large-scale residential developments in Outer London, collected independently for the purposes of the study.

4.2.2 It is recognised that residential delivery habits have changed since the Covid-19 pandemic and therefore the above study reflects residential delivery habits in a post-covid situation.

4.2.3 The study results indicate a range of key aspects pertaining to the delivery of household goods, including the frequency, duration of loading, size of delivery vehicle, the type of goods / trip purpose and the timings of deliveries. This methodology therefore provides a more considered approach when compared to the traditional application of TRICS data alone, as TRICS surveys offer only the observed frequency of arrivals and departures.

4.2.4 The detailed results were subsequently used to develop a delivery calculator tool, representing a practical means to determine the frequency of household deliveries and the duration of stay required to complete loading activity. A summary of this study is attached hereto at **Appendix C** whilst the calculator outputs can be provided upon request. Based on this data the proposed residential development at City House is anticipated to generate up to 10 deliveries per day, all of which would be undertaken by LGVs as confirmed by the study, which would be comfortably accommodated on-site.

4.2.5 RGP's study of household deliveries identifies that the proposals would generate a total duration of approximately 67 minutes per day to complete all associated activity from the point of arrival to departure from the site (i.e. 6-7 minutes per delivery). This represents an average, including the occasional larger supermarket deliveries which take longer to unload, however the majority of deliveries comprise smaller courier services which generally require only a few minutes to complete.

4.2.6 For robustness, the TRICS database has also been reviewed in order to validate this study data. Based on the TRICS assessment outputs used as part of the Transport Assessment, it is evident that the proposals could generate up to 3 delivery vehicle arrivals per day, however, as outlined previously this does not fully take account of a post-covid situation and therefore a new TRICS assessment using the same parameters has been undertaken using comparable private flatted sites between 2020-2023 only. Full TRICS outputs from this assessment are attached hereto at **Appendix D**, which indicate a two-way delivery vehicle trip rate of 0.315 per day. When factored to reflect 70 units, the proposals are anticipated to generate a total of 12 deliveries per day, which is very comparable to the above RGP delivery study and further highlights its robustness.

4.2.7 As is the typical delivery profile, these deliveries would not all arrival simultaneously but sporadically throughout the daytime period and therefore the provision of one delivery bay on the site is considered appropriate for a development of this scale and would prevent the need for any delivery vehicles to stop on the service yard.

4.2.8 In terms of servicing frequencies, LBS typically provide 1 refuse collection service per week.

4.3 Office Deliveries

4.3.1 Using the office trip rates outlined previously in Section 3, the proposed office space comprising 220 sqm could generate up to 1 delivery per day, which would be comfortably accommodated on the site.

4.4 Total Deliveries and Impact Assessment

4.4.1 On the basis of the above analysis, the proposed development is anticipated to generate approximately 11 delivery vehicle visits per day, which is not significant. The RGP delivery study also confirms that most residential deliveries take up to 7 minutes to complete, equivalent to an occupancy of 67 minutes within the loading bay over the course of a typical weekday. Therefore the provision of one delivery bay would be sufficient to accommodate all delivery demands (given that these do not typically occur at the same time but sporadically throughout the daytime), whilst also retaining significant spare capacity throughout the day time to accommodate any increased demand.

4.4.2 Many freight operators, including supermarkets and hot food delivery services, consolidate deliveries where possible to ensure the minimum number of delivery vehicles are dispatched to drop-off goods to as many households as possible on a single optimised delivery route. Separate vehicles dispatched to deliver an individual's goods is not undertaken by freight operators since it is not feasible from either a logistical or financial perspective, and as such freight operators schedule deliveries to similar addresses at similar times to maximise efficiency.

4.4.3 Many delivery/servicing vehicle visits would therefore form part of a pre-planned delivery route in the area and so many of these trips would not represent 'new' trips onto the local highway network since they are likely to serve other existing addresses in the area, or example.

4.4.4 It is also evident from the above analysis in Section 3 and 4 that the proposed development would offer a reduction in the level of delivery activity taking place on the service yard when compared with the existing office use, with only refuse collection and very infrequent larger deliveries (which are not typical of residential developments) taking place on the service yard.

4.4.5 **Drawing 2022/6805/002**, attached hereto, provides a swept path assessment of a large 10.7m refuse vehicle which is used by LBS, demonstrating that an LBS refuse vehicle can turn around on the service yard safely and conveniently, even during the rare occasions when the Morrisons loading bays are occupied by two vehicles. As indicated by the survey, during some occasions vehicles were observed to park side by side on the service yard which is reflected on the attached drawing as a worst case scenario. It also confirms that a refuse vehicle and a car can pass one another simultaneously at the site access safely.

4.4.6 Whilst it has already been demonstrated that delivery and servicing activity on the service yard associated with the Morrisons is relatively low across a typical weekday, the proposals would offer a significant betterment in terms of the potential impact on and the relationship with the Morrisons servicing needs.

5 DELIVERY AND SERVICING MANAGEMENT MEASURES

5.1.1 It is important that a range of measures are adopted to ensure efficient and safe management of delivery and servicing vehicles to the site in order to minimise the impact of deliveries, which have been outlined below in this section.

5.1.2 Macar Living (City House) Ltd would be responsible for this DSMP and the measures detailed within this report.

5.1.3 A separate Waste Management Plan has been prepared by RGP to accompany this planning application which provides further detail regarding the proposed bin storage provision and management. It is therefore recommended that these two reports are read in conjunction with one another.

5.2 FORS Scheme

5.2.1 FORS is a voluntary industry-led membership scheme which aims to raise the standard of the fleet and freight industry by improving operators' performance with regards to safety, fuel efficiency, economical operation and vehicle emissions. It seeks to provide a quality and performance benchmark for the freight industry.

5.2.2 The potential for the site's principal suppliers, such as refuse collectors, to sign up to the scheme to minimise the impact of its deliveries would be explored. It is anticipated however that LBS's fleet of refuse collection vehicles would already be required to meet such standards as well as most recognised delivery operators.

5.3 Delivery Schedule

5.3.1 Due to their ad-hoc nature, residential deliveries are generally more difficult to manage centrally through the use of a centralised delivery schedule. However, given the limited number of deliveries anticipated at the site (up to 11 per day), a delivery schedule would not be necessary in this instance.

5.3.2 Furthermore, most scheduled deliveries with a recognised delivery company are generally fixed with a one/two-hour time slot, in order to allow for travel disruptions, for example. Many delivery companies would also plan deliveries to similar addresses as part of one journey, including multiple addresses within the development or in the immediate area. These measures would help to minimise the level of delivery vehicle visits and to prevent simultaneous deliveries.

5.3.3 As outlined previously, based on the RGP delivery study most residential deliveries take up to 7 minutes to complete, equivalent to an occupancy of 67 minutes within the loading bay over the course of a typical day. It has also been demonstrated that the office space would generate up to one delivery per day and therefore the provision of one delivery bay would be sufficient to accommodate all delivery demands whilst also retaining significant spare capacity throughout the day.

5.3.4 The Morrisons loading bays have an occupancy level of 26% across a 24 hour period which would not be subject to alteration following the proposals. The proposals would reduce delivery activity on the service yard, thereby improving servicing arrangements and safety for the existing Morrisons.

5.4 On-Site Infrastructure

5.4.1 Some deliveries would be undertaken by bicycles or motorcycles, for example. The site provides appropriate cycle parking provision at the front of the site and sufficient space within the forecourt area in order to encourage and facilitate the usage of sustainable deliveries to the site. Deliveries by bicycle or motorcycle would offer significantly less impact than vehicles in any event and typically take up to two minutes in duration.

5.5 Delivery Efficiency

5.5.1 It is anticipated that delivery vehicles to the site would continue to other sites locally and serve a number of locations as part of a pre-planned delivery route. Such journeys would be carefully planned to make the most efficient use of each delivery trip and to minimise the number of journeys, distance travelled and associated CO_2 emissions.

5.5.2 All bin storage would be accommodated within the site with appropriate storage containers to maximise refuse collection efficiency for collectors.

5.6 Enforcement

5.6.1 Residents would be encouraged to liaise with the relevant delivery company, as appropriate, to minimise any impact from delivery activity on the site and on the local highway network.

5.6.2 The appointed site management company would also provide a point of contact for residents or delivery companies, should any issues arise with respect to delivery activity. Communication would also be key to preventing conflict with other residents to ensure that safe traffic flow is maintained on the site and the public highway network.

5.6.3 The provision of a delivery bay on the site would prevent the requirement for goods to be delivered on-street or on the service yard. Good would not be permitted to be left on the forecourt area and would be transferred immediately into the site by delivery companies/residents. The site benefits from a dedicated pedestrian entrance, clear of the main vehicle access, providing convenient access to the site.

5.6.4 These potential measures above are not exhaustive and the management company are encouraged to consider/review delivery management measures at the site over time and in response to any need/demand in the future.

5.7 Noise Management

5.7.1 Deliveries on the service yard can be noise generating sources of activity, however based on RGP's experience many large scale operates such as Morrisons tend to operate a range of noise suppression measures to minimise their impact to local residents and to the public.

5.7.2 Delivery drivers are likely to be trained in the following areas:

(i) Brake use and applications;

(ii) Engine revs;

(iii) Gear selection;

(iv) Opening / closing of cab doors;

(v) Turning off engines and radios upon arrival and when loading/unloading goods.

(vi) Ensuring all deliveries are scheduled and assisted by a staff. Idling is generally not acceptable.

(vii) Ensuring the driver(s) unload all stock. All items are palletised and unloaded with a powered pallet truck.

6 SUMMARY AND CONCLUSIONS

6.1.1 This Delivery and Servicing Management Plan (DSMP) has been prepared by RGP to support a planning application at City House, Sutton Park Road, Sutton, SM1 2AE.

6.1.2 This report sets out a number of clearly defined procedures relating to the delivery and servicing arrangements associated with the proposed mixed use development at the above site. This report demonstrates the following:

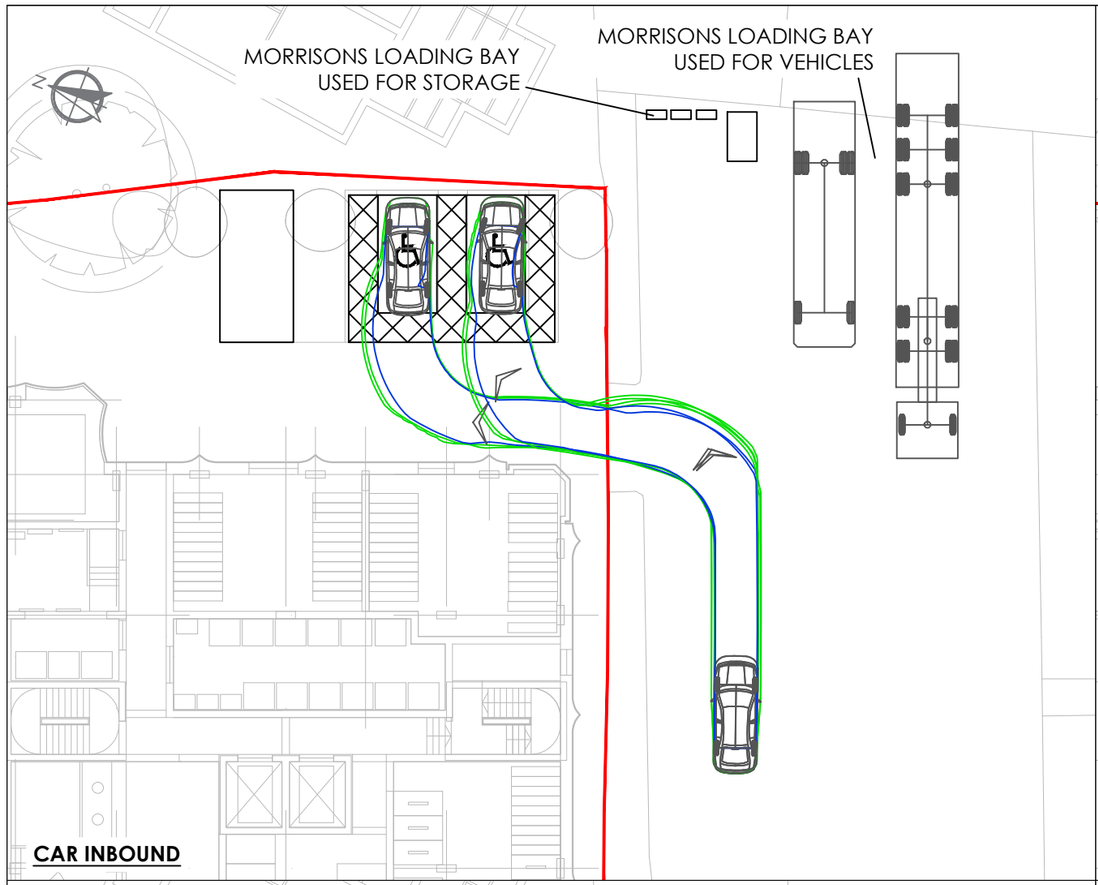
(i) All deliveries would be undertaken on the site via a dedicated delivery bay, whilst refuse collection would continue from the shared service yard in the same manner as the existing servicing arrangement;

(ii) The site is anticipated to generate 11 delivery/servicing vehicles per day and would generally form part of a pre-planned delivery routes. These would not all occur at the same time but instead generally take place sporadically throughout the day time period. The delivery bay would generate an occupancy of approximately 67 minutes per day which would be suitable to accommodate all delivery vehicles associated with the site;

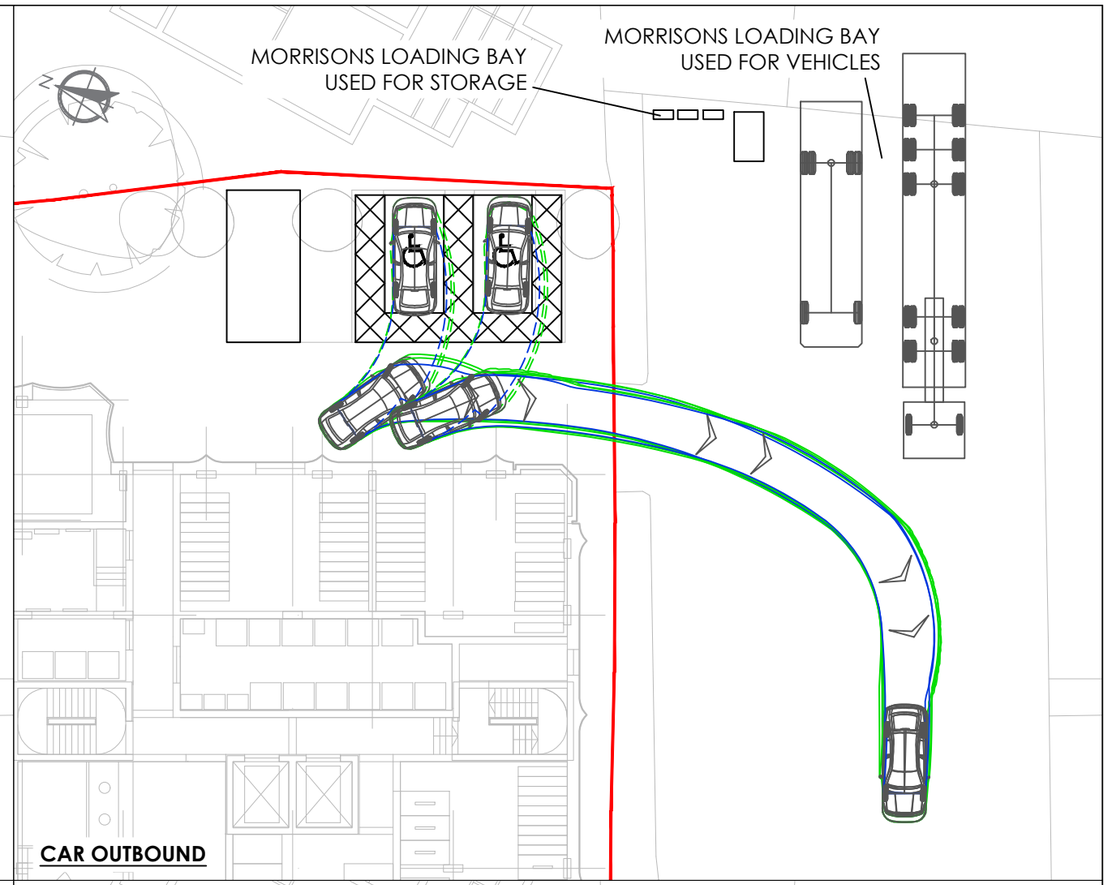
(iii) The provision of an on-site delivery bay would offer a significant reduction in terms of the delivery activity taking place on the shared service yard. The Morrisons loading bays are moderately used over the course of a typical day however the proposals would offer minimal impact on the service yard, thereby improving servicing arrangements and safety for the existing Morrisons;

(iv) A number of delivery and servicing management measures will be implemented at the site, with additional and appropriate measures introduced in the future by the site management company in response to demand / need over time.

DRAWINGS



CAR INBOUND



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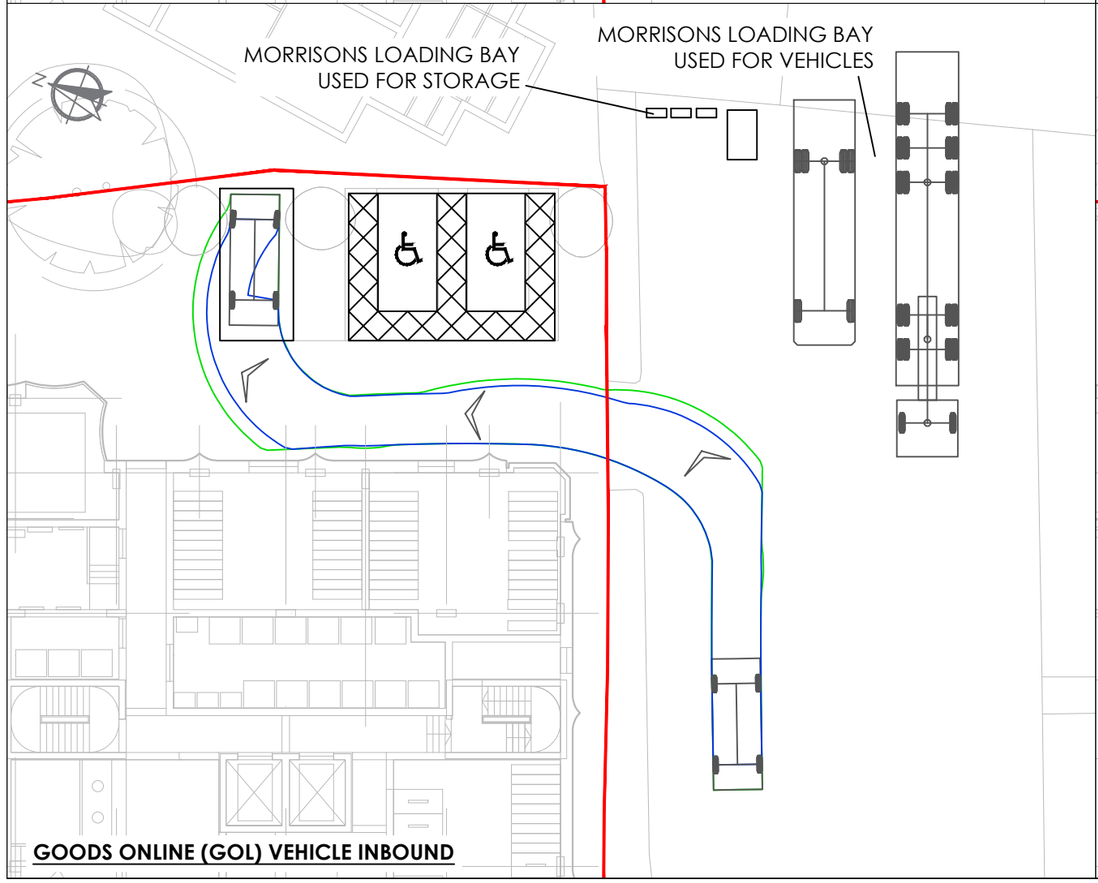
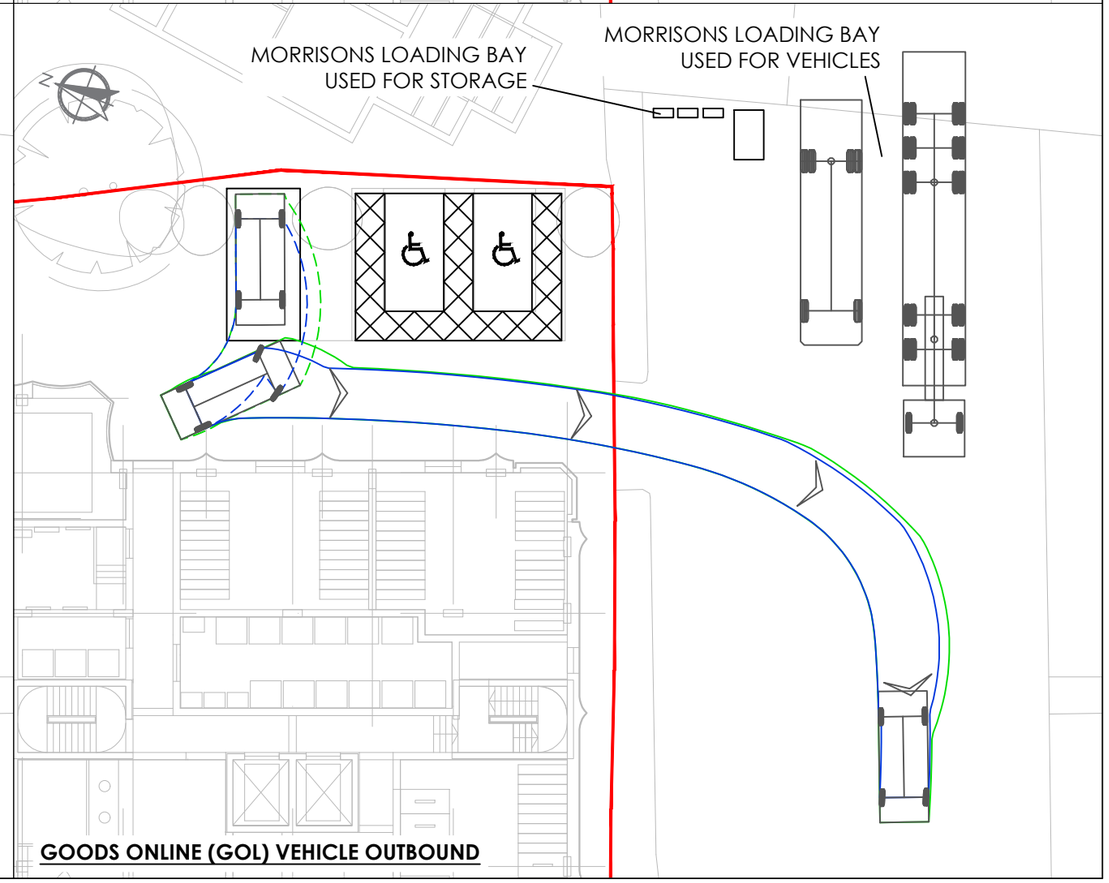


GOODS ONLINE (GOL) VEHICLE INBOUND



GOODS ONLINE (GOL) VEHICLE OUTBOUND

NOTES

This drawing has been prepared for the purpose of planning discussions and does not constitute a detailed design drawing, or construction drawing. A Design Hazard Inventory has been prepared by RGP setting out the hazards which have been designed out. This is available upon request.

SITE BOUNDARY

Standard Car (4.8m)

Overall Length	4.800m
Overall Width	1.769m
Overall Body Height	1.488m
Min Body Ground Clearance	0.249m
Max Track Width	1.713m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	5.100m

GOL Delivery Vehicle

Overall Length	5.339m
Overall Width	1.986m
Overall Body Height	3.085m
Min Body Ground Clearance	0.338m
Track Width	1.986m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	6.400m

RESIDUAL HAZARDS

In addition to the hazards/risks normally associated with the type of work detailed on this drawing, please note the following residual hazards:

It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved risk assessment and method statement.

Rev.	Drawn	Comments	Date
P5	DLH	DETAIL AMENDMENT	15/12/23
P4	DLH	LAYOUT UPDATED	11/12/23
P3	DLH	LAYOUT UPDATED	01/11/22
P2	DLH	LAYOUT UPDATED	21/10/22
P1	DLH	FIRST ISSUE	06/09/22

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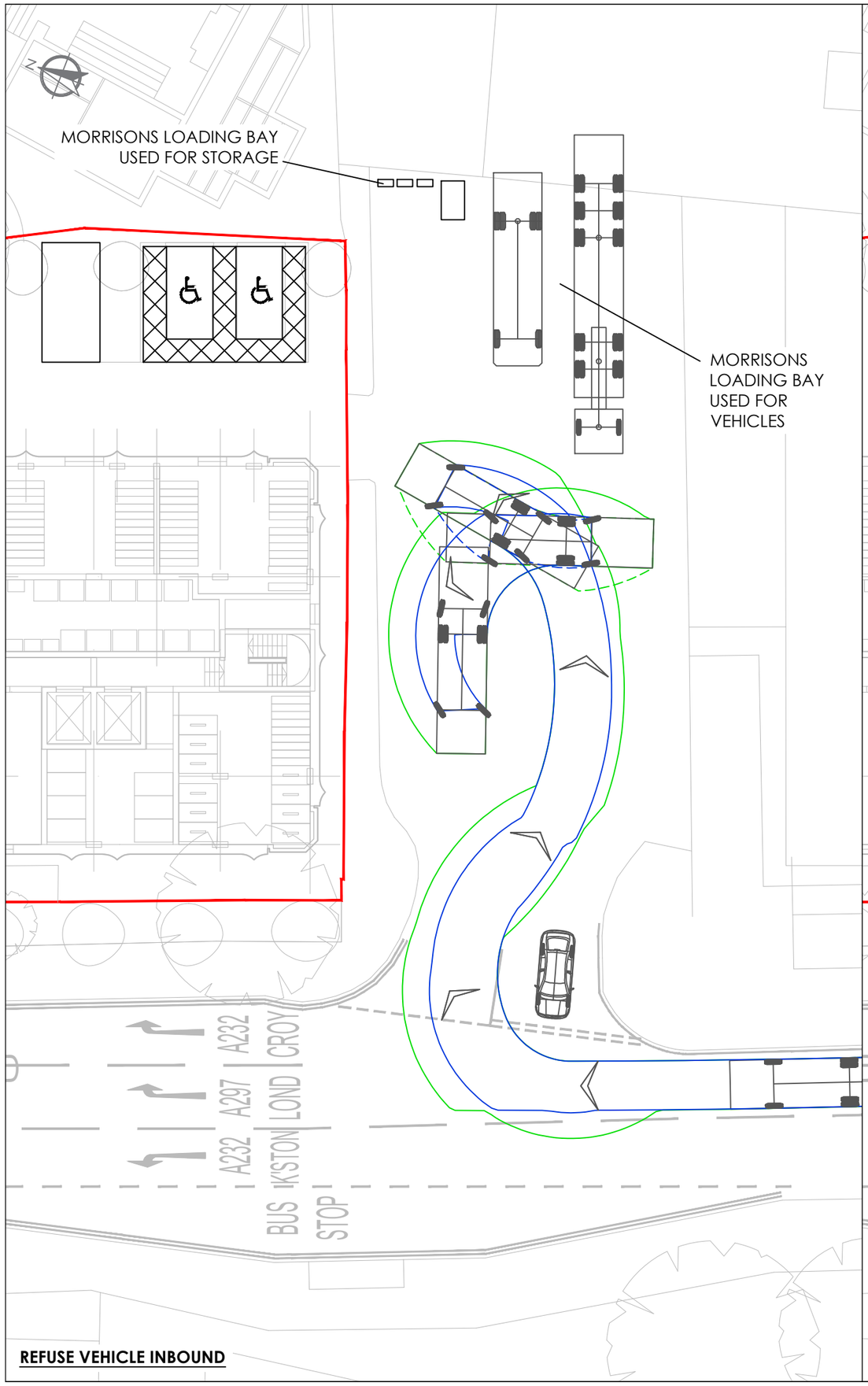
Client
Macar Living (City House) Ltd

Project
City House,
Sutton Park Road

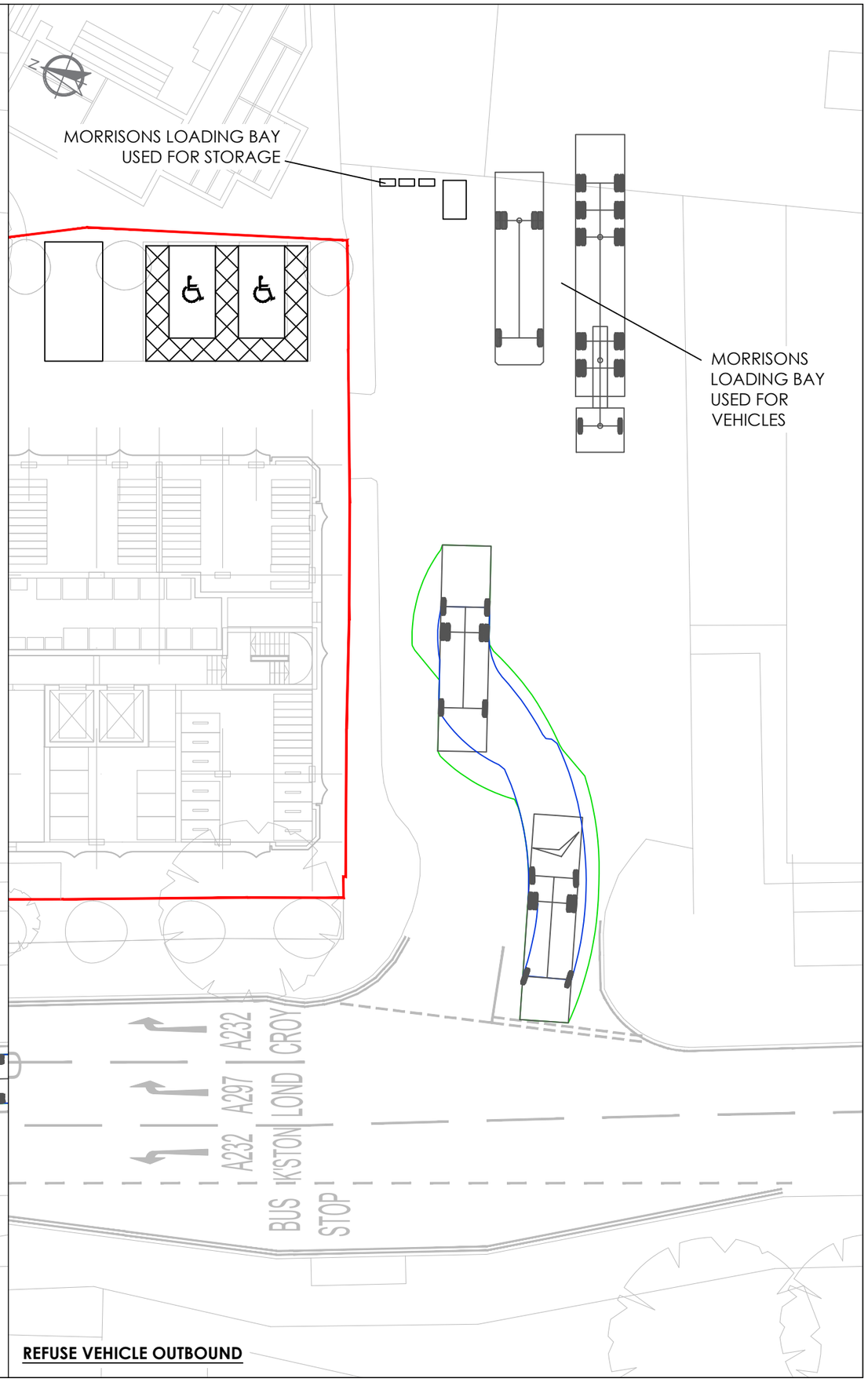
Drawing Title
Swept Path Analysis

Drawing No.	Rev.
2022/6805/001	P5

Scale	Drawn By	Checked By	
As shown	DLH	WTT	A3



REFUSE VEHICLE INBOUND



REFUSE VEHICLE OUTBOUND

NOTES

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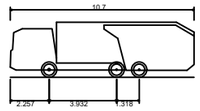
SITE BOUNDARY



Phoenix 2-20W (with Elite 2 6x2 RS chassis)

Overall Length	10.700m
Overall Width	2.590m
Overall Body Height	3.211m
Min Body Ground Clearance	0.416m
Track Width	2.530m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	7.340m

RESIDUAL HAZARDS

In addition to the hazards/risks normally associated with the type of work detailed on this drawing, please note the following residual hazards:

It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved risk assessment and method statement.

Rev.	Drawn	Comments	Date
P3	DLH	DETAIL AMENDMENT	15/12/22
P2	DLH	LAYOUT UPDATED	11/12/22
P1	DLH	FIRST ISSUE	06/09/22

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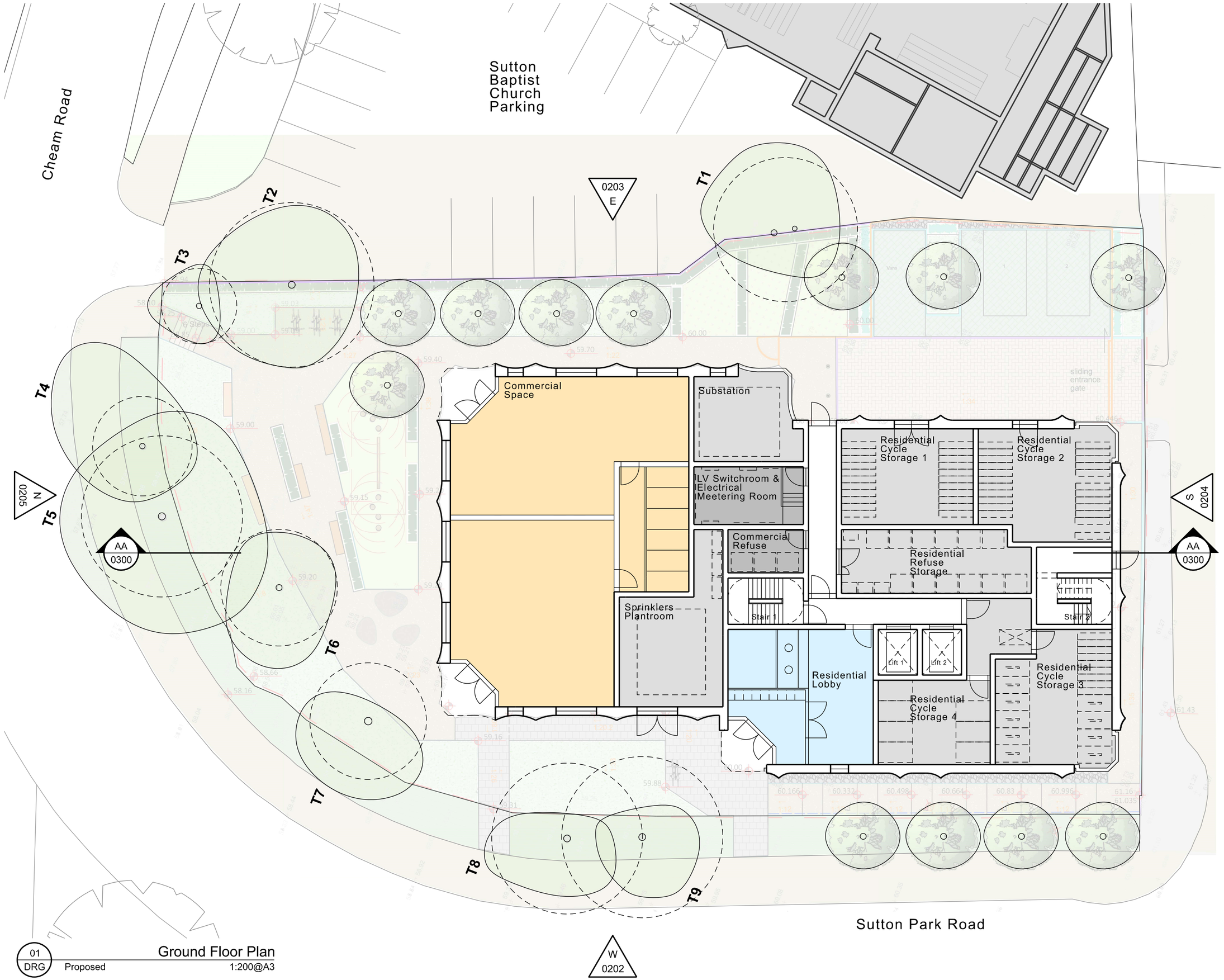
Client
Macar Living (City House) Ltd

Project
City House,
Sutton Park Road

Drawing Title
Swept Path Analysis -
Refuse Vehicle

Drawing No.	Rev.		
2022/6805/002	P3		
Scale	Drawn By	Checked By	
1:250	DLH	WTT	A3

APPENDIX A



01 DRG

Ground Floor Plan

Proposed

1:200@A3

0 1m 5m

N

Key :

- Residential Lobby
- Residential BOH
- Commercial Space
- Commercial BOH

Revision	Date	Description
P0	XX/01/24	Planning Issue

Do not scale-off this drawing. Wimshurst Pelleriti take no responsibility for any dimensions obtained by measuring or scaling from this drawing and no reliance may be placed on such dimensions.If no dimension is given, it is the responsibility of the recipient to ascertain the dimension specifically from the Architect or by site measurement.

The sizing of all structural and service elements must always be checked against the relevant engineers drawings. No reliance should be placed upon sizing information shown on this drawing.

Project

City House, Sutton

Sutton Park Road, SM1 2AE

Drawing Title

Ground Floor Plan
Proposed

Drawing Number

0816-WPA-0110

Revision

P0

Scale @ A3

1:200

Revision Date

Drawing Purpose

PLANNING

WIMSHURST PELLERITI

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6 Putney Common, SW15 1HL

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APPENDIX B

CITY HOUSE - SUTTON PARK ROAD

MODAL
modaldata.com

LOADING BAY USAGE SURVEY

WEDNESDAY 6TH DEC. 12.OO MIDDAY TO THURSDAY 7TH DEC. 12.00 MIDDAY

= Waiting or Double Parked

DATE: WED. 6/12/23	TIME			
VEHICLE	FROM	TO	Notes	DURATION
LGV	15:47:00	15:50:00		00:03:00
MORRISONS HGV	21:22:00	22:20:00		00:58:00

DATE: THURS. 7/12/23	TIME			
VEHICLE	FROM	TO	Notes	DURATION
MORRISONS HGV (1)	03:58:00	04:59:00		01:01:00
MORRISONS HGV (2)	04:52:00	04:59:00	WAITING FOR BAY	00:07:00
MORRISONS HGV (2)	04:59:00	06:24:00		01:25:00
WARBURTONS HGV	05:14:00	05:20:00	DOUBLE PARKED	00:06:00
WHITE HGV	08:50:00	09:05:00		00:15:00
MORRISONS HGV	08:59:00	09:05:00	WAITING FOR BAY	00:06:00
MORRISONS HGV	09:05:00	10:20:00		01:15:00
LGV UNLOADING	09:22:00	09:29:00	DOUBLE PARKED	00:07:00
GXO HGV	09:47:00	10:20:00	WAITING FOR BAY	00:33:00
GXO HGV	10:20:00	10:33:00		00:13:00
LGV	11:25:00	11:27:00		00:02:00
CONSOLIDATED HGV	11:54:00	12:00:00		00:06:00
			TOTAL	06:17:00

APPENDIX C

STUDY OF RESIDENTIAL SERVICING IN LONDON

Date: March 2023 **Ref: 22/6649**

SUMMARY OF KEY FINDINGS

Survey Parameters

- RGP commissioned detailed traffic surveys undertaken at two residential developments within the London Borough of Wandsworth to establish and understand the typical servicing requirements of households and residential-led developments.

- The surveys were conducted over the course of 3 days at each respective development in June 2022 (Thursday 23rd, Friday 24th & Saturday 25th), with 72 hours of video data obtained per site to identify all delivery and servicing vehicle activity.

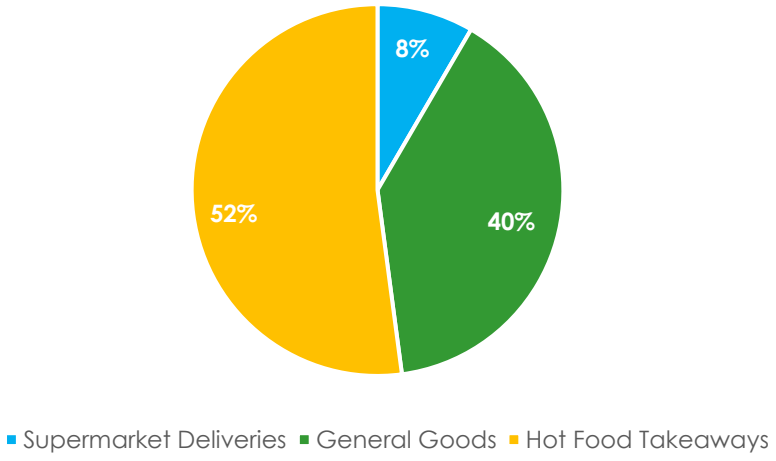
- The surveys represent a post-covid position when it is generally accepted that deliveries to home have increased as retail habits by households have changed over recent time. The observations have been compared with surveys contained within the TRICS database in order to establish a reasonable service trip generation for a range of residential developments.

- The surveys captured the trip purpose, vehicle size and type, frequency of visits, the freight operator, the duration of stay, the specific time of arrival / departure and the type of goods delivered.

Trip Purpose

- The surveys indicate the following types of deliveries carried out by freight operators:

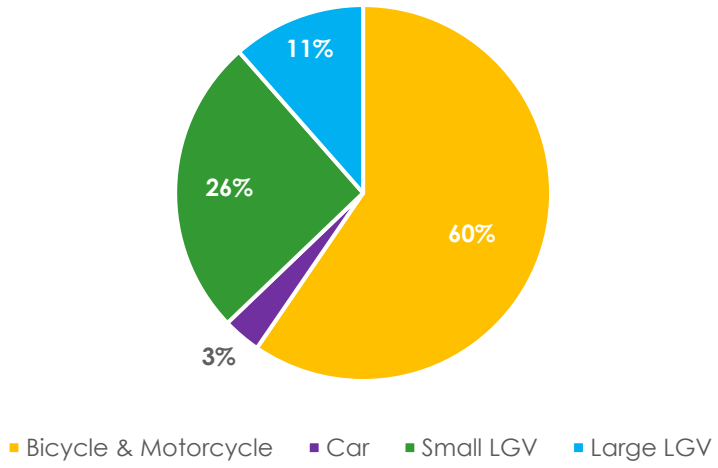
  52% - Hot food takeaways
  40% - General household goods
  8% - Supermarket goods



Delivery Vehicle Sizes

- The majority of recorded vehicles comprise bicycles, motorcycles and small light goods vehicles (LGVs). There were no heavy goods vehicles (HGVs) identified at either survey site for the duration of the 3 survey days. The types of vehicles utilised are summarised as follows:

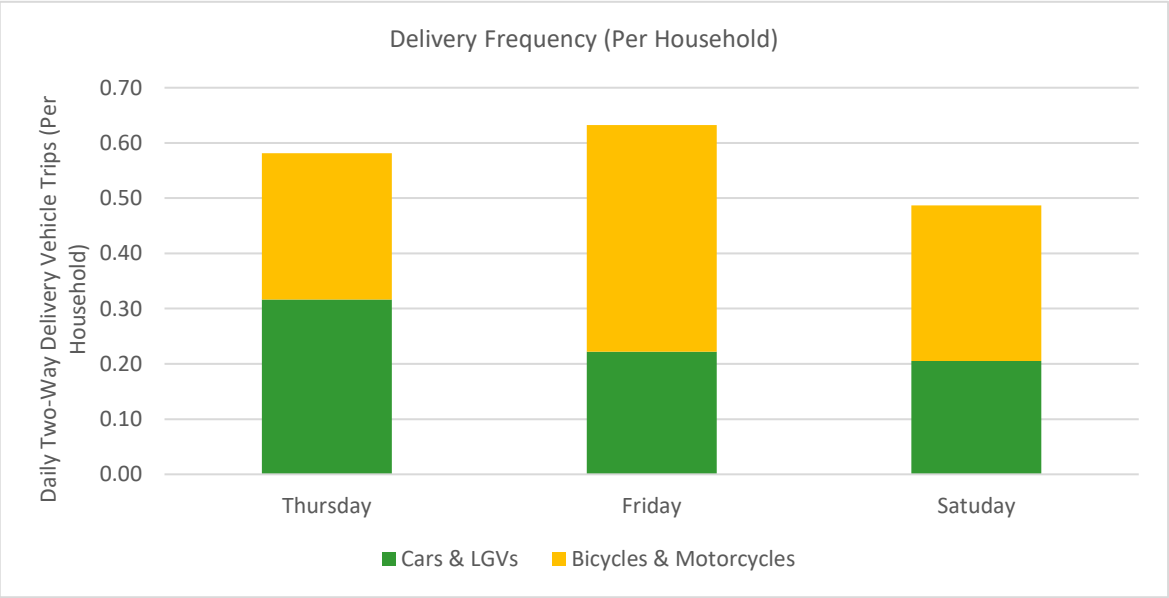
  60% - Bicycles & motorcycles
  3% - Cars
  26% - Small LGVs (light vans / transit vans / sprinter vans)
  11% - Large LGVs (7.5t box / panel vans)



Delivery Frequencies

- A daily peak of 0.63 two-way delivery vehicle trips was observed on Friday as an average across the 2 surveyed sites, when considering all delivery vehicle types (including goods delivered by bicycle / motorcycle). If discounting bicycles and motorcycles, a peak weekday trip rate of 0.32 two-way daily trips by car / LGVs is generated per household (i.e. 0.16 deliveries per unit per day). This proportion of trips reduces over the weekend to a peak of 0.21 two-way trips by car / LGV.

Survey Day	Daily Two-Way Trips (Cars & LGVs)	Daily Two-Way Trips (Bicycles / Motorcycles)	Daily Two-Way Trips (All Vehicles)
Thursday	0.32	0.26	0.58
Friday	0.22	0.41	0.63
Saturday	0.21	0.28	0.49
Weekday Average	0.270	0.335	0.605



- The above trip rates represent the average rate of daily deliveries generated by households within developments of between circa 80 and 160 dwellings, based on the surveys commissioned by RGP which observed developments of 100 and 134 dwellings, respectively.

Impact of Delivery Consolidation

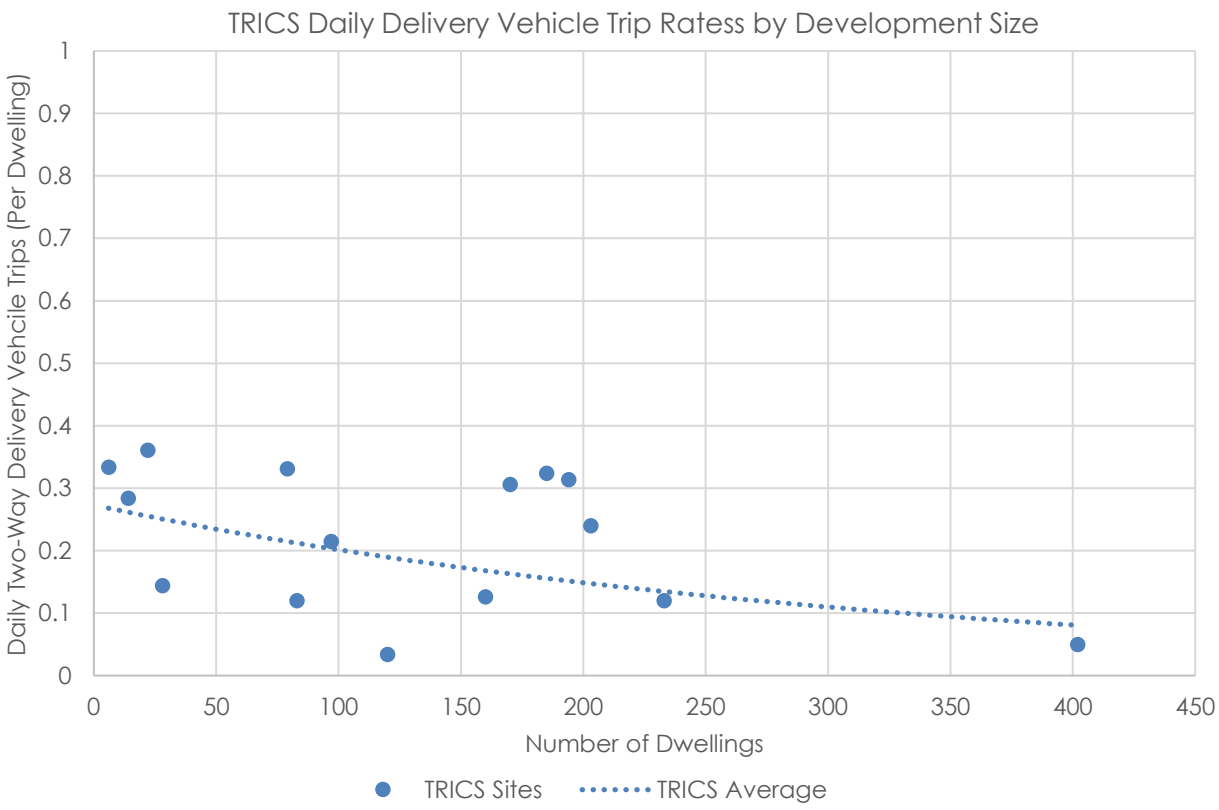
- Freight consolidation refers to the number of goods that con be delivered by a vehicle in a single trip to multiple residences located within a wider development or street, whilst 'linked trips' refers to the use of multiple stops along an optimised delivery route.

- Freight operators, including supermarkets and hot food delivery services, consolidate deliveries where possible to ensure the minimum number of delivery vehicles are dispatched to drop-off goods to as many households as possible on a single optimised delivery route. Separate vehicles dispatched to deliver an individual's goods is not undertaken by freight operators since it is not feasible from either a logistical or financial perspective, and as such freight operators schedule deliveries to similar addresses at similar times to maximise efficiency. Therefore, the larger the quantum of residential units on a development the lower the trip rate for deliveries as the effect of consolidation occurs.

- To determine the impact of delivery consolidation on the projected trip rates for developments of varied scale, RGP has reviewed detailed survey data obtained from 16 TRICS sites containing privately owned flats in London. These surveys were carried out from 2017 onwards and include detailed servicing vehicle counts, not including cyclists and/or motorcyclists.

- A consolidation factor is established for increases in total numbers of dwellings, as demonstrated by the best fit line for the TRICS data in the chart and table below reducing from a daily two-way trip rate of 0.28 per unit for small developments (10 units) to 0.08 per unit for larger developments (400+units).

- The trendline of trip rates derived from the sample of TRICS sites is summarised below, with the individual survey sites plotted on the graph below. A summary of trip rates corresponding to a variety of development sizes is provided in the following table, overleaf.

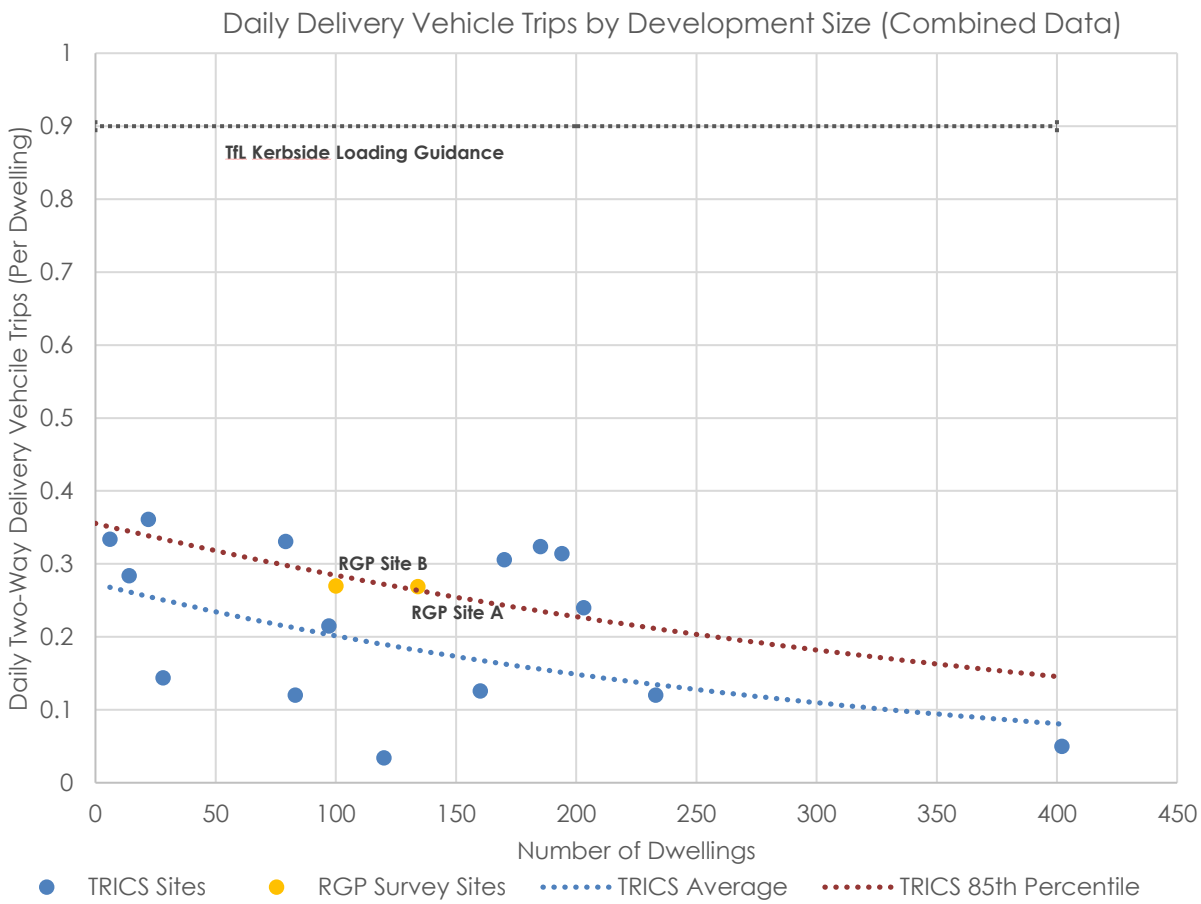


	Development Size (Number of Dwellings)									
	0-19	**20-39**	**40-59**	**60-79**	**80-99**	**100-119**	**120-139**	**140-159**	**160-179**	**180-199**
2-Way Daily Trips per Household (Typical Weekday)	0.27	0.26	0.24	0.22	0.21	0.19	0.18	0.18	0.17	0.16
	200-219	**220-239**	**240-259**	**260-279**	**280-299**	**300-319**	**320-339**	**340-359**	**360-379**	**380-400**
	0.15	0.14	0.13	0.12	0.11	0.11	0.1	0.1	0.09	0.08

Trip Rates

- The study sites surveyed on behalf of RGP generated slightly higher vehicle trip rates to that suggested by the best fit line from the TRICS data above (i.e. 0.270 for circa 100 units instead of 0.20 – TRICS). The RGP surveys were however reflective of a post-covid situation which is it generally accepted has resulted in increased household deliveries.

- Therefore, in order to obtain a usable daily trip-rate (cars/LGVs only) for a range of sizes of development the best fit line has been factored upwards to align with RGP's survey results. This allows for an element of robustness and represents the 85th percentile rate based on the TRICs database. These adjusted robust trip rates are illustrated on the chart below and summarised, based on approximate number of units, within the following table, also below.

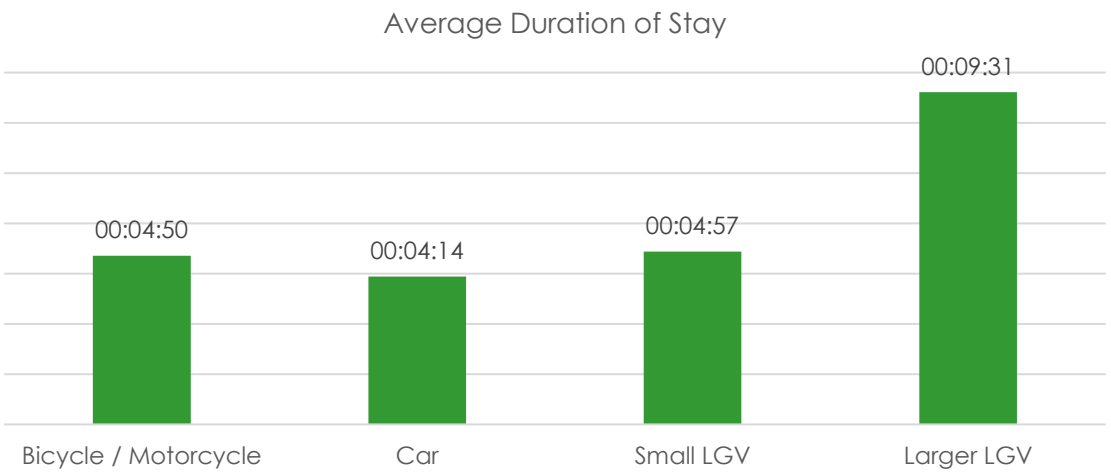


	Development Size (Number of Dwellings)									
	0-19	**20-39**	**40-59**	**60-79**	**80-99**	**100-119**	**120-139**	**140-159**	**160-179**	**180-199**
2-Way Daily Trips per Household (85th Percentile)	0.35	0.33	0.32	0.30	0.29	0.28	0.27	0.26	0.25	0.24
	200-219	**220-239**	**240-259**	**260-279**	**280-299**	**300-319**	**320-339**	**340-359**	**360-379**	**380-400**
	0.23	0.22	0.21	0.20	0.19	0.18	0.18	0.17	0.16	0.15

Duration of Stay

- The detailed surveys commissioned by RGP for this study identify the duration of stay for each recorded visit. The average duration of stay for each delivery vehicle size is summarised below:

  00:04:50 - Bicycles & motorcycles
  00:04:14 - Cars
  00:04:57 - Small LGVs (light vans / transit vans / sprinter vans)
  00:09:31 - Large LGVs (7.5t box / panel vans)



- It is important to note that the majority of deliveries by bike / motorcycle required less than 1 minute to complete, however, some riders remained on-site for up to 10 minutes, presumably waiting to receive a new pick-up instruction following the completion of the previous delivery.

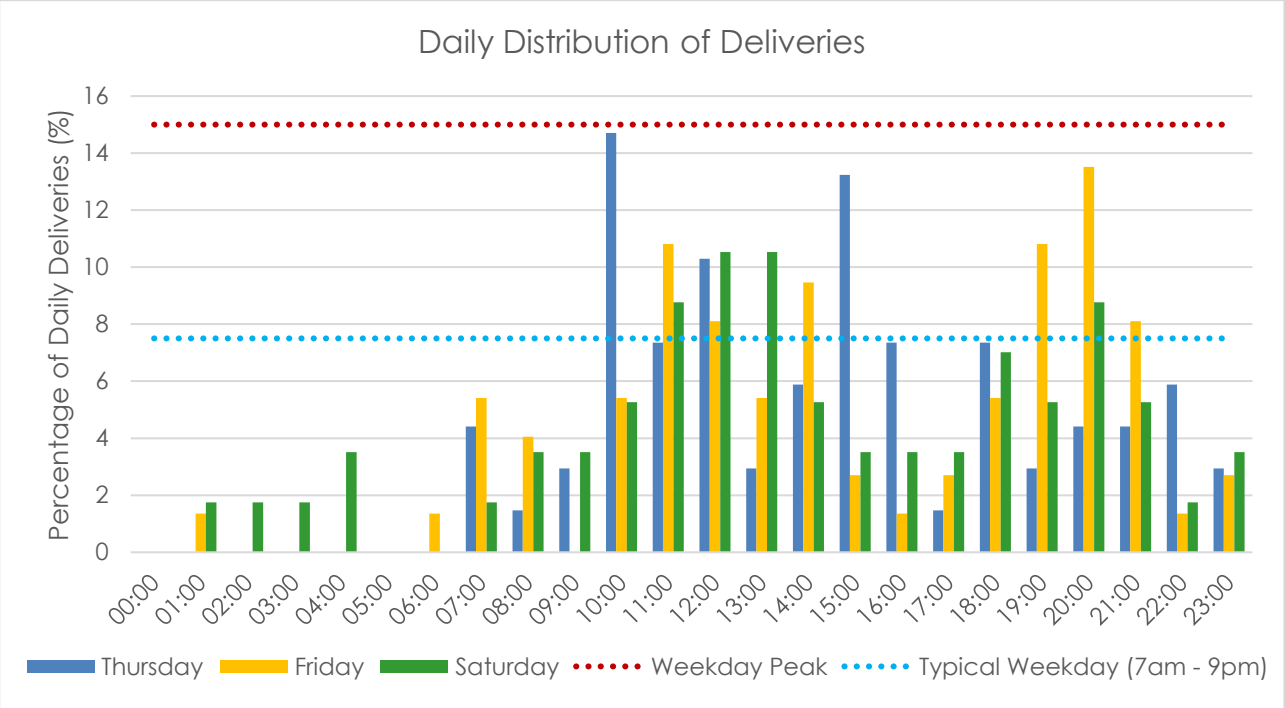
- For assessment purposes, it is considered robust to assume the following:

  i) **Cars and Small LGVs** would have an average duration of stay of **5 minutes**;

  ii) **Large LGVs** would have an average duration of stay of **10 minutes**.

Daily Distribution of Deliveries

- The distribution of deliveries across each surveyed day is as indicated in the chart below.



- The peak time of weekday deliveries is demonstrated to occur between 10:00 and 11:00 hours, during which time circa 15% of daily deliveries are undertaken. A second evening peak was observed on Friday evenings between 20:00 and 21:00 hours, associated with deliveries of hot food takeaways undertaken by bicycle and motorcycle.

- Weekend deliveries are more evenly distributed throughout the day, although still with identifiable peaks at 12:00 and 20:00 hours.

- Assuming that most deliveries occur during a typical daytime period of 14 hours (i.e. 07:00 hours to 21:00 hours) it is expected that a typical hourly demand from deliveries would be circa 7% – 7.5% of daily deliveries.

- For assessment purposes, it is considered reasonable to assume the following:

  i) The **peak hour**, in terms of deliveries at a development, is equivalent to **15%** of the daily number of deliveries;

  ii) The **typical weekday hour**, in terms of deliveries at a development, is equivalent to **7.5%** of the daily number of deliveries;

Implications of Study

- This study demonstrates that a fixed trip rate should not necessarily be applied when assessing the likely servicing requirements of individual households within varied development sizes. Trip rates should be established according to the trends associated with the impact of delivery consolidation.

- RGP has expanded on the traditional application of TRICS survey data by providing a 'sliding scale' of delivery vehicle trip rates depending on the quantum of housing with a given development. The effect of delivery consolidation significantly impacts the forecast frequency of deliveries to residential developments depending on the quantity of households.

- RGP has also validated the TRICS database surveys and uplifted the trip rates to reflect a post-covid scenario where households generally exhibit a greater quantum of deliveries then the pre-covid scenario.

- This study confirms that delivery frequencies established by TfL in the 'Kerbside Loading Guidance' document (4.5 weekly freight movements per household) are significantly overestimated, emphasising the household demand for goods, rather than the logistics of delivering goods and hence the impact of such vehicles on the highway or servicing area. The trip rate applied by TfL is considered to be unsuitable to use for the planning of new residential development of any scale.

- This study demonstrates that typical household deliveries are accommodated by small delivery vehicles, with the largest comprising a 7.5t panel or box van (Large LGV). Any loading bays provided for a residential development would therefore need to measure 8m in length to accommodate a box van. Although larger delivery bays would remain beneficial, they are not a necessity to accommodate typical household deliveries.

- This study allows an assessment of the likely occupancy rate for a service yard or delivery bay, based on reasonable survey data, for any size of residential development. The study therefore allows the level of servicing need to be established to inform the impact of the development or the size and scale of delivery bays needed.

APPENDIX D

Calculation Reference: AUDIT-728001-231205-1209

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

01	GREATER LONDON		
	BK	BARKING	1 days
	WF	WALTHAM FOREST	4 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:	22 to 44 (units:)
Range Selected by User:	20 to 150 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

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: 01/01/15 to 25/05/21

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	3 days
Thursday	1 days
Friday	1 days

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

Selected survey types:

Manual count	5 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	2
Suburban Area (PPS6 Out of Centre)	1
Neighbourhood Centre (PPS6 Local 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:

Residential Zone	3
No Sub Category	2

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

Inclusion of Servicing Vehicles Counts:

Servicing vehicles Included	2 days - Selected
Servicing vehicles Excluded	3 days - Selected

Secondary Filtering selection:

Use Class:

C3	5 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 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:

20,001 to 25,000	1 days
25,001 to 50,000	3 days
50,001 to 100,000	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	5 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	5 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	5 days

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

PTAL Rating:

1a (Low) Very poor	1 days
3 Moderate	1 days
4 Good	2 days
6a Excellent	1 days

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

Covid-19 Restrictions	Yes	At least one survey within the selected data set was undertaken at a time of Covid-19 restrictions

LIST OF SITES relevant to selection parameters

1 BK-03-C-01 BLOCKS OF FLATS BARKING
NORTH STREET
BARKING

Town Centre
No Sub Category
Total No of Dwellings: 40
Survey date: THURSDAY 10/09/20 Survey Type: MANUAL

2 WF-03-C-02 BLOCKS OF FLATS WALTHAM FOREST
GROSVENOR ROAD
WANSTEAD

Edge of Town Centre
Residential Zone
Total No of Dwellings: 28
Survey date: TUESDAY 25/05/21 Survey Type: MANUAL

3 WF-03-C-03 FLATS & TERRACED HOUSES WALTHAM FOREST
FOREST ROAD
WALTHAMSTOW

Neighbourhood Centre (PPS6 Local Centre)
No Sub Category
Total No of Dwellings: 22
Survey date: FRIDAY 21/05/21 Survey Type: MANUAL

4 WF-03-C-04 BLOCKS OF FLATS WALTHAM FOREST
GROSVENOR ROAD
WANSTEAD

Edge of Town Centre
Residential Zone
Total No of Dwellings: 42
Survey date: TUESDAY 25/05/21 Survey Type: MANUAL

5 WF-03-C-06 BLOCKS OF FLATS WALTHAM FOREST
BELGRAVE ROAD
WANSTEAD

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 44
Survey date: TUESDAY 25/05/21 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
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	2	32	0.000	2	32	0.000	2	32	0.000
07:00 - 08:00	5	35	0.011	5	35	0.125	5	35	0.136
08:00 - 09:00	5	35	0.068	5	35	0.153	5	35	0.221
09:00 - 10:00	5	35	0.097	5	35	0.091	5	35	0.188
10:00 - 11:00	5	35	0.097	5	35	0.114	5	35	0.211
11:00 - 12:00	5	35	0.119	5	35	0.074	5	35	0.193
12:00 - 13:00	5	35	0.068	5	35	0.091	5	35	0.159
13:00 - 14:00	5	35	0.068	5	35	0.102	5	35	0.170
14:00 - 15:00	5	35	0.068	5	35	0.114	5	35	0.182
15:00 - 16:00	5	35	0.142	5	35	0.085	5	35	0.227
16:00 - 17:00	5	35	0.108	5	35	0.097	5	35	0.205
17:00 - 18:00	5	35	0.119	5	35	0.057	5	35	0.176
18:00 - 19:00	5	35	0.091	5	35	0.063	5	35	0.153
19:00 - 20:00	5	35	0.080	5	35	0.045	5	35	0.125
20:00 - 21:00	5	35	0.057	5	35	0.034	5	35	0.091
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.193			1.244			2.437

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:	22 - 44 (units:)
Survey date date range:	01/01/15 - 25/05/21
Number of weekdays (Monday-Friday):	5
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
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	2	32	0.000	2	32	0.000	2	32	0.000
07:00 - 08:00	5	35	0.000	5	35	0.006	5	35	0.006
08:00 - 09:00	5	35	0.017	5	35	0.011	5	35	0.028
09:00 - 10:00	5	35	0.023	5	35	0.011	5	35	0.034
10:00 - 11:00	5	35	0.017	5	35	0.017	5	35	0.034
11:00 - 12:00	5	35	0.023	5	35	0.017	5	35	0.040
12:00 - 13:00	5	35	0.023	5	35	0.017	5	35	0.040
13:00 - 14:00	5	35	0.023	5	35	0.023	5	35	0.046
14:00 - 15:00	5	35	0.006	5	35	0.023	5	35	0.029
15:00 - 16:00	5	35	0.006	5	35	0.006	5	35	0.012
16:00 - 17:00	5	35	0.006	5	35	0.011	5	35	0.017
17:00 - 18:00	5	35	0.011	5	35	0.000	5	35	0.011
18:00 - 19:00	5	35	0.006	5	35	0.006	5	35	0.012
19:00 - 20:00	5	35	0.006	5	35	0.000	5	35	0.006
20:00 - 21:00	5	35	0.000	5	35	0.000	5	35	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.167			0.148			0.315

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

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

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