

Cycle Parking

- 6.5.3 The cycle parking provision per unit is provided in accordance with the 'Revised Parking Standards & Design' Supplementary Planning Document, which states that for a General & Specific Industrial use, a minimum of 1 space per 350sq.m of gross floor area should be provided for B2 Use Class. The proposed parking provision per Unit is set out in **Table 6.1**.

6.6 Servicing and Deliveries

- 6.6.1 It is proposed that all servicing and deliveries will occur within the service yards of each Unit for health and safety purposes. As such, service yards have been designed to accommodate the largest vehicle that is anticipated to require access to each unit, which is a 16.5m articulated HGV.
- 6.6.2 Vehicle swept path analysis using Autotrack has been undertaken to demonstrate that these vehicles can manoeuvre within each service yard onto the loading docks and leave the site in a forward gear. The associated tracking drawings are contained in **Appendix C**.

6.7 Refuse Collection

- 6.7.1 The refuse storage points are located within each service yard, as shown in the masterplan. Refuse vehicle swept path analysis using Autotrack has been undertaken to demonstrate that these vehicles can manoeuvre within each service yard and leave the site in a forward gear. The associated tracking drawings are contained in **Appendix D**.

6.8 Framework Travel Plan

- 6.8.1 The applicant recognises the importance of encouraging sustainable travel wherever is practical in respect of the operational nature of the site. This is not merely to accord with their responsibility to the welfare of future employees and the environment but also in managing the site efficiently and not creating excessive vehicle-based congestion.
- 6.8.2 Consequently, the use of the local sustainable travel opportunities described in **Section 4** will be encouraged as far as possible through the Framework Travel Plan (FTP) that has also been produced alongside this TA.
- 6.8.3 The primary aim of the Framework Travel Plan is to minimise single occupancy car travel being made by staff and visitors travelling to and from the development site.
- 6.8.4 The objectives of this Travel Plan are as follows:
- To promote and implement a range of physical measures that will encourage and support alternatives to single occupancy car use i.e. cycle parking and clear and convenient pedestrian connection from the site to the surrounding area;
 - To promote alternatives to driving using a range of applicable mediums;
 - To promote opportunities for collective travel habits, such as lift sharing; and
 - To set out a clear framework to development tenant specific Travel Plans (TPs) once they are known in the future as well as an approach for collection future travel survey information in order to monitor the tenant TPs.

7 Trip Generation

7.1 Introduction

- 7.1.1 This section of the report presents the estimated trip generation for the extant permission and for the two development options, which are B2 and B8 land uses. The trip rates presented in this section follows pre-application agreement with RBC highways officer, Darren Cook.

7.2 Trip Generation Methodology

Trip Rates

- 7.2.1 To estimate the multi-modal trip generation of the extant permission and two development options, the TRICS v7.6.1 database has been interrogated, which is in line with industry best practice. For each assessment, sites within the TRICS database have been selected based on attributes appropriate to the size, scale and location of the proposed development.
- 7.2.2 Due to historical age of the extant B1(a) planning permission, the TA that supported the planning application, which would have contained the trip generation, was not available to quote within this TA.
- 7.2.3 It was consequently agreed during the pre-application scoping with RBC referenced above that PBA would identify an appropriate B1(a) trip rate using the TRICS database so that a comparison of impact could be undertaken with the proposed development.
- 7.2.4 A full copy of the agreed TRICS outputs for extant B1(a) permission and the agreed trip rates for the proposed land uses have been included within **Appendix E**.

Modal Split

- 7.2.5 Once a person trip rate per 100sq.m has been established from TRICS, the Ordinary Goods Vehicle (OGV) trip rate has been subtracted from this and the remaining person trip rate is divided by the multimodal 2011 Census results of the surrounding area based upon the data associated with journeys to work.
- 7.2.6 This provides a trip rate for each potential form of travel that can be applied to the extant (B1(a)) and proposed (B2 and B8) development based upon the size of each scheme, which reflects the travel characteristics of the area.
- 7.2.7 The area within the 2011 Census that has been analysed to review the modal split from Journey to Work data is the Middle Super Output Area (MSOA) – E02003406: Reading 018. A plan of this area, is included in **Appendix F**. The modal split that has been applied to assessment of each land use is shown in **Table 7.1**.

Table 7.1: 2011 Census Journey to Work Data Modal Split

Mode of Transport	Census Percentage Mode Share (%)
Train	2.6%
Bus, Minibus or Coach ¹	6.5%
Taxi	0.2%
Motorcycle, Scooter or Moped ²	1.1%
Driving Car or Van	77.6%
Passenger in Car or Van	3.9%
Bicycle	3.3%
On Foot	4.8%

7.3 Extant Trip Generation – B1a Office

7.3.1 This section sets out the parameters that were used to define the agreed TRICS trip rates for the extant B1(a) office planning permission.

- Land Use: 02 - Employment
- Category: B – Business Park
- Regions: England (excluding Greater London)
- Parameter: Gross Floor Area
- Range: 20,000sq.m – 50,000sq.m
- Survey Days: Monday to Friday
- Area: Suburban Area & Edge of Town

7.3.2 The person trip rate excluding OGVs, and the OGV trip rate for the B1a Extant Permission application is presented in **Table 7.2**.

Table 7.2: Peak Hour Trip Rates (per 100sq.m) for B1a Extant Permission

	AM Peak (08:00-09:00)			PM Peak (17:00-18:00)		
	Arrivals	Departures	2-way	Arrivals	Departures	2-way
Person Trip Rates	1.717	0.202	1.919	0.165	1.330	1.495
OGV Trip Rates	0.014	0.019	0.033	0.003	0.004	0.007

7.3.3 The subsequent multi-modal trip generation for the 33,910sq.m B1a Extant Permission Application is demonstrated in **Table 7.3**.

¹ Underground, Metro, Light Rail or Tram' unlikely to be main mode of travel; therefore, % incorporated into 'Train' category

² Other Method of Travel to Work' % incorporated into 'Driving a Car or Van' category

Table 7.3: Peak Hour Trip Generation for B1a Extant Permission

	AM Peak (08:00-09:00)			PM Peak (17:00-18:00)		
	Arrivals	Departures	2-way	Arrivals	Departures	2-way
Train	15	2	17	1	12	13
Bus, Minibus or Coach	37	4	41	4	29	33
Taxi	1	0	1	0	1	1
Motorcycle, Scooter or Moped	6	1	7	1	5	6
Driving Car or Van	446	52	498	43	345	388
Passenger in Car or Van	22	3	25	2	17	19
Bicycle	19	2	21	2	15	17
On Foot	28	3	31	3	21	24
OGVs	5	6	11	1	1	2
Total	579	73	652	57	446	503

7.3.4 **Table 7.3** demonstrates that the B1(a) Extant Permission Application would generate a total of 652 two-way trips in AM peak hour, and 503 two-way trips in the PM peak hour.

7.3.5 498 two-way cars and 11 two-way OGVs are predicted to be generated in the AM peak hour, generating a total of 509 vehicle movements. In the PM peak hour, 388 two-way cars and 2 OGVs are predicted to be generated resulting in a total of 390 two-way vehicle movements.

7.4 Proposed Trip Generation - B2 General Industrial

7.4.1 This section sets out the parameters that have been used to define the agreed TRICS trip rates for the proposed B2 General Industrial estate land use.

- Land Use: 02 - Employment
- Category: D – Industrial Estate
- Regions: England (excluding Greater London)
- Parameter: Gross Floor Area
- Range: 10,000sq.m – 20,000sq.m
- Survey Days: Monday to Friday
- Area: Suburban Area & Edge of Town

7.4.2 The person trip rate excluding OGVs, and the OGV trip rate for the proposed B2 General Industrial consent is presented in **Table 7.4**.

Table 7.4: Peak Hour Trip Rates (per 100sq.m) for the Proposed B2 Land Use

	AM Peak (08:00-09:00)			PM Peak (17:00-18:00)		
	Arrivals	Departures	2-way	Arrivals	Departures	2-way
Person Trip Rates	0.286	0.073	0.359	0.047	0.248	0.295
OGV Trip Rates	0.017	0.006	0.023	0.000	0.006	0.006

- 7.4.3 The subsequent multi-modal trip generation for the proposed 15,045sq.m of B2 General Industrial is demonstrated in **Table 7.5**.

Table 7.5: Peak Hour Trip Rates (per 100sq.m) for the Proposed B2 Land Use

	AM Peak (08:00-09:00)			PM Peak (17:00-18:00)		
	Arrivals	Departures	2-way	Arrivals	Departures	2-way
Train	1	0	1	0	1	1
Bus, Minibus or Coach	3	1	4	0	2	2
Taxi	0	0	0	0	0	0
Motorcycle, Scooter or Moped	0	0	0	0	0	0
Driving Car or Van	33	9	42	6	29	35
Passenger in Car or Van	2	0	2	0	1	1
Bicycle	1	0	1	0	1	1
On Foot	2	1	3	0	2	2
OGVs	3	1	4	0	1	1
Total	45	12	57	6	38	43

- 7.4.4 **Table 7.5** demonstrates that the proposed B2 application would generate a total of 57 two-way trips in AM peak hour, and 43 two-way trips in the PM peak hour.
- 7.4.5 42 two-way cars and 4 two-way OGVs are predicted to be generated in the AM peak hour, generating a total of 45 vehicle movements. In the PM peak hour, 35 two-way cars and 1 OGV is predicted to be generated resulting a total of 36 two-way vehicle movements.

7.5 Proposed Trip Generation - B8 Warehousing

- 7.5.1 This section sets out the parameters that have been used to define the agreed TRICS trip rates for the proposed B8 Warehousing estate land use.

- Land Use: 02 - Employment
- Category: F – Warehousing (Commercial)
- Regions: England (excluding Greater London)
- Parameter: Gross Floor Area

- Range 2,000sq.m – 34,000sq.m
- Survey Days: Monday to Friday
- Area: Suburban Area & Edge of Town

7.5.2 The person trip rate excluding OGV's, and the OGV trip rate for the B8 warehousing application is presented in **Table 7.6**.

Table 7.6: Peak Hour Trip Rates (per 100sq.m) for B8

	AM Peak (08:00-09:00)			PM Peak (17:00-18:00)		
	Arrivals	Departures	2-way	Arrivals	Departures	2-way
Person Trip Rates	0.156	0.031	0.187	0.031	0.165	0.196
OGV Trip Rates	0.033	0.016	0.049	0.023	0.021	0.044

7.5.3 The subsequent multi-modal trip generation for the 15,045sq.m B8 warehousing is demonstrated in **Table 7.7**.

Table 7.7: Peak Hour Trip Rates (per 100sq.m) for the Proposed B8 Land Use

	AM Peak (08:00-09:00)			PM Peak (17:00-18:00)		
	Arrivals	Departures	2-way	Arrivals	Departures	2-way
Train	1	0	1	0	1	1
Bus, Minibus or Coach	2	0	2	0	2	2
Taxi	0	0	0	0	0	0
Motorcycle, Scooter or Moped	0	0	0	0	0	0
Driving Car or Van	18	4	22	4	19	23
Passenger in Car or Van	1	0	1	0	1	1
Bicycle	1	0	1	0	1	1
On Foot	1	0	1	0	1	1
OGVs	5	2	7	3	3	6
Total	29	7	36	7	28	35

7.5.4 **Table 7.7** demonstrates that the proposed B8 application would generate a total of 36 two-way trips in AM peak hour, and 36 two-way trips in the PM peak hour.

7.5.5 22 two-way cars and 7 two-way OGVs are predicted to be generated in the AM peak hour, generating a total of 29 vehicle movements. In the PM peak hour, 23 two-way cars and 6 OGVs are predicted to be generated resulting a total of 29 two-way vehicle movements.

7.6 Net Difference in Trip Generation

- 7.6.1 To compare the difference in multimodal trip that could be generated by the extant B1(a) planning and proposed B2 General Industrial land use **Table 7.8** presents the net difference for each mode of transport.

Table 7.8: Net Difference in Trips Between B1a Extant Permission and Proposed B2 Land Use

	AM Peak (08:00-09:00)			PM Peak (17:00-18:00)		
	Arrivals	Departures	2-way	Arrivals	Departures	2-way
Train	-14	-2	-16	-1	-11	-12
Bus, Minibus or Coach	-34	-3	-37	-4	-27	-31
Taxi	-1	0	-1	0	-1	-1
Motorcycle, Scooter or Moped	-6	-1	-7	-1	-5	-6
Driving Car or Van	-413	-43	-456	-37	-316	-353
Passenger in Car or Van	-20	-3	-23	-2	-16	-18
Bicycle	-18	-2	-20	-2	-14	-16
On Foot	-26	-2	-28	-3	-19	-22
OGVs	-2	-5	-7	-1	0	-1
Total	-534	-61	-595	-51	-408	-460

- 7.6.2 The net impact comparison above demonstrates that the proposed B2 land use would generate 595 fewer trips two-way in the AM peak period and 460 fewer two-way trips in the PM peak period when compared with the extant B1(a) office.
- 7.6.3 Of this total, the B2 land use would generate 413 fewer arrivals and 43 fewer departures in the AM peak periods, which is a combined reduction of 456 vehicles on the A33 between 08:00-09:00.
- 7.6.4 During the PM peak period the B2 land use would generate 37 fewer arrivals and 316 fewer departures, which is a combined reduction of 353 vehicles on the A33 between 17:00-18:00.
- 7.6.5 To compare the difference in multimodal trip that could be generated by the extant B1(a) planning and proposed B8 Warehousing land use **Table 7.9** presents the net difference for each mode of transport.

Table 7.9: Net Difference in Trips Between B1a Extant Permission and Proposed B8 Land Use

	AM Peak (08:00-09:00)			PM Peak (17:00-18:00)		
	Arrivals	Departures	2-way	Arrivals	Departures	2-way
Train	-14	-2	-16	-1	-11	-12
Bus, Minibus or Coach	-35	-4	-39	-4	-27	-31
Taxi	-1	0	-1	0	-1	-1
Motorcycle, Scooter or Moped	-6	-1	-7	-1	-5	-6
Driving Car or Van	-428	-48	-476	-39	-326	-365
Passenger in Car or Van	-21	-3	-24	-2	-16	-18
Bicycle	-18	-2	-20	-2	-14	-16
On Foot	-27	-3	-30	-3	-20	-23
OGVs	0	-4	-4	2	2	4
Total	-550	-66	-616	-50	-418	-468

7.6.6 The net impact comparison above demonstrates that the proposed B8 land use would generate 616 fewer two-way trips in the AM peak period and 468 fewer two-way trips in the PM peak period when compared with the extant B1(a) office.

7.6.7 Of this total, the B8 land use would generate 428 fewer arrivals and 48 fewer departures in the AM peak periods, which is a combined reduction of 476 vehicles on the A33 between 08:00-09:00.

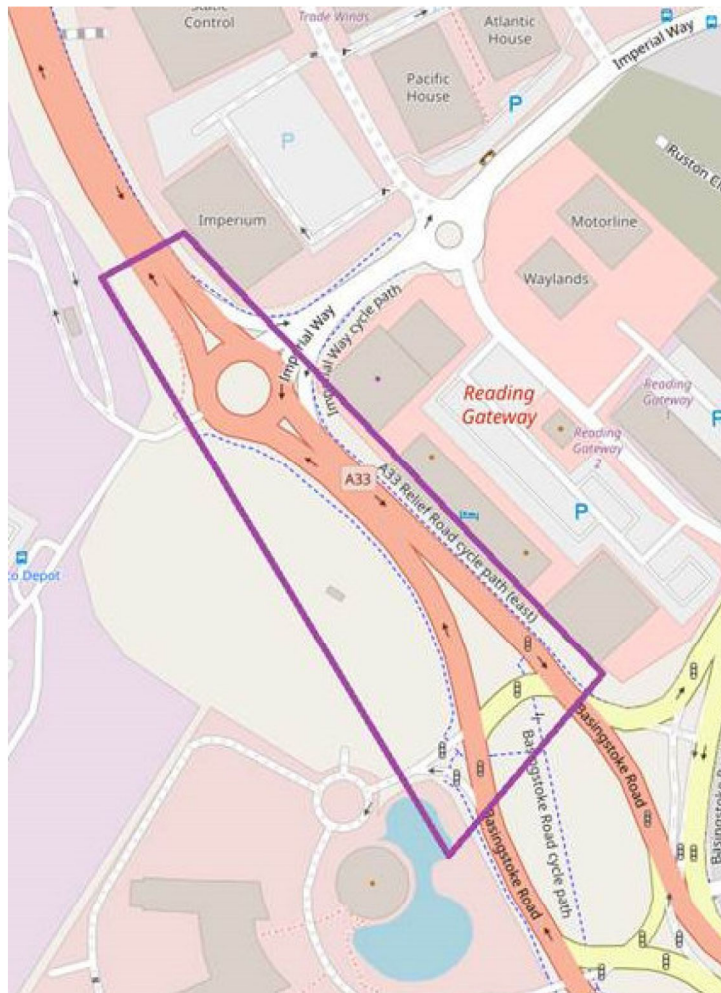
During the PM peak period the B8 land use would generate 39 fewer arrivals and 326 fewer departures, which is a combined reduction of 365 vehicles on the A33 between 17:00-18:00.

8 Impact Assessment

8.1 Introduction

- 8.1.1 This section of the report presents the highway impact of the extant development on the local highway network, were it to be built out in full and in accordance with the consented development. It also presents the highway assessment of the development proposals of both a B2 based scheme or a B8 based scheme as agreed with RBC.
- 8.1.2 The scope of junctions to be modelled was agreed with RBC in correspondence following the pre-application / transport scoping meeting on 8th April 2019 at RBC offices. The junctions that have been assessed are located on the A33 and are as follows:
- A33 / Imperial Way / Tesco Roundabout; and
 - A33 Little Lea Gyratory (Northern section only).
- 8.1.3 The scope of junction modelling area is shown in **Figure 8.1**.

Figure 8.1 Impact Assessment Area



8.2 Modelling Methodology

Software

- 8.2.1 The assessment of the A33 / Imperial Way / Tesco Roundabout has been modelled using Transport Research Laboratories (TRL) junction capacity program JUNCTIONS 9 (Version 9.0.2), ARCADY. The results of the impact assessment set out the Ratio of Flow to Capacity (RFC), queue lengths (Vehicles) and delays (seconds).
- 8.2.2 The A33 Little Lea Gyratory is a signal-controlled junction. It has therefore been modelled using LinSig (Version 3.2.40.0). The results of the impact assessment are set out the Degree of Saturation (DoS, measured in %), mean-maximum queues (Vehicles), and delay (seconds).

Validation

- 8.2.3 Both junctions have been modelled using four sets of input flows to create four scenarios for both the AM peak hour (08:00-09:00), and PM peak hour (17:00-18:00).
- 8.2.4 The geometries for both junctions have been measured using as-built drawings provided by RBC to obtain the most up-to-date junction layout.
- 8.2.5 For the A33 / Imperial Way / Tesco Roundabout, the junction has been modelled using a 'One Hour' traffic profile type to undertake a robust assessment of the roundabout.
- 8.2.6 For the Little Lea Gyratory, signal specification sheets were provided by RBC, including signal phases, stages, stage streams and inter-greens, which have been directly inputted into the model. The green times for each phase have been calculated by observing video footage of the junction recorded as part of the traffic surveys.

Baseline Traffic Flows

- 8.2.7 Traffic surveys undertaken Thursday 27th June 2019 have been used to create 2019 baseline scenario for the junction models. Traffic survey results were classified by vehicle type and have been converted to passenger car unit (PCU) for modelling purposes. Heavy good Vehicles (HGV) percentages have calculated for each junction have been inputted across all modelled scenarios.

Capacity Adjustments

- 8.2.8 Capacity adjustments were made to the A33 / Imperial Way / Tesco Roundabout to better reflect the operation of the junction as surveyed based on the video footage recorded during the June traffic surveys to better estimate the RFC of each arm. The below adjustments have been made in the AM and PM ARCADY models.
- **AM (08:00-09:00)** - Capacity of A33 (North) arm reduced by 20% to better reflect the intermittent queueing present in the footage and reflect the nearing to capacity.
 - **AM (08:00-09:00)** – Direct capacity adjustment was made to Tesco Access arm to allow vehicles to exit the arm. ARCADY presented an error where-by the RFC was estimated at 99999. This was likely due to the high flow between the A33 (South) to A33 (North) and the low level of flow to oppose this movement. Therefore, this adjustment was made to better reflect how traffic does exit the arm during the hour.

- **PM (17:00-18:00)** – Capacity of A33 (North) arm was increased by 25% to better reflect the level of queueing. The footage showed that similarly to the AM the queueing was intermittent and therefore the adjustment has been made to reduce the Queue and RFC.
- **PM (17:00-18:00)** – Capacity of A33 (South) arm was reduced by 20%. Conversely to the northern arm the queues were underestimated on this arm, therefore the adjustment has been made to better reflect the level of queueing.

8.3 Development Traffic Flows

8.3.1 To assess the impact of the proposed B2 and B8 land uses and compare these with the contested traffic generation for the B1(a) extant permission, three separate scenarios were modelled. These scenarios are as follows:

- 2019 + B1a (extant);
- 2019 + B2; and
- 2019 + B8.

8.4 Site Access Split of Development Trips

8.4.1 As part outlined in **Section 6**, the development will create four Units contain two vehicle accesses, with one leading from RIBP (serving Unit 1) via the A33 Little Lea Gyratory and the second leading from the Tesco arm from the A33 / Imperial Way / Tesco Roundabout (serving Units 2,3 and 4). These have been referred to as the Southern and Northern site access respectively. The development trips have subsequently been prorated based upon the GFA of each unit.

8.4.2 For the B1(a) extant scenario, a review of publicly available documentation regarding the previous application was undertaken to review the split of car parking spaces that were accessed by the Northern and Southern Access. This indicate there was a 97% to 3% split from the Northern and Southern Access respectively.

8.5 Highway Network Distribution

8.5.1 The distribution of vehicle trips generated by each development option has been assessed separately for Ordinary Goods Vehicles (OGV's) and all other vehicles.

8.5.2 OGV's generated by the development scenarios has been distributed on the A33 with a split of 20% north and 80% south, which is towards Junction 11 of the M4 motorway. The same distribution has been applied for both inbound and outbound trips across the AM and PM periods. This percentage split between North and South from the site has been agreed with RBC as part of the pre-application discussions and is consistent with recent B2 and B8 developments along the A33 corridor.

8.5.3 All other vehicles generated by the development scenarios have been distributed from the site between the North (to the A33), the East (to Whitley), and the South (towards Junction 11 of the M4 motorway) based upon the June 2019 traffic survey results at the A33 / Imperial Way / Tesco Roundabout. This methodology of vehicle distribution has also been agreed with RBC as part of pre-application discussions.

8.5.4 The inbound and outbound percentile distribution for the AM and PM peak periods (excluding HGVS distribution) are shown in **Figure 8.2** and **Figure 8.3** respectively with the network flow diagrams for the B1(a) extant permission and the two proposed B2 and B8 land uses provided within **Appendix G**.

Figure 8.2: AM Vehicle Distribution (Excluding OGVs)

AM Distribution Graph

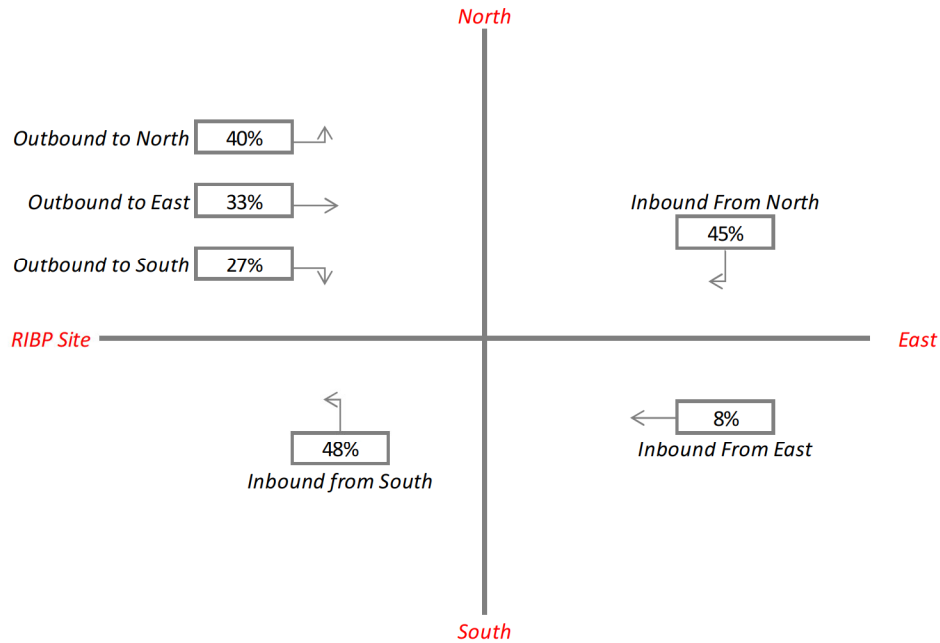
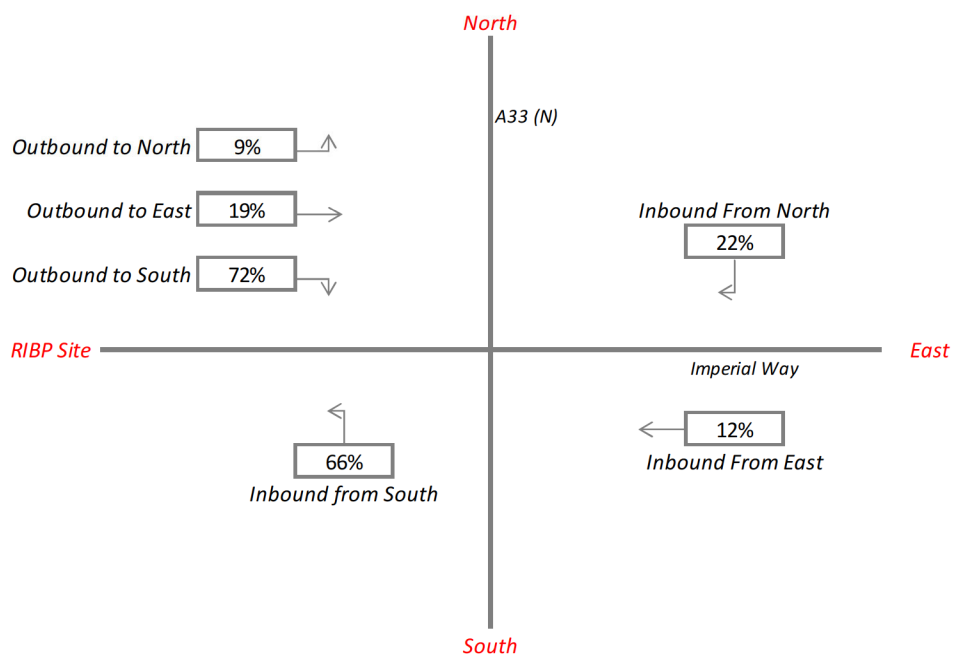


Figure 8.3: PM Vehicle Distribution (Excluding OGVs)

PM Distribution Graph



8.6 Turning Movements Comparison

- 8.6.1 The net difference in turning movements between the B1(a) extant permission and the two proposed B2 and B8 land uses provided within **Appendix H**.

Extant B1(a) Comparison with Proposed B2

- 8.6.2 Analysis of the net impact on the highway network reveals that based upon the proposed B2 land use, the A33 is predicted to experience 590 fewer two-way vehicle movements to the north of the A33 / Imperial Way / Tesco access roundabout in the AM peak period and 87 fewer two-way vehicle movements in the PM peak period than the extant B1(a) land use.
- 8.6.3 The A33 is also predicted to experience 404 fewer two-way vehicle movements to the south of the A33 / Imperial Way / Tesco access roundabout in the AM peak period and 275 fewer two-way vehicle movements in the PM peak period than the extant B1(a) land use.
- 8.6.4 The Little Lea Gyratory is predicted to experience 213 fewer vehicles in the AM peak period and 253 fewer vehicles in the PM peak period

Extant B1(a) Comparison with Proposed B8

- 8.6.5 Analysis of the net impact on the highway network reveals that based upon the proposed B8 land use, the A33 is predicted to experience 610 fewer two-way vehicle movements to the north of the A33 / Imperial Way / Tesco access roundabout in the AM peak period and 90 fewer two-way vehicle movements in the PM peak period than the extant B1(a) land use.
- 8.6.6 The A33 is also predicted to experience 418 fewer two-way vehicle movements to the south of the A33 / Imperial Way / Tesco access roundabout in the AM peak period and 283 fewer two-way vehicle movements in the PM peak period than the extant B1(a) land use.
- 8.6.7 The Little Lea Gyratory is predicted to experience 225 fewer vehicles in the AM peak period and 261 fewer vehicles in the PM peak period

8.7 Junction Modelling Results

A33 / Imperial Way / Tesco Access Roundabout

- 8.7.1 The results of the junction modelling for four scenarios for this junction are summarised in **Table 8.1**. The following colouring system has been applied to the Rate of Flow to Capacity (RFC) in the table:
- RFC less than 0.85 shown in green text;
 - RFC is between 0.85 and 1.00 are shown in orange text; and
 - RFC is greater than 1.00 is shown in red text.

Table 8.1: A33 / Imperial Way / Tesco Access Roundabout Results

Link	AM Peak Hour (08:00-09:00)			PM Peak Hour (17:00-18:00)		
	Queue	Delay	RFC	Queue	Delay	RFC
2019 Traffic Survey						
A33 (North)	4.9	13.92	0.83	8.3	13.45	0.90
Imperial Way	0.6	4.86	0.38	5.9	53.99	0.88
A33 (South)	10.6	14.52	0.92	6.3	11.11	0.86
Tesco Access	7.1	226.12	0.92	0.5	13.49	0.25
2019 + B1a (Extant)						
A33 (North)	12.2	30.57	0.94	51.1	72.46	1.03
Imperial Way	0.9	6.68	0.47	40.8	311.96	1.25
A33 (South)	352.7	427.07	1.24	7.5	12.79	0.89
Tesco Access	6.0	133.57	0.86	11.2	85.04	0.93
2019 + B2						
A33 (North)	5.3	14.87	0.84	9.0	14.70	0.91
Imperial Way	0.6	4.94	0.38	7.1	64.40	0.91
A33 (South)	13.1	17.90	0.94	6.5	11.43	0.87
Tesco Access	8.8	253.16	0.98	0.6	14.31	0.30
2019 + B8						
A33 (North)	5.1	14.45	0.84	8.8	14.30	0.90
Imperial Way	0.6	4.91	0.38	6.6	60.69	0.90
A33 (South)	11.9	16.34	0.93	6.4	11.32	0.86
Tesco Access	7.8	237.46	0.94	0.6	14.05	0.29

- 8.7.2 A full copy of the junction modelling results of the A33 / Imperial Way / Tesco Roundabout are enclosed within **Appendix H**.

AM (08:00-09:00) Results

- 8.7.3 In the AM peak period, the results indicate that when traffic generated by the B1(a) extant development is applied to the 2019 traffic flows, the RFC on the A33 arm (north) increase from 0.83 to 0.94 and the A33 arm (south) increase from 0.92 to 1.24. The Imperial Way arm also increases from an RFC of 0.38 to 0.47.

- 8.7.4 In the B1(a) extant scenario, the Tesco arm of the junction exhibits a small decrease in RFC; from 0.92 to 0.86. This is considered to be due to the large number of potential office based peak period turning movements into the Tesco arm from A33 arm (North) and Imperial Way, therefore creating more gaps in traffic for vehicles to exit the Tesco Access.
- 8.7.5 When the B2 land use scenario is applied to 2019 baseline the results indicate that the RFC on the A33 arm (north) is predicted to marginally increase from 0.83 to 0.84 and on the A33 arm (south) marginally increase from increase 0.92 to 0.94. the Imperial Way arm is not predicted to see an increase in RFC from the 0.38 baseline.
- 8.7.6 The Tesco Access arm is predicted to exhibit a small increase in RFC from 0.92 to 0.98. This is likely to be due to the significantly lower level vehicles turning into the Tesco Access arm from the A33 (North) and Imperial Way, thus resulting an insignificant increase in gaps in traffic for vehicles to exit the Tesco Access.
- 8.7.7 When the B8 land use scenario is applied to 2019 baseline the results indicate that the RFC on the A33 arm (north) is predicted to marginally increase from 0.83 to 0.84 and the A33 arm (south) is predicted to marginally increase from 0.92 to 0.93. The Imperial Way arm is not predicted to see an increase in RFC from the 0.38 baseline.
- 8.7.8 The Tesco Access arm is predicted to exhibit a small increase in RFC from 0.92 to 0.94. Like the B2 scenario, this is likely to be due to the predicted significantly lower level vehicles turning into the Tesco Access arm from the A33 (North) and Imperial Way, thus resulting an insignificant increase in gaps in traffic for vehicles to exit the Tesco Access.

PM (17:00-18:00) Results

- 8.7.9 In the PM peak period, the results indicate that when traffic generated by the B1(a) extant development is applied to the 2019 traffic flows, the RFC on the A33 arm (north) increase from 0.90 to 1.03 and the A33 arm (south) increase from 0.86 to 0.89. The Imperial Way arm also increases from an RFC of 0.88 to 1.25.
- 8.7.10 In the B1(a) extant scenario, the Tesco arm of the junction exhibits a large increase in RFC; from 0.25 to 0.93. This is due to the large number of potential outbound office vehicle trips and the relatively low number of inbound vehicle trips from the A33 arm (North) and Imperial Way.
- 8.7.11 When the B2 land use scenario is applied to 2019 baseline the results indicate that the RFC on the A33 arm (north) is predicted to marginally increase from 0.90 to 0.91 and the A33 arm (south) is predicted to marginally increase from 0.86 to 0.87. The Imperial Way arm is predicted to marginally increase from 0.88 to 0.91.
- 8.7.12 The Tesco Access arm is predicted to see a small increase in RFC from 0.25 to 0.30, which is due to the low number of potential outbound general industrial vehicle trips.
- 8.7.13 When the B8 land use scenario is applied to 2019 baseline the results indicate that the RFC on the A33 arm (north) is predicted to remain at 0.90 and the A33 arm (south) is predicted to remain at 0.860. The Imperial Way arm is predicted to marginally increase from 0.88 to 0.90.
- 8.7.14 The Tesco Access arm is predicted to see a small increase in RFC from 0.25 to 0.29, which is due to the low number of potential outbound warehouse-based vehicle trips.

Summary of ARCADY Results

- 8.7.1 The results of the junction modelling for the A33 / Imperial Way / Tesco Access in both the AM (08:00-09:00) and PM (17:00-18:00) reveal that when the traffic flows generated by the B1(a) extant development are applied to the 2019 baseline flows, significant increases in RFC are predicted with the A33 arm (south) and A33 arm north predicted to operate with RFCs of 1.24 in the AM and 1.03 in the PM respectively, which is beyond the operational capacity of the junction. In the PM peak period, this is coupled with the Imperial Way arm number also predicted to operate with an RFC of 1.25.
- 8.7.2 In comparison, when the proposed traffic flows generated by either the B2 or B8 scenarios are applied, the increases to the RFC's on the A33 and Imperial Way are between zero and 0.02 on each arm.

The results consequently indicate that both the B2 and B8 scenarios result in junction impact that is significantly lower than the extant B1(a) scenario and that both the B2 and B8 scenarios would result in the junction still operating within its operational capacity.

Little Lea Gyratory (Northern section)

- 8.7.3 The results of the junction modelling for four scenarios for this junction are summarised in **Table 8.1**. The following colouring system has been applied to the Degree of Saturation (DoS) in the table:
- DoS less than 90% shown in green text;
 - DoS is between 90% and 100% are shown in orange text; and
 - DoS is greater than 100% is shown in red text.
- 8.7.4 The results of the junction modelling for four scenarios for this junction are summarised in **Table 8.1**.

Table 8.2: Little Lea Gyratory Results

Link	AM Peak Hour (08:00-09:00)			PM Peak Hour (17:00-18:00)		
	Queue	Delay	DoS %	Queue	Delay	DoS %
2019 Traffic Survey						
Gyratory Arm (Northbound)	7.6	5.4	53%	7.0	8.1	43%
RIBP Arm	0.9	39.6	20%	6.0	45.2	63%
A33 (Southbound)	7.4	12.9	65%	14.4	12.7	84%
2019 + B1a (Extant)						
Gyratory Arm (Northbound)	8.6	5.8	57%	7.1	8.2	43%
RIBP Arm	0.9	39.7	20%	6.4	46.1	64%
A33 (Southbound)	7.5	13.0	65%	21.8	16.4	89%
2019 + B2						
Gyratory Arm (Northbound)	6.9	5.4	52%	7.0	8.1	43%
RIBP Arm	0.9	39.8	21%	6.3	45.7	65%
A33 (Southbound)	7.4	12.9	65%	14.9	12.9	84%
2019 + B8						
Gyratory Arm (Northbound)	6.9	5.4	52%	7.0	8.1	43%
RIBP Arm	0.9	39.6	20%	6.2	45.6	64%
A33 (Southbound)	7.4	12.9	65%	14.9	12.9	84%

*RIBP = Reading International Business Park

- 8.7.5 A full copy of the junction modelling results of the Little Lea Gyratory produced by LinSig is enclosed within **Appendix I**.

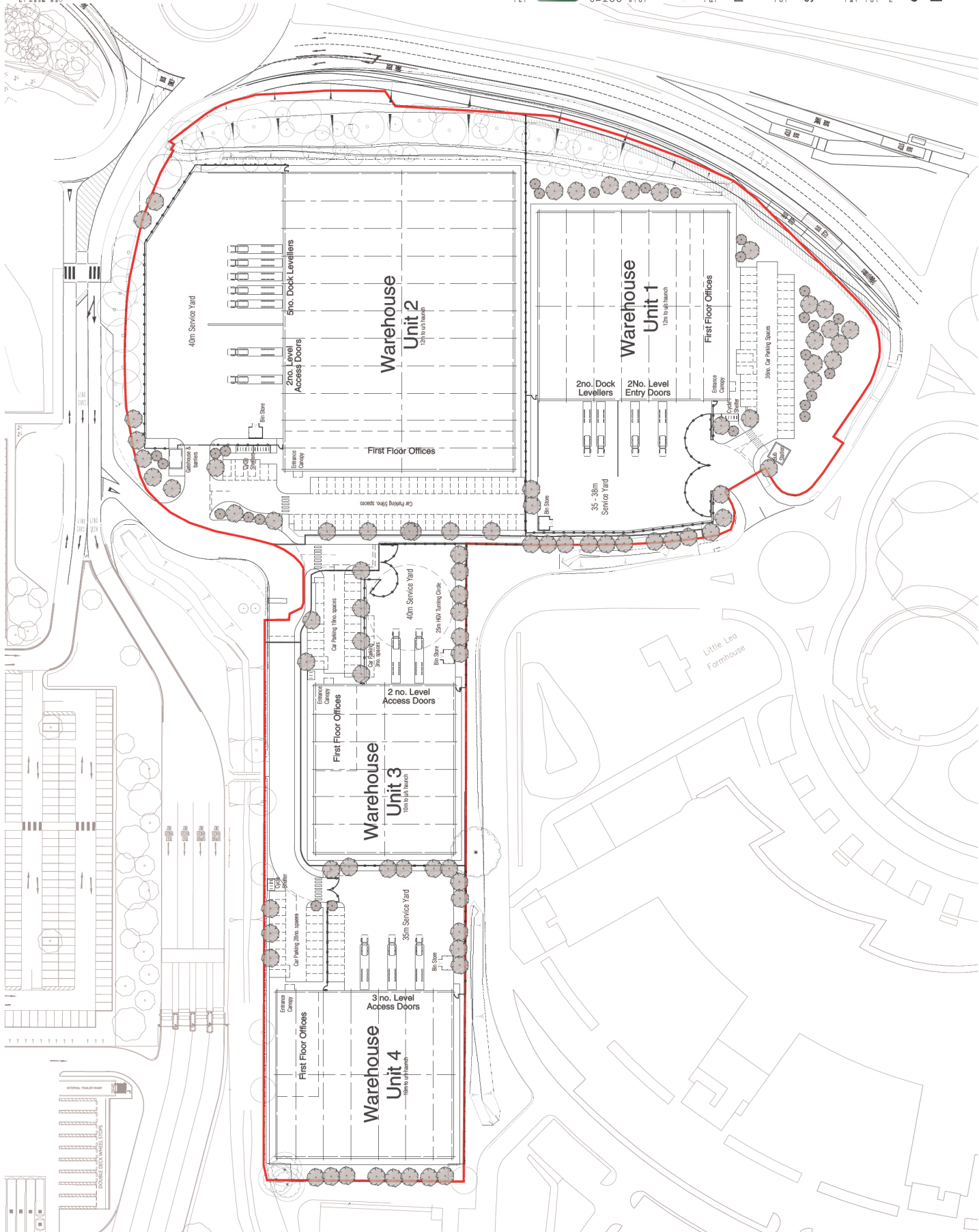
Summary of LinSig Results

- 8.7.6 In both the AM and PM peak hours, the results of the junction modelling indicate that all three entry arms of the gyratory each exhibits a level of spare capacity in the four modelling scenarios, demonstrating the current junction operates within capacity.
- 8.7.7 When the B1(a) extant development vehicle trips are added to the junction, a minor increase in DoS is visible for the on the northbound gyratory arm in the AM peak hour, and an increase to the A33 southbound.
- 8.7.8 When compared to the impact on the DoS of each arm when either the B2 General Industrial or B8 Warehousing flows are added to the network, there is little to no increase across all three of the entry arms to the junction.

9 Summary and Conclusions

- 9.1.1 The TA has been produced to support an application seeking full planning consent for the creation for 15,045sq.m GIA of B2 or B8, together with associated parking.
- 9.1.2 The proposals will use two existing vehicle accesses to serve the 4 proposed units with 1 unit being served directly from an existing arm of a roundabout within the RIBP and 3 units served via an existing access road that links to a road that serves a Tesco distribution centre via the A33 / Imperial Way roundabout.
- 9.1.3 The trip rates and vehicle distribution were agreed with RBC during the pre-application scoping process, as too was the level of junction impact assessment in the form of the A33 / Imperial Way / Tesco Access roundabout and the northern section of the A33 Little Lea Gyratory.
- 9.1.4 The proposed layouts have been designed to accommodate all anticipated vehicles associated with B2 and B8 land uses with each service yard tested using Autotrack software and the characteristics of a 16.5m articulated HGV.
- 9.1.5 The aim of the car provision is to fundamentally manage the risk for possible overspill during different shift changes and to avoid on-street parking congestion when departing workers from one shift are still on site and different shift workers arrive. The car parking provision has been considered in the context of the potential 24-hour nature of the operation on the site while also staying within the maximum standards set out in RBC's 'Revised Parking Standards & Design' Supplementary Planning Document for B2 Land Use for a General & Specific Industrial use.
- 9.1.6 A supporting Framework Travel Plan has been produced that sets out the principles for future tenant Travel Plans, which will promote sustainable travel and aim to minimise single occupancy car journeys by staff and visitors where possible.
- 9.1.7 This TA has described the transport characteristics of the proposed redevelopment's gross highway impact and multimodal trip generation as well as presenting a net impact comparison with the B1(a) extant consent.
- 9.1.8 The TA has demonstrated through a multimodal assessment of person and vehicle trip generation that the proposals will generate significantly lower levels of trips than would otherwise be generated by the extant development on the site with the mode notable highway being the A33 where .
- 9.1.9 This has demonstrated that in both the AM (08:00-09:00) and PM (17:00-18:00) peak periods, the A33 / Imperial Way / Tesco access roundabout will continue to operate within capacity, unlike the permitted B1(a) land use, which has been demonstrated to potentially operate over capacity if fully built out based upon it's existing planning consent.
- 9.1.10 It is therefore concluded that the findings set out in this TA and the provision of the proposals that the development should be considered acceptable in highway and transport terms for the purpose of the accompanying planning application.

Appendix A Site Masterplan



Schedule of Areas (GIA):

Warehouse Unit 1:	32,141 sq ft	2,986 sqm
First Floor Offices:	6,610 sq ft	609 sqm
Car Parking:	2,341 sq ft	218 sqm
Site Area:	2.34 acres	-0.95 hectares
Warehouse Unit 2:	61,570 sq ft	5,729 sqm
First Floor Offices:	17,000 sq ft	1,581 sqm
Car Parking:	6,717 sq ft	624 sqm
Site Area:	3.53 acres	-1.43 hectares
Warehouse Unit 3:	21,000 sq ft	1,951 sqm
First Floor Offices:	24,150 sq ft	2,244 sqm
Car Parking:	22 spaces	
Site Area:	1.06 acres	-0.43 hectares
Warehouse Unit 4:	26,318 sq ft	2,445 sqm
First Floor Offices:	30,080 sq ft	2,793 sqm
Car Parking:	28 spaces	
Site Area:	1.50 acres	-0.61 hectares
Estate Road:	0.08 acres	-0.03 hectares
Total Development Area:	161,039 sq ft	15,045 sqm
Total Site Area (Rd. Inv):	6.53 acres	-3.46 hectares

NO. DATE REVISION BY



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PROJECT

Reading International

DRAWING

Site Layout Plan

SCALE 1:500 @ A1

DATE 27.05.19

NO

6204 - 80

Planning

Appendix B Personal Injury Collision Data