NRB consulting engineers

Transportation Assessment Report

Incl. Independent Stage 1 Road Safety Audit

(Appendix F)

For

Distribution Warehousing

At

[redacted],

Ballydowd, Lucan,

Co Dublin.

SUBMISSION ISSUE

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EXECUTIVE SUMMARY

NRB Consulting Engineers Ltd were appointed to address the Traffic/Transportation issues associated with a planning application for a commercial warehouse unit at [redacted] Ballyboughal, Lucan Co Dublin – on lands suitably zoned for this purpose.

This Transportation Assessment (TA) has been prepared to address any Traffic/Transportation issues associated with the proposal, and specifically the capacity of the existing road network to accommodate the vehicular traffic associated with the proposed development. The proposed use is a very low generator of traffic movements.

The TTA Report itself has been prepared in accordance with TII's Traffic & Transportation Assessment Guidelines and addresses the traffic impact of the proposal. The assessment is based on weekday AM & PM Peak classified traffic interval movement surveys of the adjacent road network carried out prior to the Covid-19 Pandemic emergency measures. This extensive traffic survey data, undertaken by specialist 3rd party data collection company, forms the basis for this study.

The assessment confirms that the operation of the proposed development and the established existing traffic combined will have an unnoticeable impact upon the operation of the adjacent road network.

We have chosen a year of opening/completion of 2025, and an associated design year of 2040 (15 years following opening) consistent with the TII Guidelines.

Capacity assessment using TII Approved software has been undertaken where the expected traffic increases are forecast to be in excess of TII Threshold Levels, consistent with the Guidelines, for the selected opening & design year. The comprehensive capacity analysis of the Site Access Junction and the off-site junctions confirms that more than adequate capacity exists to accommodate the development.

Based on our studies, we conclude that there are no traffic capacity or operational issues associated with the proposed development that would prevent planning permission being granted by South Dublin County Council.

1.0 INTRODUCTION

1.1 This Transportation Assessment (TA) has been prepared by NRB Consulting Engineers Ltd and addresses the Traffic & Transportation issues arising from the planning application for a commercial warehouse unit on ~~the established site of the Foxhunter Public House & Restaurant,~~ 47 BALLYDOWD Lucan Co Dublin – on lands suitably zoned for this purpose.

1.2 A site location plan for the site is included below as ***Figure 1.1***.

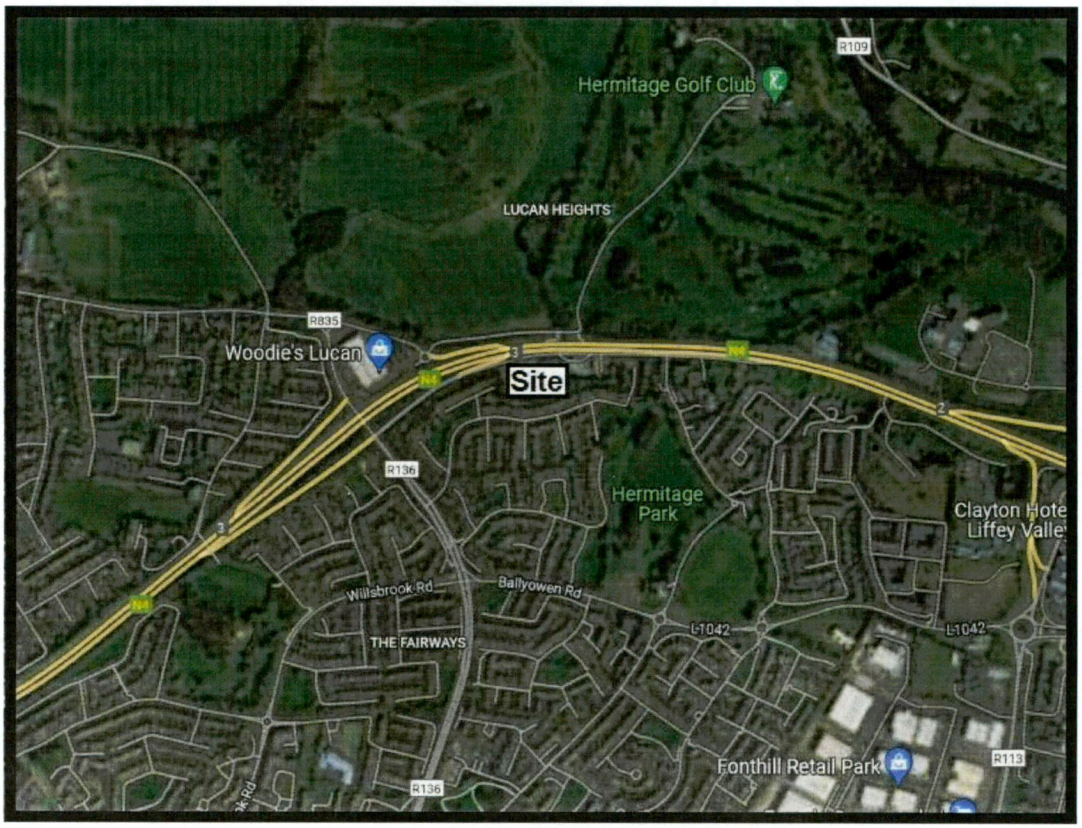

Figure 1.1 - Site Location

1.3 In describing the Receiving Environment and the Proposed Future Environment, it is considered that the following issues should be borne in mind when determining the detail and impact of the proposed development:

- Scale of the development in the context of the local roads – being conscious that the use is consistent with the zoning, and it generates very low volumes of traffic,
- The fact that the site access is from the adjacent 50km/h service road and is not directly from the N4 or the N4 Junction #3 Off-Slip,
- The 'already-established' nature of the development & vehicular access,
- Demonstrably low Traffic & Transportation impact as contained herein,

- Capacity of the established vehicular access arrangement to accommodate the worst-case development traffic flows associated with full operation of the subject application (and the existing traffic combined),
- Capacity of the Existing Road Network,
- Adequacy and safety of the existing roads and junctions locally, within the area of influence,
- Impact upon the adjacent important junctions within the area of influence.

1.4 A review of the Road Safety Authority (RSA) online collision database indicates that there are no significant accidents or clusters of accidents on the stretch of the adjacent service road which serves the site, underscoring the historic safety of the layout.

1.5 An extract from the RSA on-line collisions record is included below as ***Figure 1.2***.

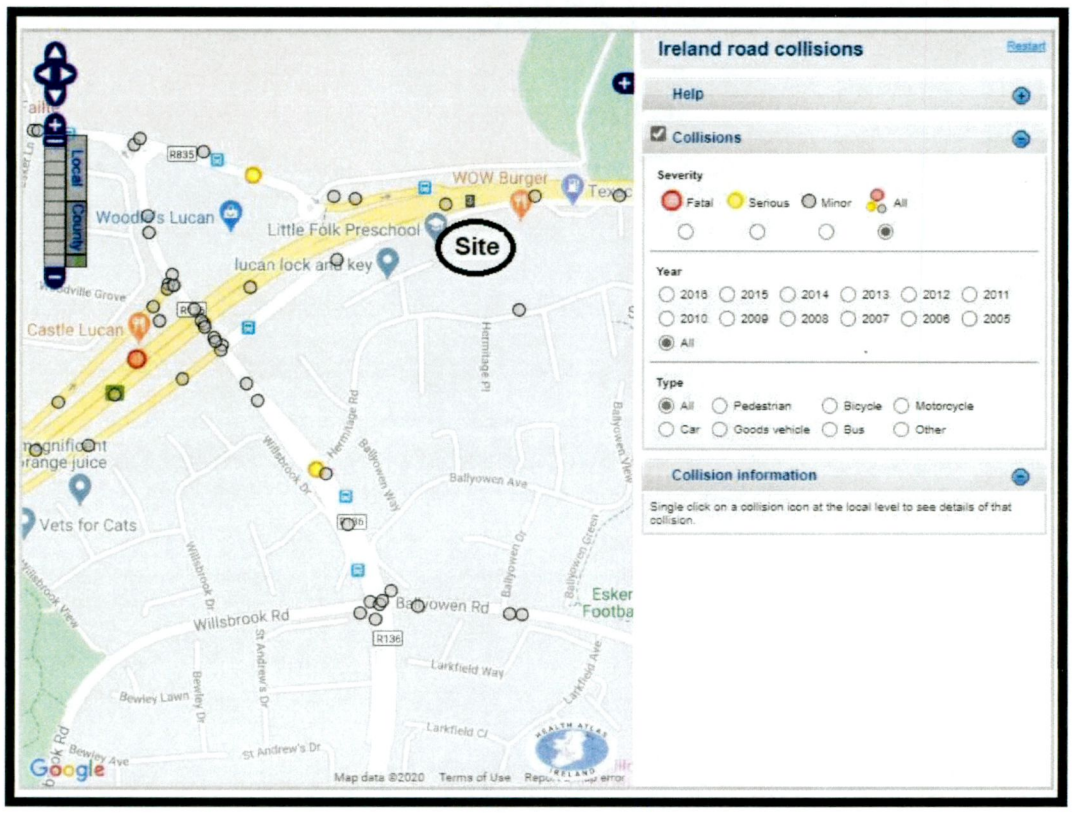

Figure 1.2 - RSA On Line Record of Traffic Collisions

1.6 The Recommendations contained within this Transportation Assessment are based on the following sources of information and industry-standard practices:

- TII Traffic & Transport Assessment Guidelines,
- Licensed TRICS Database Software,

- Design Manual for Urban Roads and Streets/DMRB Design Guidance,
- TII Design Standards,
- Recent Pre-Covid Pandemic Traffic Survey Data commissioned,
- Previous Transportation Assessment Reports within the local area of influence prepared by NRB Consulting Engineers Ltd.,
- Our experience in assessing the impact of Developments of this Nature, and
- Site Visits and Observations.

1.7 The Report has been prepared in accordance with the requirements of the TII's Traffic & Transport Assessment Guidelines. These are the professional Guidelines used to assess the impact of developments on public roads.

2.0 DEVELOPMENT PROPOSALS & EXISTING CONDITIONS

Development Proposals

2.1 The proposed development consists of the construction of a warehousing unit with a total Gross Floor Area (GFA) of 3,174m^2 including internal associated ancillary offices & canteen, which are ancillary to the proposed uses. The proposal includes 20 no. car parking spaces, 16 no. bicycle spaces, ESB substation, new internal vehicle circulation layout, landscaping, and all associated site works.

2.2 The development will be on waste ground and on land used at present for car parking for the public house, with said parking to be relocated to the rear of the pub. Vehicular exit from the public house will be reordered around the new warehouse building and pedestrian access from Hermitage Gardens will be provided to provide access to the pub along the re-ordered access. The vehicular access arrangement is being amended to further improve traffic safety, in light of the Stage 1 Independent Road Safety Audit process.

2.3 Vehicular Access to the entirety of the development is via the established access from the parallel service road adjacent the N4. The eastern access junction is configured as entry-only, with the western access point intended as being exit only. The existing long established vehicular exit onto the N4 Off-Slip at the merge point, is proposed to be relocated eastwards to a safer more appropriate point within the 50km/h section of the service road.

2.4 The location and design of the accesses have been carefully considered in light of the proximity to the N4 Off-Slip Merge Taper and also the adjacent N4 infrastructure and gantry, taking care of course to ensure that the development traffic joins the public roads within the restricted 50km/h urban speed limit, and out-with the N4 merge taper. This alteration to the access arrangement represents a significant improvement in design and traffic safety terms.

Existing Conditions

2.5 The site is currently accessed directly from the separate service road which runs parallel to the N4. The site has a dedicated vehicular access to the east which is illustrated in the Google-Streetview image included below as ***Figure 2.1***.

Figure 2.1 – Existing Eastern Vehicular Access to Service Road

2.6 The western existing access to the site consists of an exit-only directly onto the N4 off-slip at point of vehicular merge for traffic exiting the N4 and traffic on the service road. This is illustrated on the Google-Streetview image included below as ***Figure 2.2.***

Figure 2.2 – Existing Exit at the N4/Service Road Merge Point (to be amended)

2.7 It is proposed to move this established permitted exit further east to a safer more appropriate design location, to a point within the 50km/h service road, as illustrated in ***Figure 2.3*** below.

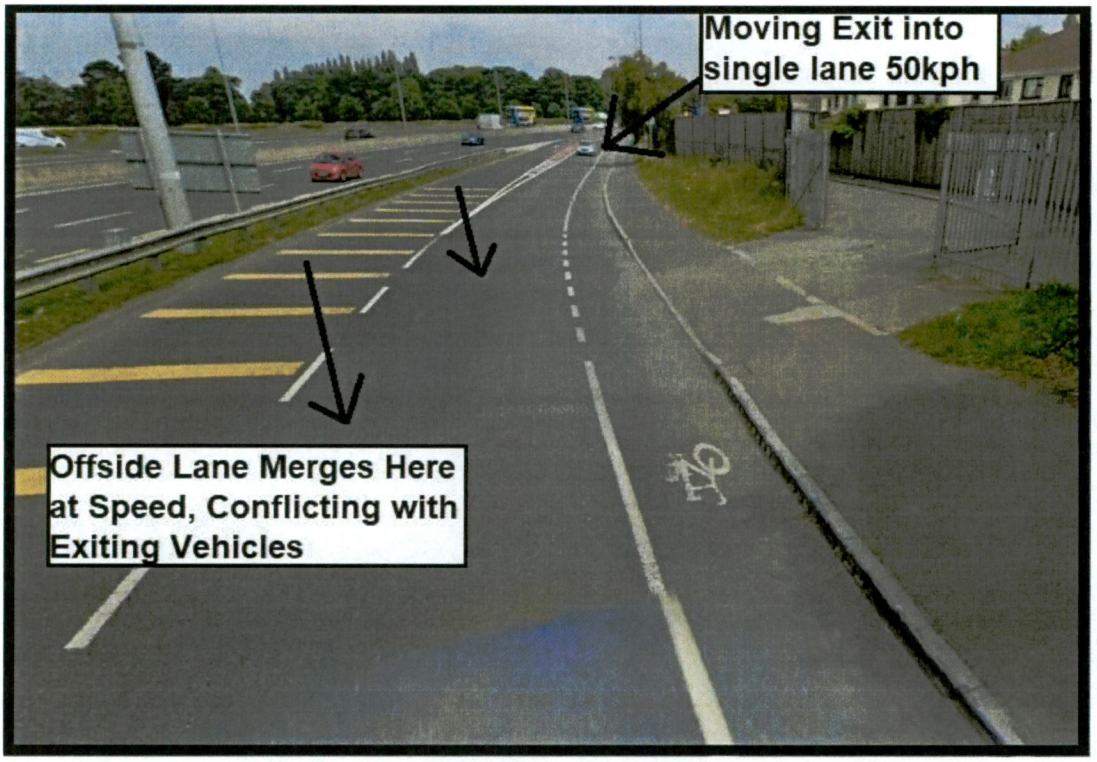

Figure 2.3 – Relocation of Established Exit Eastwards to Service Road

2.8 The service road onto which vehicular access is to be taken is subject to a 50km/h urban speed restriction, and this road serves as local access to residential and commercial premises, avoiding impact upon the N4 National Road. The service road carries a weekday AM Peak Hour flow of 476 Passenger Car Units (PCUs or car-equivalents), and a weekday PM Peak Hour traffic flow of 460 PCUs measured immediately at the Site.

2.9 To set these existing traffic flows in context, as a single carriageway one-way road, the service road would typically have a Link Capacity of between 1,600 and 1,800 PCUs per-hour. So, in terms of free flow link capacity, it is demonstrably lightly-moderately trafficked.

2.10 However, it is accepted that the capacity of any urban road is typically determined by the capacity of terminal junctions along its length, and this is applicable in this case as the service road merges with the N4 off-slip and the grade separated junction at Junction #3.

2.11 Whilst the site is accessed onto a one-way 50km/h section of long-established service road, the proximity & access to the adjacent grade separated Junction #3 of the N4 provides for high network permeability and accessibility for development related traffic. A google image extract showing the western bound approach to the elevated junction is included below as ***Figure 2.4.***

Figure 2.4 – Service Road/Slip Road Westbound Approach to Junction #3

2.12 A site layout plan showing the proposed development arrangement in terms of the established & proposed site in the context of the existing roads is included herein as ***Appendix A***.

2.13 The extent of traffic surveys undertaken on the local road network to allow this and previous Transportation Assessment studies to be undertaken is as set out below as ***Figure 2.5.***

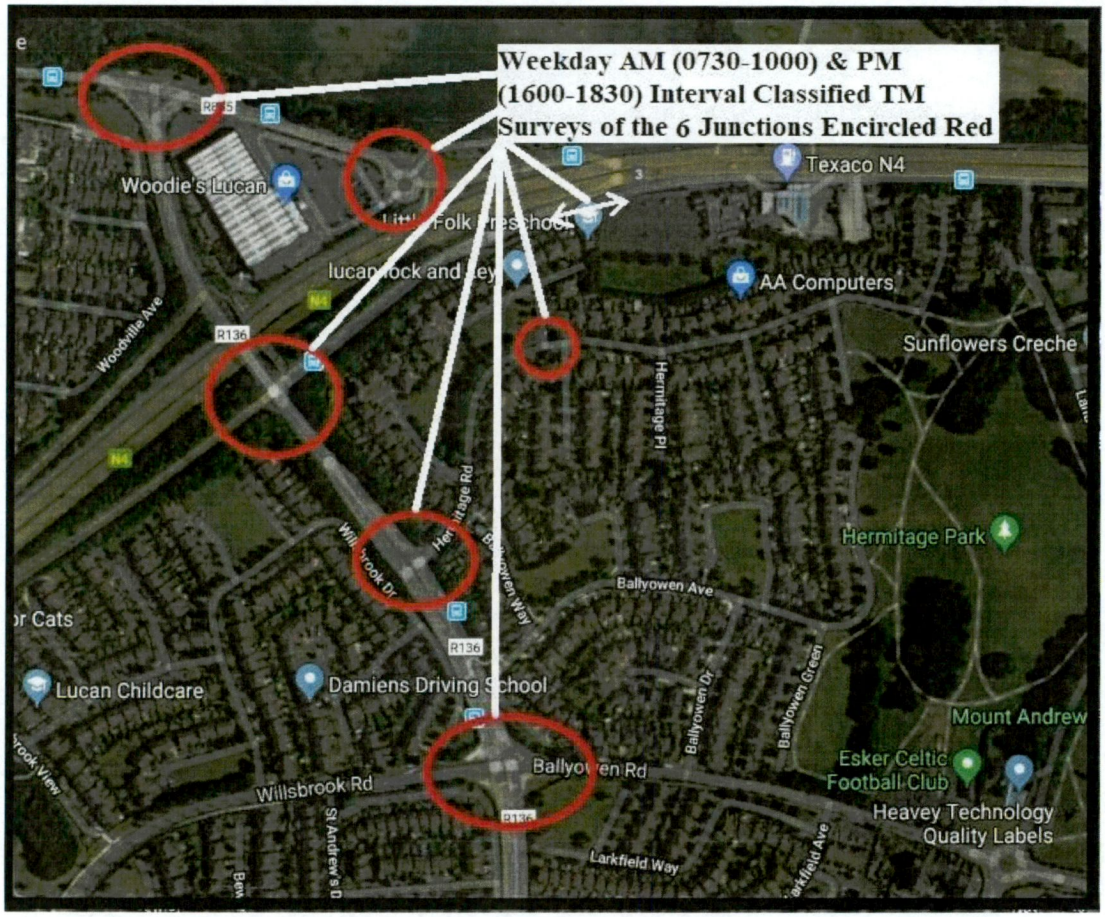

Figure 2.5 – Pre-Covid Pandemic Traffic Surveys Undertaken for Purposes of TA

3.0 TRIP GENERATION, ASSIGNMENT & DISTRIBUTION

3.1 The Trip Rate Information Computer System (TRICS) database is ordinarily used to ascertain vehicular trip generation associated with the use of any particular site. This represents industry standard practice for Transportation Assessments in Ireland, and the use of TRICS is recommended in, and referenced by, the TII Guidelines. In this case, we have utilised TRICS to calculate the Traffic Generated by the proposed development.

3.2 Using TRICS, we have assessed the entire scheme under the selection parameters of both 'Warehousing' & 'Industrial Estates/Parks'. This exercise established that the use of 'Warehousing' generated higher volumes of traffic in PCU terms, and we have therefore used warehousing for robustness. Details of the TRICS assessment are included within the calculations included within ***Appendix D***.

3.3 A robust and onerous assessment has been undertaken of the impact on the adjacent local network and in particular upon key junctions leading to the N4 and the national road network. The extent of study and survey has been undertaken in order to ensure that we thoroughly assess the impact, in terms of stress testing the access junction and the road capacity impact of the scheme.

3.4 The impact should be considered in the context of the low levels of traffic generated by the now-proposed use when compared with more commuter peak hour intensive uses that would likely have a marked effect upon traffic conditions.

3.5 The TRICS data output is included herein as ***Appendix C***. The resulting Trip Rates applied for development proposed is as summarised as ***Table 3.1*** below

Table 3.1: Traffic Generated by Subject Warehousing Unit (Reference TRICS)

TOTAL VEHICLES					
3,200 m2 GFA	Arrivals (PCUs)		Departures (PCUs)		Total 2-Way Traffic Generated
Warehouse	per 100	Dev	per 100	Dev	
Weekday AM Peak Hr	0.151	5	0.082	3	8
Weekday PM Peak Hr	0.082	3	0.147	5	8
24 Hr Day (AADT)	1.710	56	1.671	55	112
OF WHICH, GOODS VEHICLES					
3,200 m2 GFA	Arrivals		Departures		Total 2-Way Traffic Generated
Warehouse	per 100	Dev	per 100	Dev	
Weekday AM Peak Hr	0.039	1	0.044	1	3
Weekday PM Peak Hr	0.042	1	0.033	1	2
24 Hr Day (AADT)	0.565	19	0.564	19	37
CONVERTING TO PCUs, TOTAL TRAFFIC					
Period	Arrivals		Departures		Total 2-Way
Weekday AM Peak Hr	6		4		10
Weekday PM Peak Hr	4		6		10
24 Hr Day (AADT)	75		74		149

3.6 We commissioned and undertook Traffic Surveys of the existing affected roads and junctions in order to establish base background traffic conditions. Details of the surveys are included as ***Appendix B*** and are reproduced as commuter peak hour Stick Diagrams as ***Appendix D***.

3.7 In Traffic Engineering all vehicles are expressed in terms of "Passenger Car Units" (PCUs), sometimes referred to as "Car Equivalents". This is the methodology that has been employed here, with specific industry standard conversion factors to convert HGVs, Skip Lorries, Cars/Trailers, and Bin Lorries to PCUs. The conversion factors used are in accordance with industry-standard recommendations.

3.8 We have assigned the development traffic to the road network based on the reasonable and **industry standard** assumption that the trip patterns will mirror the existing weekday AM and PM peak hour traffic count data in terms of traffic turning proportions and distribution at junctions (with a reasonable assumption that the traffic associated with a use such as distribution/warehousing will naturally gravitate to/from the N4). At the vehicular access itself we have assigned the flows in accordance with the established traffic patterns, utilising a pragmatic gravity model approach, conscious of the restrictive left-in left-out nature of the junctions.

3.9 We have selected a year of opening of 2025 for the purposes of this assessment. It should be noted that minor changes of 1-3 years in the selected or actual year of opening will have no real impact on the conclusions of the study. We have also undertaken assessment of the Design Year 2040 (15 years following opening), in accordance with Design Guidance.

3.10 Traffic growth factors for future year assessments were calculated from data obtained in TII PE-PAG-02017 Project Appraisal Guidelines for National Roads Unit 5.3 (Travel Demand Projections 2021, Table 6.1: Central Growth Rates: Annual Growth Factors Metropolitan Dublin), which provides the recommended method of predicting future year traffic growth on Roads.

3.11 Calculations of the relevant growth factors are included in ***Table 3.2*** below (based on tabulated 'central growth'). It should be noted that any requirement to use different or higher growth factors will have no implications whatsoever for the conclusions of the study

Table 3.2 - Traffic Growth Rates, TII Travel Demand Projections Unit 5.3

Year	to Year	Table 6.1
Survey	2025	1.094
2025	2040	1.151

3.12 The resulting Traffic Flow Projections and Figures within ***Appendix D*** allowed the assessment of impact of the development to be undertaken fully in accordance with the TII Assessment Guidelines.

4.0 TRAFFIC IMPACT - THRESHOLD ASSESSMENT/CAPACITY ANALYSIS

4.1 The National Guidance for assessment, the **TII Traffic and Transport Assessment Guidelines,** sets out a mechanism for assessment of developments of this nature and determining whether further assessment is required.

4.2 This National Assessment Guidelines requires a **Threshold Assessment** of the impact on the local roads to be provided in order to determine whether further, more detailed, modelling and assessment of particular critical junctions is necessary. This is important in this case as the development is very clearly a small generator of traffic, with 10 car equivalents (2-Way) generated during both the weekday AM and PM Commuter Peak Hours.

4.3 The professional guidance referenced above sets out specific increases in traffic volume at key nodes and links associated with new development, which, if breached, requires further detailed analysis to be undertaken. The recommendation is that, if the expected increase is 5% for networks that are considered heavily trafficked or congested, then further analysis is warranted. In this case, given the location adjacent the N4 the more onerous 5% threshold has been applied.

4.4 In this regard, we have set out below the predicted traffic increases as the key nodes and junctions locally as a result of the proposed development. Our assessment, included within ***Appendix D***, (Refer P6 of Appendix D) confirms that the absolute worst case traffic increase in traffic on the local roads and junctions are as summarised below as ***Table 4.1***

Table 4.1: Subject Development Completed Open & Operating - Threshold Assessment, Worst-Case Impact – AM/PM Peak Hours 2025

Assessed Road or Junction	Traffic Increase %		COMMENT
	AM Pk Hr	PM Pk Hr	
Proposed Site Access Arrangement	NA	NA	Junction Capacity Assessment Included
N4 Westbound Junction #3 Off-Slip	0.45%	0.44%	<5% No Further Assessment Required
N4 Southern Elevated Gr Sep Junct	0.16%	0.20%	<5% No Further Assessment Required
R835 Lucan Rd/N4 Junction N	0.11%	0.18%	<5% No Further Assessment Required
Hermitage GC/Woodies/N4 E-bnd Jn	0.27%	0.42%	<5% No Further Assessment Required

4.5 The Threshold assessment clearly confirms that beyond the access junction onto the service road there is a negligible and unnoticeable impact associated with the development, with all increases way less than even 1%.

4.6 To set these increased levels of traffic in context, the accepted day-to-day variation in traffic volume (due to day of week or weather conditions) is 10%, so, in this context alone, increases in Traffic on the local roads being less than 1% everywhere (as per the assessment above) will go entirely unnoticed.

4.7 We have prepared capacity modelling of the site access arrangement, using the relevant TII approved macro-simulation capacity modelling software.

Site Access – Capacity Assessment

4.8 We have used the TII-approved software package 'Junctions 9' PiCADY' (**P**riority **I**ntersection **C**apacity and **D**elay**y**) software package (as part of the TRL Package 'Junction 9') to assess the capacity of the site access. PiCADY produces results based on Ratio of Flow to Capacity (RFC) and queue length. An RFC greater that 1.00 indicates that a junction is operating at or above capacity, with 0.85 considered to be the guiding RFC reference value. We have included the detailed computer simulation model results for the site access junction as Appendix E, with summarised & tabulated results below as ***Table 4.2***.

Table 4.2 - PiCADY Results, Service Rd/Site Access Junction (Entry/Exit Amalgamated)

Modelled Scenario	Period Mean Max Q (PCUs)	Period Max RFC
2025 Opening Year AM Peak	0.0	0.00
2025 Opening Year PM Peak	0.1	0.05
2040 Design Year AM Peak	0.0	0.00
2040 Design Year PM Peak	0.1	0.06

4.9 The result of the modelling clearly shows that the access junction arrangement has significantly more than adequate capacity to accommodate the worst-case traffic conditions with the subject development & the established traffic associated with adjacent developments in place, up to and beyond the Design Year 2040. All of the RFCs are way below the guiding RFC value of 0.85. No measurable or significant queue lengths are anticipated in the models.

4.10 The above assessment and analysis confirms that there are no road traffic capacity or traffic impact issues on the N4 or key local junctions that would prevent planning permission being granted by South Dublin County Council.

5.0 CONCLUSIONS

5.1 NRB Consulting Engineers Ltd were appointed to address the Traffic/Transportation issues associated with a planning application for a commercial warehouse unit on the established site of the Foxhunter Public House & Restaurant, Lucan Co Dublin – on lands suitably zoned for this purpose.

5.2 This Transportation Assessment (TA) has been prepared to address any Traffic/Transportation issues associated with the proposal, and specifically the capacity of the existing road network to accommodate the vehicular traffic associated with the proposed development. The proposed use is a very low generator of traffic movements.

5.3 The TTA Report itself has been prepared in accordance with TII's Traffic & Transportation Assessment Guidelines and addresses the traffic impact of the proposal. The assessment is based on weekday AM & PM Peak classified traffic interval movement surveys of the adjacent road network carried out prior to the Covid-19 Pandemic emergency measures. This extensive traffic survey data, undertaken by specialist 3rd party data collection company, forms the basis for this study.

5.4 The assessment confirms that the operation of the proposed development and the established existing traffic combined will have an unnoticeable impact upon the operation of the adjacent road network.

5.5 The work included a redesign of the access arrangement together with a statutory independent stage 1 Road Safety Audit (& the associated designer feedback form) of same, which is included herein as ***Appendix F***.

5.6 Based on our studies and the assessments undertaken, we conclude that there are no traffic capacity or operational issues associated with the proposed development that would prevent planning permission being granted by South Dublin County Council.

APPENDICES - CONTENT

A	Proposed Development – Layout Drawing
B	Raw Traffic Survey Output Data
C	TRICS Trip Generation Output (Distribution Warehousing & Pub/Restaurants)
D	Traffic Surveys, Trip Distribution & Network Traffic Flow Diagrams
E	'Junction 9' PiCADY Capacity Output Data *(Service Road/Site Access)*
F	Stage 1 Independent Road Safety Audit (& Designer Feedback Form)

NRB consulting engineers

APPENDIX A

Proposed Development Layout Drawing

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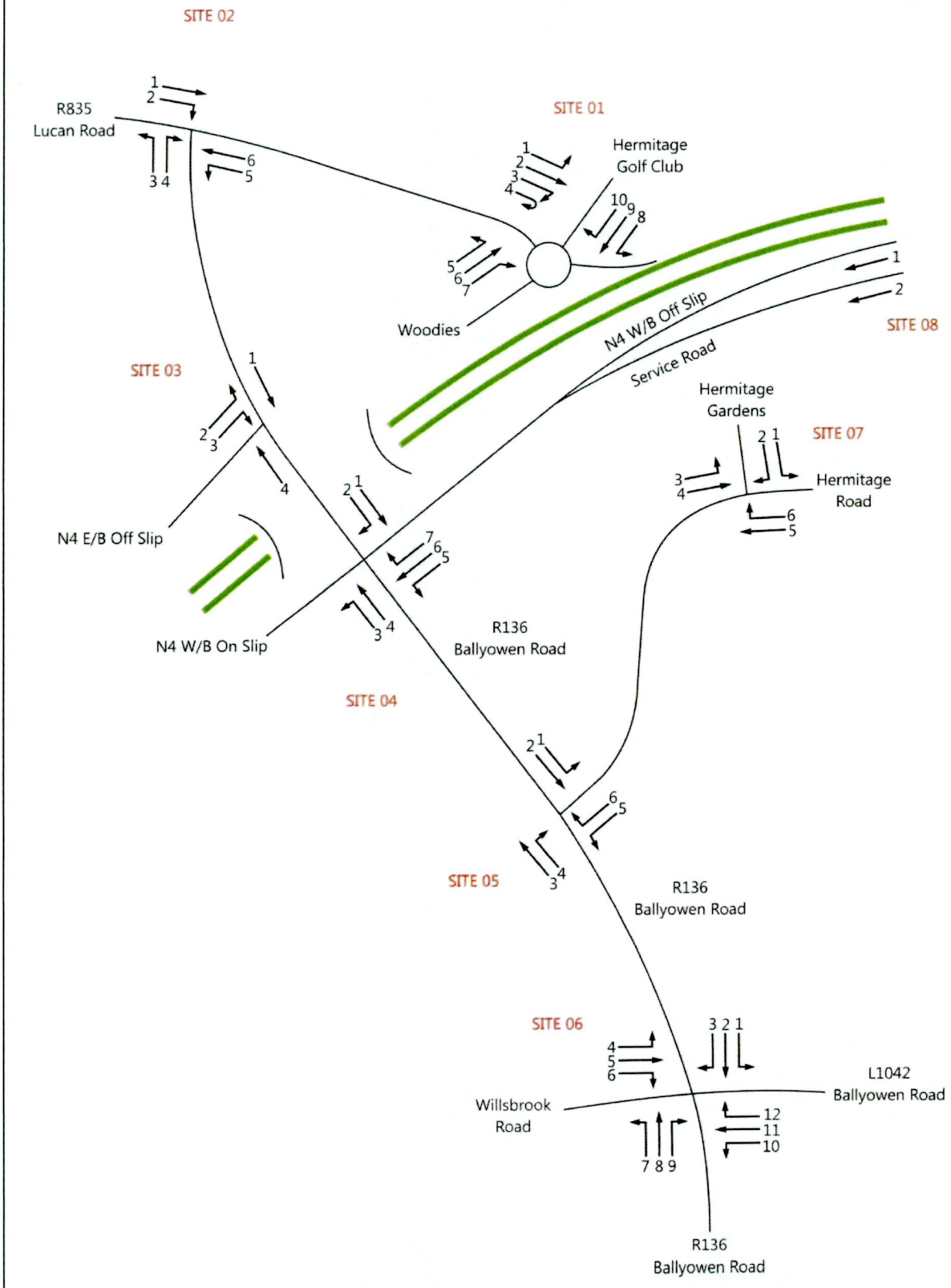
APPENDIX B

Raw Traffic Survey Data Output

Site Locations/Movement Numbering



Job number: TRA/20/034	Job Date: 6th February	Drawing No: TRA/20/034-02	traffinomics.ie
Client: NRB	Job Day: Thursday	Survey Map Cover Sheet	

LUCAN TRAFFIC COUNTS
MANUAL CLASSIFIED JUNCTION TURNING COUNTS

TRA/20/(

SITE: 01

DATE:

LOCATION: Lucan Road/Woodies Roundabout

DAY: Thurs(

	MOVEMENT 1								MOVEMENT 2								MOVEMENT 3								MOVEMENT 4						
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT
07:30	0	0	0	0	0	0	0	0	1	2	199	25	7	12	246	263	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3
07:45	0	0	0	0	1	0	1	2	6	1	208	17	4	9	245	253	1	0	6	0	0	0	7	6	0	0	8	0	0	0	8
H/TOT	0	0	0	0	1	0	1	2	7	3	407	42	11	21	491	516	1	0	6	0	0	0	7	6	0	0	11	0	0	0	11
08:00	0	0	0	0	0	0	0	0	3	2	230	14	2	8	259	265	0	0	4	0	0	0	4	4	0	0	3	0	0	0	3
08:15	0	0	1	0	0	0	1	1	2	4	171	9	1	11	198	206	0	0	8	1	0	0	9	9	0	0	5	0	0	0	5
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H/TOT	0	0	3	1	0	0	4	4	10	10	738	50	5	32	845	868	0	0	35	1	1	0	37	38	0	0	12	1	1	0	14
09:00	0	0	2	0	1	0	3	4	2	3	192	18	7	10	232	246	0	0	8	1	0	0	9	9	0	0	3	0	0	0	3
09:15	0	0	1	0	0	0	1	1	2	2	154	9	3	11	181	192	0	0	13	5	1	0	19	20	0	0	3	0	0	0	3
09:30	0	0	5	0	1	0	6	7	2	2	175	16	3	3	201	204	0	0	17	2	0	0	19	19	0	0	4	0	0	0	4
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H/TOT	0	0	11	0	2	0	13	15	6	8	687	58	18	32	809	849	0	0	56	12	1	0	69	70	0	0	11	0	0	0	11
P/TOT	0	0	14	1	3	0	18	21	23	21	1832	150	34	85	2145	2233	1	0	97	13	2	0	113	114	0	0	34	1	1	0	36

	MOVEMENT 1								MOVEMENT 2								MOVEMENT 3								MOVEMENT 4						
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT
16:00	0	0	1	0	0	0	1	1	0	1	168	25	6	6	206	217	0	0	21	3	0	0	24	24	0	0	1	3	0	0	4
16:15	0	0	0	0	0	0	0	0	0	0	151	8	1	4	164	169	0	0	17	5	0	0	22	22	0	0	4	1	0	0	5
16:30	0	0	0	0	0	0	0	0	0	0	159	18	4	7	188	199	0	0	24	2	0	0	26	26	0	0	0	0	0	0	0
16:45	0	0	1	0	0	0	1	1	3	0	172	19	1	3	198	200	0	0	19	3	0	0	22	22	0	0	4	0	0	0	4
H/TOT	0	0	2	0	0	0	2	2	3	1	650	70	12	20	756	785	0	0	81	13	0	0	94	94	0	0	9	4	0	0	13
17:00	0	0	0	0	0	0	0	0	0	1	137	19	1	4	162	166	0	0	18	4	0	0	22	22	0	0	9	1	0	0	10
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17:30	0	0	0	0	0	0	0	0	1	1	117	12	3	3	137	142	0	0	15	2	0	0	17	17	0	0	2	0	0	0	2
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H/TOT	0	0	2	0	0	0	2	2	1	3	565	47	5	18	639	659	0	0	59	12	0	0	71	71	0	0	22	1	0	0	23
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H/TOT	0	0	0	0	0	0	0	0	0	1	258	25	1	10	295	305	0	0	24	4	0	0	28	28	0	0	7	0	0	0	7
P/TOT	0	0	4	0	0	0	4	4	4	5	1473	142	18	48	1690	1750	0	0	164	29	0	0	193	193	0	0	38	5	0	0	43

LUCAN TRAFFIC COUNTS

)34 MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/20/034**

SITE: 01 DATE:

day LOCATION: Lucan Road/Woodies Roundabout DAY: Thursday

		MOVEMENT 5								MOVEMENT 6								MOVEMENT 7							
PCU	TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
3	07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	08:15	0	0	1	1	0	0	2	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2
6	08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
1	08:45	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	3	0	1	0	4	5
15	H/TOT	0	0	2	1	0	0	3	3	0	0	0	0	0	0	0	0	0	0	6	0	1	0	7	8
3	09:00	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	2
3	09:15	0	0	7	0	0	0	7	7	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
4	09:30	0	0	8	1	0	0	9	9	0	0	0	0	0	0	0	0	0	0	4	2	1	0	7	8
1	09:45	0	0	8	0	0	0	8	8	0	0	0	0	0	0	0	0	0	0	6	1	0	0	7	7
11	H/TOT	0	0	24	1	0	0	25	25	0	0	0	0	0	0	0	0	0	0	12	4	1	0	17	18
37	P/TOT	0	0	26	2	0	0	28	28	0	0	0	0	0	0	0	0	0	0	18	4	2	0	24	26

		MOVEMENT 5								MOVEMENT 6								MOVEMENT 7							
PCU	TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
4	16:00	0	0	30	2	0	0	32	32	0	0	0	0	0	0	0	0	0	0	4	1	0	0	5	5
5	16:15	0	0	16	2	0	0	18	18	0	0	0	0	0	0	0	0	0	0	3	3	0	0	6	6
0	16:30	0	0	17	2	0	0	19	19	0	0	0	0	0	0	0	0	0	0	8	1	0	0	9	9
4	16:45	0	0	15	2	0	0	17	17	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	4
13	H/TOT	0	0	78	8	0	0	86	86	0	0	0	0	0	0	0	0	0	0	19	5	0	0	24	24
10	17:00	0	0	15	3	0	0	18	18	0	0	0	0	0	0	0	0	0	0	5	1	0	0	6	6
4	17:15	0	0	20	2	0	0	22	22	0	0	0	0	0	0	0	0	0	0	4	2	0	0	6	6
2	17:30	0	0	16	3	0	0	19	19	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
7	17:45	0	0	16	2	0	0	18	18	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	5
23	H/TOT	0	0	67	10	0	0	77	77	0	0	0	0	0	0	0	0	0	0	14	5	0	0	19	19
3	18:00	0	0	12	1	0	0	13	13	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	4
4	18:15	0	0	12	1	0	0	13	13	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2
7	H/TOT	0	0	24	2	0	0	26	26	0	0	0	0	0	0	0	0	0	0	6	0	0	0	6	6
43	P/TOT	0	0	169	20	0	0	189	189	0	0	0	0	0	0	0	0	0	0	39	10	0	0	49	49

LUCAN TRAFFIC COUNTS **FEBRUARY 2020**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/20/034**

SITE: 01 DATE:

LOCATION: Lucan Road/Woodies Roundabout DAY: Thursday

	MOVEMENT 8								MOVEMENT 9								MOVEMENT 10							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
09:00	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
09:30	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	2	0	1	0	3	4
09:45	0	0	0	0	1	0	1	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
H/TOT	0	0	1	0	1	0	2	3	0	0	1	0	0	0	1	1	0	0	4	1	1	0	6	7
P/TOT	0	0	1	0	1	0	2	3	0	0	1	0	0	0	1	1	0	0	4	1	2	0	7	9

	MOVEMENT 8								MOVEMENT 9								MOVEMENT 10							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
16:00	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	3	0	0	0	3	3	0	0	1	0	0	0	1	1	0	0	1	0	0	0	1	1
16:30	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	3
16:45	0	0	3	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2
H/TOT	0	0	7	1	0	0	8	8	0	0	1	0	0	0	1	1	0	0	6	0	0	0	6	6
17:00	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	2	0	0	0	2	2	0	0	2	0	0	0	2	2	0	0	2	0	0	0	2	2
17:30	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	3
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	4	0	0	0	4	4	0	0	2	0	0	0	2	2	0	0	5	0	0	0	5	5
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P/TOT	0	0	11	1	0	0	12	12	0	0	3	0	0	0	3	3	0	0	11	0	0	0	11	11

LUCAN TRAFFIC COUNTS

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/20/034**

SITE: 02 DATE:

LOCATION: Lucan Road/Ballyowen Road DAY: Thursday

	MOVEMENT 1								MOVEMENT 2								MOVEMENT 3							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
07:30	1	0	111	14	3	7	136	145	0	0	66	6	0	2	74	76	1	0	107	23	3	5	139	146
07:45	4	0	137	9	2	3	155	157	0	0	73	15	0	0	88	88	1	1	148	12	1	0	163	163
H/TOT	5	0	248	23	5	10	291	302	0	0	139	21	0	2	162	164	2	1	255	35	4	5	302	309
08:00	2	1	137	11	2	3	156	159	1	0	87	8	0	0	96	95	0	0	191	11	2	4	208	214
08:15	1	1	115	5	1	5	128	133	2	1	123	8	1	0	135	134	2	0	165	11	3	1	182	184
08:30	1	0	134	9	1	3	148	151	1	0	133	2	2	0	138	139	1	0	184	8	1	2	196	198
08:45	2	0	117	7	0	2	128	128	1	0	133	6	3	2	145	149	1	0	115	12	2	2	132	135
H/TOT	6	2	503	32	4	13	560	571	5	1	476	24	6	2	514	517	4	0	655	42	8	9	718	732
09:00	1	1	133	14	6	3	158	166	0	0	112	7	1	0	120	121	2	0	92	10	7	3	114	122
09:15	1	1	108	9	2	7	128	136	0	0	93	6	2	2	103	107	1	0	118	17	8	1	145	153
09:30	0	1	114	9	3	2	129	133	0	0	86	6	2	0	94	96	1	0	121	15	3	3	143	148
09:45	0	0	105	15	5	2	127	134	0	0	61	6	0	0	67	67	4	0	105	11	6	0	126	129
H/TOT	2	3	460	47	16	14	542	569	0	0	352	25	5	2	384	391	8	0	436	53	24	7	528	553
P/TOT	13	5	1211	102	25	37	1393	1442	5	1	967	70	11	6	1060	1072	14	1	1346	130	36	21	1548	1593

	MOVEMENT 1								MOVEMENT 2								MOVEMENT 3							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
16:00	0	0	83	9	4	4	100	108	1	0	119	15	1	2	138	140	4	0	124	19	1	3	151	152
16:15	0	0	86	5	1	3	95	99	0	0	67	15	1	0	83	84	3	0	120	15	3	2	143	146
16:30	0	0	85	10	3	4	102	109	0	0	85	9	1	0	95	96	3	0	138	14	1	1	157	157
16:45	2	0	99	13	1	1	116	116	0	0	82	9	0	2	93	95	0	1	170	12	1	3	187	190
H/TOT	2	0	353	37	9	12	413	432	1	0	353	48	3	4	409	415	10	1	552	60	6	9	638	644
17:00	0	0	81	10	1	0	92	93	1	0	110	7	0	0	118	117	1	2	165	24	4	0	196	198
17:15	0	1	79	7	0	4	91	94	1	1	101	4	1	1	109	110	3	4	133	23	3	5	171	174
17:30	0	1	74	10	2	1	88	90	0	0	107	4	0	0	111	111	4	3	142	16	0	4	169	168
17:45	0	0	85	3	1	4	93	98	1	2	94	5	0	0	102	100	4	7	122	15	0	2	150	145
H/TOT	0	2	319	30	4	9	364	376	3	3	412	20	1	1	440	438	12	16	562	78	7	11	686	685
18:00	0	1	75	8	1	2	87	89	0	1	86	11	1	0	99	99	6	2	200	17	3	0	228	225
18:15	0	0	70	4	0	3	77	80	0	1	79	5	0	0	85	84	3	1	174	13	1	1	193	192
H/TOT	0	1	145	12	1	5	164	169	0	2	165	16	1	0	184	184	9	3	374	30	4	1	421	417
P/TOT	2	3	817	79	14	26	941	978	4	5	930	84	5	5	1033	1037	31	20	1488	168	17	21	1745	1746

LUCAN TRAFFIC COUNTS

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/20/034**

SITE: 02 DATE:

LOCATION: Lucan Road/Ballyowen Road DAY: Thursday

	MOVEMENT 4								MOVEMENT 5								MOVEMENT 6							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
07:30	0	2	91	11	4	5	113	121	0	0	1	0	0	0	1	1	0	0	1	0	0	0	1	1
07:45	3	1	85	8	3	6	106	112	0	0	6	0	0	0	6	6	0	0	3	0	0	0	3	3
H/TOT	3	3	176	19	7	11	219	233	0	0	7	0	0	0	7	7	0	0	4	0	0	0	4	4
08:00	1	1	100	3	0	5	110	114	0	0	2	0	1	0	3	4	0	0	1	0	0	0	1	1
08:15	1	3	70	5	0	6	85	88	0	0	2	1	0	0	3	3	0	0	4	0	0	0	4	4
08:30	1	3	41	5	1	4	55	57	0	0	1	0	1	0	2	3	0	0	3	0	0	0	3	3
08:45	1	1	74	8	2	4	90	95	0	0	1	1	0	0	2	2	0	0	0	0	0	0	0	0
H/TOT	4	8	285	21	3	19	340	354	0	0	6	2	2	0	10	12	0	0	8	0	0	0	8	8
09:00	1	2	72	5	2	7	89	96	0	0	3	0	0	0	3	3	0	0	1	1	0	0	2	2
09:15	1	1	63	5	2	4	76	81	0	0	6	0	0	0	6	6	0	0	5	0	0	0	5	5
09:30	2	1	87	9	1	1	101	101	0	0	6	1	1	0	8	9	0	0	8	0	0	0	8	8
09:45	0	1	83	4	0	6	94	99	0	0	6	0	0	0	6	6	0	0	4	0	0	0	4	4
H/TOT	4	5	305	23	5	18	360	377	0	0	21	1	1	0	23	24	0	0	18	1	0	0	19	19
P/TOT	11	16	766	63	15	48	919	964	0	0	34	3	3	0	40	43	0	0	30	1	0	0	31	31

	MOVEMENT 4								MOVEMENT 5								MOVEMENT 6							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
16:00	0	1	108	22	2	2	135	138	0	0	20	3	0	0	23	23	0	0	11	2	0	0	13	13
16:15	0	0	86	9	0	1	96	97	0	0	14	1	0	0	15	15	0	0	7	2	0	0	9	9
16:30	0	0	98	10	1	3	112	116	0	0	15	0	0	0	15	15	0	0	5	2	0	0	7	7
16:45	1	0	97	9	0	2	109	110	0	0	17	2	0	0	19	19	0	0	4	0	0	0	4	4
H/TOT	1	1	389	50	3	8	452	462	0	0	66	6	0	0	72	72	0	0	27	6	0	0	33	33
17:00	0	1	83	14	0	4	102	105	0	0	16	4	0	0	20	20	0	0	8	0	0	0	8	8
17:15	0	0	127	8	0	1	136	137	0	0	16	1	0	0	17	17	0	0	10	1	0	0	11	11
17:30	1	0	60	4	1	2	68	70	0	0	13	2	0	0	15	15	0	0	8	1	0	0	9	9
17:45	0	0	59	4	0	2	65	67	0	0	16	2	0	0	18	18	0	0	7	0	0	0	7	7
H/TOT	1	1	329	30	1	9	371	380	0	0	61	9	0	0	70	70	0	0	33	2	0	0	35	35
18:00	0	0	65	7	0	3	75	78	0	0	10	0	0	0	10	10	0	0	5	1	0	0	6	6
18:15	0	0	79	10	0	2	91	93	0	0	14	1	0	0	15	15	0	0	2	0	0	0	2	2
H/TOT	0	0	144	17	0	5	166	171	0	0	24	1	0	0	25	25	0	0	7	1	0	0	8	8
P/TOT	2	2	862	97	4	22	989	1012	0	0	151	16	0	0	167	167	0	0	67	9	0	0	76	76

LUCAN TRAFFIC COUNTS

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/20/034**

SITE: 05 DATE:

LOCATION: Ballyowen Road/Hermitage Road DAY: Thursday

	MOVEMENT 1								MOVEMENT 2								MOVEMENT 3							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
07:30	0	0	7	0	1	0	8	9	0	0	118	11	1	7	137	145	1	2	184	20	3	8	218	227
07:45	0	0	2	1	0	0	3	3	0	3	148	25	1	4	181	184	4	2	189	10	2	5	212	215
H/TOT	0	0	9	1	1	0	11	12	0	3	266	36	2	11	318	329	5	4	373	30	5	13	430	442
08:00	0	0	1	1	1	0	3	4	1	2	152	17	4	7	183	192	2	1	221	15	3	8	250	259
08:15	0	0	5	0	0	0	5	5	2	1	184	15	1	6	209	214	3	3	129	11	1	8	155	160
08:30	0	0	4	0	0	0	4	4	1	0	191	9	3	4	208	214	2	3	187	9	4	5	210	216
08:45	0	0	3	1	0	1	5	6	1	0	223	21	7	6	258	270	1	1	150	15	2	6	175	182
H/TOT	0	0	13	2	1	1	17	19	5	3	750	62	15	23	858	890	8	8	687	50	10	27	790	816
09:00	0	0	15	0	0	0	15	15	0	0	191	21	4	1	217	222	3	0	132	15	4	8	162	172
09:15	0	0	9	0	1	0	10	11	0	0	180	13	4	5	202	211	2	1	143	20	5	7	178	188
09:30	0	0	5	2	1	0	8	9	0	1	143	9	4	2	159	164	2	1	166	19	1	3	192	194
09:45	0	0	6	0	0	0	6	6	0	0	107	16	2	1	126	129	2	1	145	12	2	4	166	170
H/TOT	0	0	35	2	2	0	39	41	0	1	621	59	14	9	704	726	9	3	586	66	12	22	698	723
P/TOT	0	0	57	5	4	1	67	72	5	7	1637	157	31	43	1880	1946	22	15	1646	146	27	62	1918	1980

	MOVEMENT 1								MOVEMENT 2								MOVEMENT 3							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
16:00	0	0	11	0	0	0	11	11	1	0	219	27	2	5	254	260	2	1	172	33	1	3	212	214
16:15	0	0	11	0	1	0	12	13	0	1	171	34	3	3	212	217	2	0	169	14	2	2	189	191
16:30	0	0	13	3	0	0	16	16	1	1	196	25	4	4	231	238	3	1	178	17	3	4	206	210
16:45	0	0	7	0	0	0	7	7	1	1	196	23	1	3	225	228	1	0	188	18	2	2	211	214
H/TOT	0	0	42	3	1	0	46	47	3	3	782	109	10	15	922	943	8	2	707	82	8	11	818	829
17:00	0	0	9	2	0	0	11	11	2	1	224	25	0	0	252	250	1	1	168	32	0	5	207	211
17:15	0	0	15	0	0	0	15	15	1	2	234	15	1	8	261	268	1	0	174	11	1	3	190	193
17:30	0	0	12	0	0	0	12	12	1	1	254	25	3	5	289	296	1	2	135	17	2	3	160	163
17:45	0	0	11	0	0	0	11	11	2	2	223	19	0	4	250	251	2	1	126	14	0	2	145	145
H/TOT	0	0	47	2	0	0	49	49	6	6	935	84	4	17	1052	1065	5	4	603	74	3	13	702	712
18:00	0	0	11	0	0	0	11	11	0	1	210	19	4	3	237	243	2	1	214	17	2	2	238	240
18:15	0	0	13	1	0	0	14	14	0	1	209	13	5	1	229	234	2	2	196	19	1	0	220	218
H/TOT	0	0	24	1	0	0	25	25	0	2	419	32	9	4	466	478	4	3	410	36	3	2	458	458
P/TOT	0	0	113	6	1	0	120	121	9	11	2136	225	23	36	2440	2485	17	9	1720	192	14	26	1978	1999

LUCAN TRAFFIC COUNTS

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/20/034**

SITE: 05 DATE:

LOCATION: Ballyowen Road/Hermitage Road DAY: Thursday

	MOVEMENT 4								MOVEMENT 5								MOVEMENT 6							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
07:30	0	0	2	1	0	0	3	3	0	0	9	1	0	0	10	10	0	0	12	1	0	0	13	13
07:45	0	0	2	0	0	0	2	2	0	0	6	0	0	0	6	6	0	0	14	0	1	0	15	16
H/TOT	0	0	4	1	0	0	5	5	0	0	15	1	0	0	16	16	0	0	26	1	1	0	28	29
08:00	0	0	0	0	0	0	0	0	0	0	7	1	0	0	8	8	0	0	15	1	0	0	16	16
08:15	0	0	2	0	0	0	2	2	0	0	5	0	0	0	5	5	0	0	16	2	0	0	18	18
08:30	0	0	0	0	0	0	0	0	0	0	7	0	0	0	7	7	0	0	13	2	0	0	15	15
08:45	0	0	1	0	1	0	2	3	0	0	5	1	1	1	8	10	0	0	7	0	0	0	7	7
H/TOT	0	0	3	0	1	0	4	5	0	0	24	2	1	1	28	30	0	0	51	5	0	0	56	56
09:00	0	0	5	0	0	0	5	5	0	0	14	0	0	0	14	14	0	1	7	1	0	0	9	8
09:15	0	0	8	0	0	0	8	8	0	0	5	1	0	0	6	6	0	0	6	0	0	0	6	6
09:30	0	0	4	0	0	0	4	4	0	0	10	0	0	0	10	10	1	0	15	0	1	0	17	17
09:45	0	0	2	1	0	0	3	3	0	0	9	1	1	0	11	12	0	0	8	0	0	0	8	8
H/TOT	0	0	19	1	0	0	20	20	0	0	38	2	1	0	41	42	1	1	36	1	1	0	40	40
P/TOT	0	0	26	2	1	0	29	30	0	0	77	5	2	1	85	88	1	1	113	7	2	0	124	125

	MOVEMENT 4								MOVEMENT 5								MOVEMENT 6							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
16:00	0	0	6	0	0	0	6	6	0	0	5	0	0	0	5	5	0	0	3	2	1	0	6	7
16:15	0	0	8	0	0	0	8	8	0	0	4	0	0	0	4	4	0	0	2	0	0	0	2	2
16:30	0	0	4	0	0	0	4	4	0	0	6	0	0	0	6	6	0	0	2	1	0	0	3	3
16:45	0	0	6	0	0	0	6	6	0	0	1	0	0	0	1	1	0	0	10	0	0	0	10	10
H/TOT	0	0	24	0	0	0	24	24	0	0	16	0	0	0	16	16	0	0	17	3	1	0	21	22
17:00	0	0	7	0	0	0	7	7	0	0	6	0	0	0	6	6	0	0	2	0	0	0	2	2
17:15	0	0	4	0	0	0	4	4	0	0	6	0	0	0	6	6	0	0	6	0	0	0	6	6
17:30	0	0	7	1	0	0	8	8	0	0	5	0	0	0	5	5	0	0	6	0	0	0	6	6
17:45	0	0	3	0	0	0	3	3	0	0	3	0	0	0	3	3	0	0	6	1	0	0	7	7
H/TOT	0	0	21	1	0	0	22	22	0	0	20	0	0	0	20	20	0	0	20	1	0	0	21	21
18:00	0	0	2	0	0	0	2	2	0	0	7	0	0	0	7	7	0	0	8	0	0	0	8	8
18:15	0	0	5	0	0	0	5	5	0	0	5	0	0	0	5	5	0	0	13	0	0	0	13	13
H/TOT	0	0	7	0	0	0	7	7	0	0	12	0	0	0	12	12	0	0	21	0	0	0	21	21
P/TOT	0	0	52	1	0	0	53	53	0	0	48	0	0	0	48	48	0	0	58	4	1	0	63	64

LUCAN TRAFFIC COUNTS

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/20/034**

SITE: 06 DATE:

LOCATION: Ballyowen Road/Willsbrook Road DAY: Thursday

	MOVEMENT 4								MOVEMENT 5								MOVEMENT 6							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
07:30	0	1	82	4	1	0	88	88	3	0	48	5	0	0	56	54	0	1	4	0	0	0	5	4
07:45	0	0	102	3	0	1	106	107	1	0	41	3	1	0	46	46	0	0	7	0	0	0	7	7
H/TOT	0	1	184	7	1	1	194	195	4	0	89	8	1	0	102	100	0	1	11	0	0	0	12	11
08:00	1	1	87	3	0	0	92	91	0	0	35	1	0	0	36	36	0	0	9	0	0	0	9	9
08:15	0	1	54	7	1	0	63	63	3	0	34	0	1	0	38	37	0	0	7	0	0	0	7	7
08:30	0	0	64	3	1	1	69	71	2	1	60	2	0	0	65	63	0	0	8	0	1	1	10	12
08:45	0	1	44	1	0	0	46	45	1	0	56	1	0	0	58	57	0	0	6	0	0	1	7	8
H/TOT	1	3	249	14	2	1	270	270	6	1	185	4	1	0	197	193	0	0	30	0	1	2	33	36
09:00	0	0	44	4	1	1	50	52	0	0	54	1	0	2	57	59	0	0	2	1	0	0	3	3
09:15	0	0	46	3	0	0	49	49	0	0	50	2	0	0	52	52	0	0	3	0	0	0	3	3
09:30	0	1	59	5	0	0	65	64	0	0	57	1	0	0	58	58	0	0	3	0	1	0	4	5
09:45	0	1	42	1	0	0	44	43	2	0	30	0	0	0	32	30	0	0	5	1	0	0	6	6
H/TOT	0	2	191	13	1	1	208	209	2	0	191	4	0	2	199	199	0	0	13	2	1	0	16	17
P/TOT	1	6	624	34	4	3	672	675	12	1	465	16	2	2	498	492	0	1	54	2	2	2	61	64

	MOVEMENT 4								MOVEMENT 5								MOVEMENT 6							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
16:00	0	0	38	5	0	1	44	45	0	0	39	4	0	0	43	43	0	0	4	0	0	0	4	4
16:15	0	0	50	2	0	2	54	56	2	0	27	0	0	0	29	27	0	0	3	0	0	0	3	3
16:30	0	0	47	3	0	1	51	52	0	0	24	1	0	1	26	27	0	0	5	0	1	0	6	7
16:45	0	0	48	4	0	0	52	52	0	1	23	1	0	0	25	24	0	0	1	0	0	0	1	1
H/TOT	0	0	183	14	0	4	201	205	2	1	113	6	0	1	123	122	0	0	13	0	1	0	14	15
17:00	0	0	62	7	0	0	69	69	0	0	41	2	0	0	43	43	0	0	3	0	0	0	3	3
17:15	0	0	44	2	0	0	46	46	0	0	29	0	0	0	29	29	0	0	2	0	0	0	2	2
17:30	0	0	38	2	0	0	40	40	0	0	27	0	0	0	27	27	0	0	5	0	0	0	5	5
17:45	0	0	35	3	0	0	38	38	0	0	28	2	0	0	30	30	0	0	4	0	0	0	4	4
H/TOT	0	0	179	14	0	0	193	193	0	0	125	4	0	0	129	129	0	0	14	0	0	0	14	14
18:00	0	0	53	4	0	0	57	57	0	0	23	2	1	0	26	27	0	0	4	0	0	0	4	4
18:15	0	0	40	3	0	0	43	43	1	1	35	1	0	0	38	37	0	0	2	0	0	0	2	2
H/TOT	0	0	93	7	0	0	100	100	1	1	58	3	1	0	64	64	0	0	6	0	0	0	6	6
P/TOT	0	0	455	35	0	4	494	498	3	2	296	13	1	1	316	314	0	0	33	0	1	0	34	35

LUCAN TRAFFIC COUNTS

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/20/034**

SITE: 06 DATE:

LOCATION: Ballyowen Road/Willsbrook Road DAY: Thursday

	MOVEMENT 7								MOVEMENT 8								MOVEMENT 9							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
07:30	0	0	1	0	0	0	1	1	1	1	89	17	2	8	118	127	0	0	22	2	1	1	26	28
07:45	0	0	2	0	0	0	2	2	4	2	68	5	1	4	84	85	0	0	8	3	0	0	11	11
H/TOT	0	0	3	0	0	0	3	3	5	3	157	22	3	12	202	211	0	0	30	5	1	1	37	39
08:00	1	0	3	0	0	0	4	3	1	0	118	12	3	8	142	152	0	0	10	0	0	2	12	14
08:15	0	0	5	0	0	0	5	5	2	2	61	4	0	8	77	82	0	0	13	3	0	0	16	16
08:30	0	0	1	0	0	0	1	1	2	3	112	5	3	4	129	133	1	0	20	3	0	0	24	23
08:45	1	0	2	0	0	0	3	2	0	0	100	14	2	6	122	130	0	0	25	0	2	2	29	33
H/TOT	2	0	11	0	0	0	13	11	5	5	391	35	8	26	470	497	1	0	68	6	2	4	81	86
09:00	0	0	2	0	0	0	2	2	3	0	87	9	3	7	109	117	0	0	32	0	0	0	32	32
09:15	1	0	1	0	0	0	2	1	2	1	90	16	5	7	121	131	0	0	31	2	1	0	34	35
09:30	0	0	1	0	0	0	1	1	2	0	99	13	0	3	117	118	0	0	20	2	1	0	23	24
09:45	0	0	4	0	0	0	4	4	2	0	97	12	2	4	117	121	0	0	13	4	0	0	17	17
H/TOT	1	0	8	0	0	0	9	8	9	1	373	50	10	21	464	487	0	0	96	8	2	0	106	108
P/TOT	3	0	22	0	0	0	25	23	19	9	921	107	21	59	1136	1195	1	0	194	19	5	5	224	233

	MOVEMENT 7								MOVEMENT 8								MOVEMENT 9							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
16:00	0	0	2	0	0	0	2	2	2	1	128	25	1	2	159	160	0	0	24	0	0	0	24	24
16:15	0	0	2	0	0	0	2	2	1	0	108	12	2	0	123	124	0	0	28	1	0	0	29	29
16:30	0	0	4	0	0	0	4	4	3	1	122	12	3	3	144	147	0	0	19	1	1	0	21	22
16:45	2	0	3	0	0	0	5	3	1	0	138	14	2	2	157	160	0	0	21	1	1	0	23	24
H/TOT	2	0	11	0	0	0	13	11	7	2	496	63	8	7	583	591	0	0	92	3	2	0	97	99
17:00	0	0	3	0	0	0	3	3	0	1	99	23	0	5	128	132	1	0	19	3	1	0	24	24
17:15	1	0	2	0	0	0	3	2	1	0	124	7	1	3	136	139	0	0	36	5	1	0	42	43
17:30	1	0	8	0	0	0	9	8	1	2	88	13	2	3	109	112	0	0	22	1	1	0	24	25
17:45	0	0	8	0	0	0	8	8	2	1	88	11	0	2	104	104	0	0	23	3	0	0	26	26
H/TOT	2	0	21	0	0	0	23	21	4	4	399	54	3	13	477	487	1	0	100	12	3	0	116	118
18:00	0	0	3	0	0	0	3	3	2	1	148	12	2	2	167	169	0	0	16	2	1	0	19	20
18:15	0	0	1	0	0	0	1	1	2	2	139	15	1	0	159	157	0	0	17	2	0	0	19	19
H/TOT	0	0	4	0	0	0	4	4	4	3	287	27	3	2	326	326	0	0	33	4	1	0	38	39
P/TOT	4	0	36	0	0	0	40	37	15	9	1182	144	14	22	1386	1405	1	0	225	19	6	0	251	256

LUCAN TRAFFIC COUNTS

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/20/034**

SITE: 06 DATE:

LOCATION: Ballyowen Road/Willsbrook Road DAY: Thursday

	MOVEMENT 10								MOVEMENT 11								MOVEMENT 12							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
07:30	0	0	25	4	1	1	31	33	0	0	14	2	0	0	16	16	0	0	15	0	0	0	15	15
07:45	0	0	14	1	0	0	15	15	1	0	15	0	1	0	17	17	0	0	21	2	1	0	24	25
H/TOT	0	0	39	5	1	1	46	48	1	0	29	2	1	0	33	33	0	0	36	2	1	0	39	40
08:00	1	0	23	2	0	1	27	27	0	0	12	0	0	0	12	12	0	0	16	0	0	0	16	16
08:15	1	0	23	1	1	0	26	26	0	0	23	2	1	0	26	27	1	0	16	0	0	0	17	16
08:30	0	0	15	0	0	0	15	15	1	0	34	1	0	0	36	35	0	0	11	1	0	0	12	12
08:45	0	0	24	3	0	0	27	27	0	0	23	5	0	0	28	28	1	0	7	0	1	0	9	9
H/TOT	2	0	85	6	1	1	95	95	1	0	92	8	1	0	102	102	2	0	50	1	1	0	54	53
09:00	0	0	11	0	1	0	12	13	0	0	28	2	0	0	30	30	0	0	6	2	0	0	8	8
09:15	0	0	18	0	0	2	20	22	0	0	28	2	0	0	30	30	0	0	15	1	0	0	16	16
09:30	0	0	17	0	0	0	17	17	0	0	12	0	0	0	12	12	0	0	12	1	1	0	14	15
09:45	0	0	13	2	0	0	15	15	1	0	12	0	0	0	13	12	0	0	8	0	0	0	8	8
H/TOT	0	0	59	2	1	2	64	67	1	0	80	4	0	0	85	84	0	0	41	4	1	0	46	47
P/TOT	2	0	183	13	3	4	205	210	3	0	201	14	2	0	220	220	2	0	127	7	3	0	139	140

	MOVEMENT 10								MOVEMENT 11								MOVEMENT 12							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
16:00	0	0	18	3	0	0	21	21	0	0	41	1	0	0	42	42	0	0	12	3	0	0	15	15
16:15	1	0	18	0	0	0	19	18	0	0	29	2	0	0	31	31	1	0	19	0	0	0	20	19
16:30	0	0	16	1	0	0	17	17	0	0	27	1	0	0	28	28	0	0	13	2	0	0	15	15
16:45	0	0	23	1	0	0	24	24	1	0	28	2	0	0	31	30	0	0	8	0	0	0	8	8
H/TOT	1	0	75	5	0	0	81	80	1	0	125	6	0	0	132	131	1	0	52	5	0	0	58	57
17:00	0	0	19	4	0	0	23	23	1	0	28	3	0	0	32	31	1	0	14	2	0	0	17	16
17:15	0	0	14	1	0	0	15	15	1	0	17	0	0	0	18	17	0	0	10	2	0	0	12	12
17:30	1	1	12	2	1	0	17	17	1	0	27	4	0	0	32	31	0	0	16	3	0	0	19	19
17:45	1	0	20	1	1	0	23	23	0	0	40	5	0	0	45	45	0	0	6	0	0	0	6	6
H/TOT	2	1	65	8	2	0	78	78	3	0	112	12	0	0	127	125	1	0	46	7	0	0	54	53
18:00	0	0	23	2	0	0	25	25	2	0	36	1	0	0	39	37	0	0	15	1	0	0	16	16
18:15	0	0	13	0	0	0	13	13	1	0	25	3	0	0	29	28	0	0	22	1	0	0	23	23
H/TOT	0	0	36	2	0	0	38	38	3	0	61	4	0	0	68	66	0	0	37	2	0	0	39	39
P/TOT	3	1	176	15	2	0	197	196	7	0	298	22	0	0	327	321	2	0	135	14	0	0	151	149

LUCAN TRAFFIC COUNTS

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/20/034**

SITE: 07 DATE:

LOCATION: Hermitage Gardens/Hermitage Road DAY: Thursday

	MOVEMENT 1								MOVEMENT 2								MOVEMENT 3							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
07:30	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	3	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	4	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	4	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0	0	0	4	1	0	0	5	5	0	0	1	0	0	0	1	1
08:30	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	3	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	12	1	0	0	13	13	0	0	1	0	0	0	1	1
09:00	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	7	0	0	0	7	7
09:15	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2	0	0	6	0	0	0	6	6
09:30	0	0	0	0	0	0	0	0	0	0	13	0	0	0	13	13	0	0	5	0	0	0	5	5
09:45	0	0	0	0	1	0	1	2	0	0	2	1	0	0	3	3	0	0	3	1	1	0	5	6
H/TOT	0	0	0	0	1	0	1	2	0	0	18	1	0	0	19	19	0	0	21	1	1	0	23	24
P/TOT	0	0	0	0	1	0	1	2	0	0	34	2	0	0	36	36	0	0	22	1	1	0	24	25

	MOVEMENT 1								MOVEMENT 2								MOVEMENT 3							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
16:00	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2	0	0	2	0	0	0	2	2
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
16:30	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2	0	0	3	0	0	0	3	3
16:45	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	4	1	0	0	5	5
H/TOT	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	5	0	0	10	1	0	0	11	11
17:00	0	0	1	0	0	0	1	1	0	0	2	0	0	0	2	2	0	0	3	0	0	0	3	3
17:15	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	3	0	0	3	0	0	0	3	3
17:30	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	1	0	0	0	1	1
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2
H/TOT	0	0	1	0	0	0	1	1	0	0	6	0	0	0	6	6	0	0	9	0	0	0	9	9
18:00	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	5	0	0	3	0	0	0	3	3
18:15	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	3	0	0	3	0	0	0	3	3
H/TOT	0	0	0	0	0	0	0	0	0	0	8	0	0	0	8	8	0	0	6	0	0	0	6	6
P/TOT	0	0	1	0	0	0	1	1	0	0	19	0	0	0	19	19	0	0	25	1	0	0	26	26

LUCAN TRAFFIC COUNTS

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/20/034**

SITE: 07 DATE:

LOCATION: Hermitage Gardens/Hermitage Road DAY: Thursday

	MOVEMENT 4								MOVEMENT 5								MOVEMENT 6							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
07:30	0	0	2	1	0	0	3	3	0	0	17	2	0	0	19	19	0	0	0	0	0	0	0	0
07:45	0	0	0	1	1	0	2	3	1	0	12	0	1	0	14	14	0	0	0	0	0	0	0	0
H/TOT	0	0	2	2	1	0	5	6	1	0	29	2	1	0	33	33	0	0	0	0	0	0	0	0
08:00	0	0	6	0	0	0	6	6	0	0	16	1	0	0	17	17	0	0	0	0	0	0	0	0
08:15	0	0	7	1	1	0	9	10	2	0	16	1	0	0	19	17	0	0	0	0	0	0	0	0
08:30	0	0	2	0	0	0	2	2	0	0	12	1	0	0	13	13	0	0	0	0	0	0	0	0
08:45	0	0	6	1	1	1	9	11	0	0	10	2	1	1	14	16	0	0	0	0	0	0	0	0
H/TOT	0	0	21	2	2	1	26	29	2	0	54	5	1	1	63	63	0	0	0	0	0	0	0	0
09:00	0	0	8	0	0	0	8	8	0	1	11	1	0	0	13	12	0	0	0	0	0	0	0	0
09:15	0	0	9	0	1	0	10	11	0	0	7	1	0	0	8	8	0	0	1	0	0	0	1	1
09:30	0	0	4	1	0	0	5	5	0	0	8	1	1	0	10	11	0	0	0	0	0	0	0	0
09:45	0	0	5	0	0	0	5	5	0	0	10	0	1	0	11	12	0	0	0	0	0	0	0	0
H/TOT	0	0	26	1	1	0	28	29	0	1	36	3	2	0	42	43	0	0	1	0	0	0	1	1
P/TOT	0	0	49	5	4	1	59	64	3	1	119	10	4	1	138	140	0	0	1	0	0	0	1	1

	MOVEMENT 4								MOVEMENT 5								MOVEMENT 6							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
16:00	0	0	16	0	0	0	16	16	0	0	5	3	1	0	9	10	0	0	0	0	0	0	0	0
16:15	0	0	9	0	1	0	10	11	0	0	3	0	0	0	3	3	0	0	0	0	0	0	0	0
16:30	0	0	9	3	0	0	12	12	0	0	6	0	0	0	6	6	0	0	0	0	0	0	0	0
16:45	0	0	8	0	0	0	8	8	0	0	6	0	0	0	6	6	0	0	0	0	0	0	0	0
H/TOT	0	0	42	3	1	0	46	47	0	0	20	3	1	0	24	25	0	0	0	0	0	0	0	0
17:00	0	0	8	0	0	0	8	8	0	0	2	0	0	0	2	2	0	0	0	0	0	0	0	0
17:15	0	0	9	0	0	0	9	9	0	0	6	0	0	0	6	6	0	0	0	0	0	0	0	0
17:30	0	0	15	1	0	0	16	16	0	0	8	0	0	0	8	8	0	0	0	0	0	0	0	0
17:45	0	0	7	0	0	0	7	7	0	0	9	1	0	0	10	10	0	0	0	0	0	0	0	0
H/TOT	0	0	39	1	0	0	40	40	0	0	25	1	0	0	26	26	0	0	0	0	0	0	0	0
18:00	0	0	10	0	0	0	10	10	0	0	13	0	0	0	13	13	0	0	0	0	0	0	0	0
18:15	0	0	11	0	0	0	11	11	0	0	10	0	0	0	10	10	0	0	0	0	0	0	0	0
H/TOT	0	0	21	0	0	0	21	21	0	0	23	0	0	0	23	23	0	0	0	0	0	0	0	0
P/TOT	0	0	102	4	1	0	107	108	0	0	68	4	1	0	73	74	0	0	0	0	0	0	0	0

LUCAN TRAFFIC COUNTS

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/20/034**

SITE: 08 DATE:

LOCATION: N4 W/B Off Slip & Service Road DAY: Thursday

	MOVEMENT 1								MOVEMENT 2							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
07:30	0	0	43	10	5	1	59	65	0	0	34	19	1	4	58	63
07:45	0	1	81	26	1	1	110	111	0	0	37	12	3	4	56	63
H/TOT	0	1	124	36	6	2	169	176	0	0	71	31	4	8	114	126
08:00	0	2	79	9	2	0	92	93	0	0	78	7	5	8	98	111
08:15	0	0	79	6	2	2	89	93	0	0	138	7	0	3	148	151
08:30	0	0	67	6	3	0	76	79	0	0	108	10	1	4	123	128
08:45	0	0	71	15	4	1	91	96	1	0	63	9	3	4	80	86
H/TOT	0	2	296	36	11	3	348	361	1	0	387	33	9	19	449	476
09:00	0	1	62	6	6	1	76	82	0	0	43	5	1	3	52	56
09:15	0	0	76	11	5	1	93	99	0	0	42	7	4	2	55	61
09:30	0	1	81	7	5	0	94	98	0	0	40	11	2	3	56	61
09:45	0	0	59	13	5	0	77	82	2	0	38	2	2	2	46	48
H/TOT	0	2	278	37	21	2	340	362	2	0	163	25	9	10	209	226
P/TOT	0	5	698	109	38	7	857	899	3	0	621	89	22	37	772	829

	MOVEMENT 1								MOVEMENT 2							
TIME	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU	PCL	MCL	CAR	LGV	HGV	BUS	TOT	PCU
16:00	0	1	113	20	2	1	137	139	3	0	78	8	1	6	96	101
16:15	0	1	144	20	4	2	171	176	2	0	70	9	1	2	84	85
16:30	0	0	151	22	2	1	176	179	3	1	62	9	0	4	79	80
16:45	0	2	140	12	1	0	155	155	2	0	70	14	0	6	92	96
H/TOT	0	4	548	74	9	4	639	650	10	1	280	40	2	18	351	362
17:00	0	2	185	25	3	0	215	217	3	2	52	13	0	1	71	68
17:15	0	2	179	29	2	1	213	215	3	3	87	8	0	10	111	117
17:30	0	0	170	25	1	0	196	197	5	5	99	5	2	9	125	129
17:45	0	3	141	13	0	2	159	159	5	4	117	12	0	7	145	146
H/TOT	0	7	675	92	6	3	783	788	16	14	355	38	2	27	452	460
18:00	0	1	151	13	1	0	166	166	6	1	90	14	2	10	123	130
18:15	0	1	163	12	0	1	177	177	2	0	55	7	1	3	68	70
H/TOT	0	2	314	25	1	1	343	344	8	1	145	21	3	13	191	200
P/TOT	0	13	1537	191	16	8	1765	1781	34	16	780	99	7	58	994	1022

NRB consulting engineers

APPENDIX C

TRICS Trip Generation Output
(Commercial Warehousing & Pub/Restaurants)

TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)

TOTAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30	12	15662	0.057	12	15662	0.021	12	15662	0.078
05:30 - 06:00	12	15662	0.080	12	15662	0.027	12	15662	0.107
06:00 - 06:30	13	14829	0.044	13	14829	0.051	13	14829	0.095
06:30 - 07:00	13	14829	0.078	13	14829	0.052	13	14829	0.130
07:00 - 07:30	25	11975	0.060	25	11975	0.055	25	11975	0.115
07:30 - 08:00	**25**	**11975**	**0.110**	25	11975	0.039	**25**	**11975**	**0.149**
08:00 - 08:30	25	11975	0.073	25	11975	0.040	25	11975	0.113
08:30 - 09:00	25	11975	0.078	25	11975	0.042	25	11975	0.120
09:00 - 09:30	25	11975	0.063	25	11975	0.041	25	11975	0.104
09:30 - 10:00	25	11975	0.059	25	11975	0.050	25	11975	0.109
10:00 - 10:30	25	11975	0.059	25	11975	0.056	25	11975	0.115
10:30 - 11:00	25	11975	0.054	25	11975	0.054	25	11975	0.108
11:00 - 11:30	25	11975	0.049	25	11975	0.044	25	11975	0.093
11:30 - 12:00	25	11975	0.053	25	11975	0.058	25	11975	0.111
12:00 - 12:30	25	11975	0.045	25	11975	0.056	25	11975	0.101
12:30 - 13:00	25	11975	0.056	25	11975	0.065	25	11975	0.121
13:00 - 13:30	25	11975	0.060	25	11975	0.061	25	11975	0.121
13:30 - 14:00	25	11975	0.066	25	11975	0.060	25	11975	0.126
14:00 - 14:30	25	11975	0.048	25	11975	0.082	25	11975	0.130
14:30 - 15:00	25	11975	0.064	25	11975	0.065	25	11975	0.129
15:00 - 15:30	25	11975	0.050	25	11975	0.070	25	11975	0.120
15:30 - 16:00	25	11975	0.047	25	11975	0.054	25	11975	0.101
16:00 - 16:30	25	11975	0.050	25	11975	0.065	25	11975	0.115
16:30 - 17:00	25	11975	0.044	**25**	**11975**	**0.082**	25	11975	0.126
17:00 - 17:30	25	11975	0.045	25	11975	0.080	25	11975	0.125
17:30 - 18:00	25	11975	0.037	25	11975	0.067	25	11975	0.104
18:00 - 18:30	24	12411	0.027	24	12411	0.059	24	12411	0.086
18:30 - 19:00	24	12411	0.039	24	12411	0.049	24	12411	0.088
19:00 - 19:30	12	15662	0.020	12	15662	0.031	12	15662	0.051
19:30 - 20:00	12	15662	0.020	12	15662	0.026	12	15662	0.046
20:00 - 20:30	11	15483	0.019	11	15483	0.030	11	15483	0.049
20:30 - 21:00	11	15483	0.022	11	15483	0.022	11	15483	0.044
21:00 - 21:30	1	5855	0.017	1	5855	0.000	1	5855	0.017
21:30 - 22:00	1	5855	0.017	1	5855	0.017	1	5855	0.034
22:00 - 22:30	1	5855	0.000	1	5855	0.000	1	5855	0.000
22:30 - 23:00	1	5855	0.000	1	5855	0.000	1	5855	0.000
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			1.710			1.671			3.381

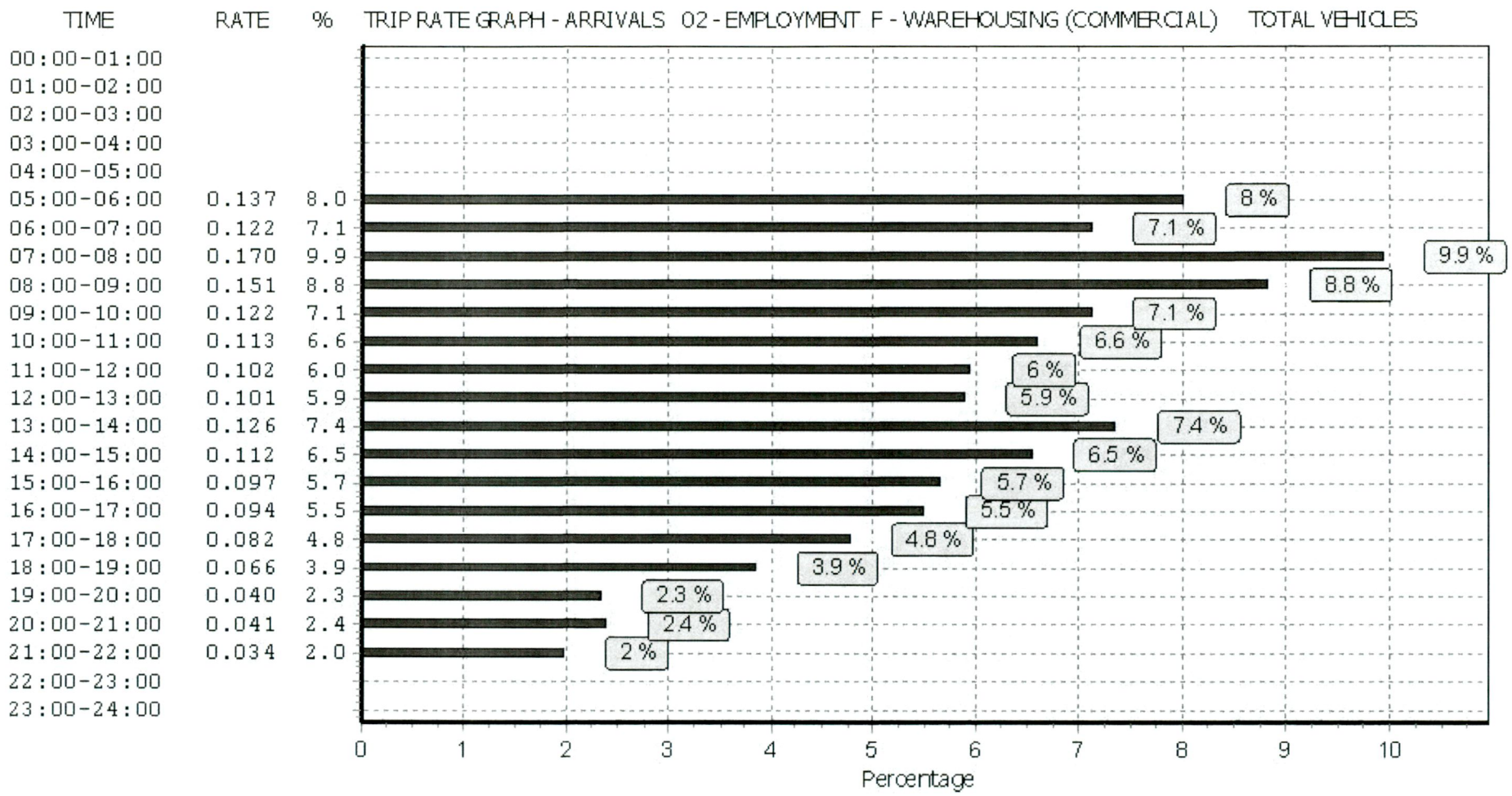
This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are 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

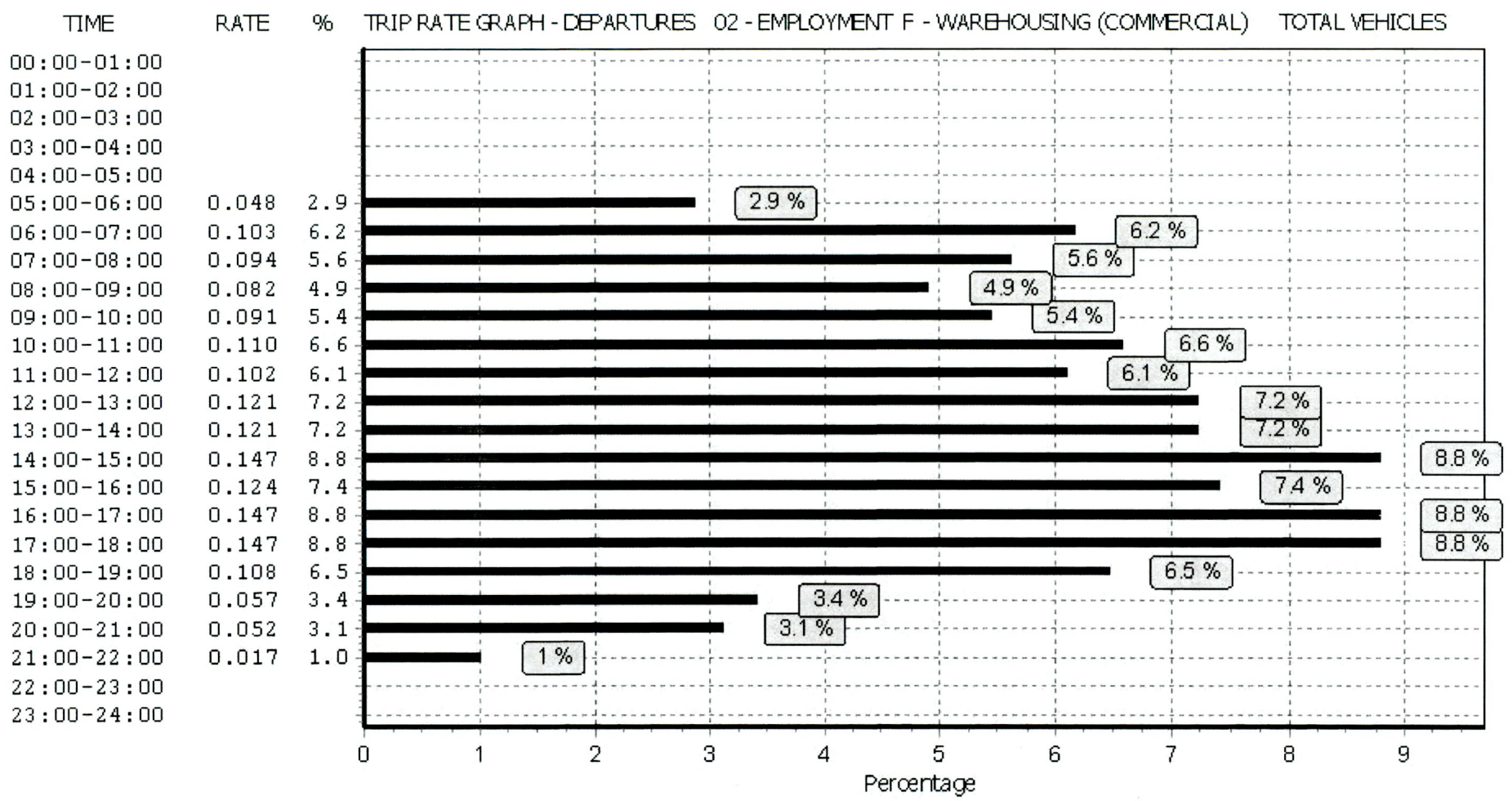
Trip rate parameter range selected:	190 - 80100 (units: sqm)
Survey date date range:	01/01/14 - 22/11/21
Number of weekdays (Monday-Friday):	25
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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.



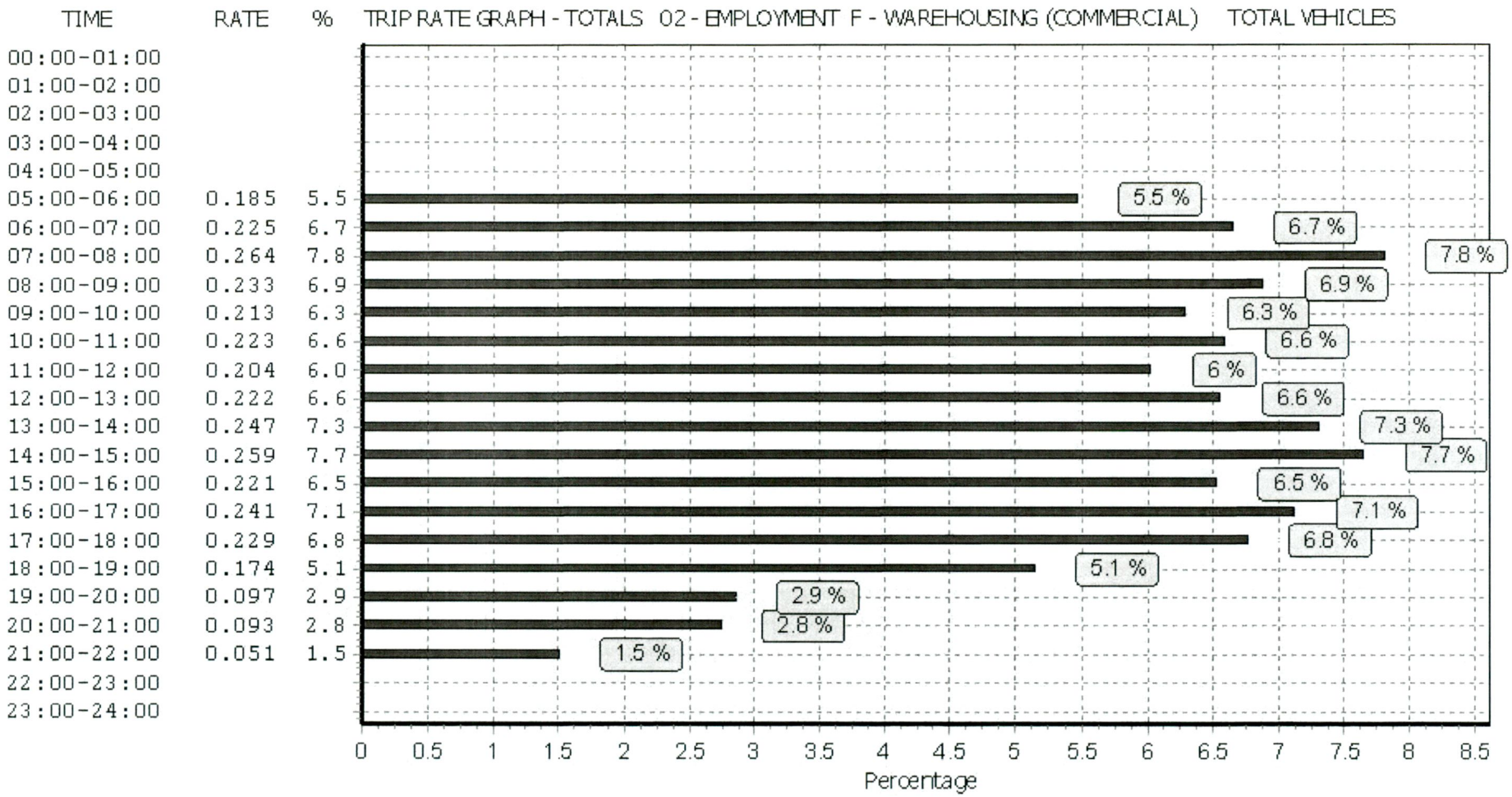
This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

NRB Consulting Engineers Ltd 8 Leopardstown Business Centre, Ballyogan Avenue Dublin 18 Licence No: 160301



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

NRB Consulting Engineers Ltd 8 Leopardstown Business Centre, Ballyogan Avenue Dublin 18 Licence No: 160301



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)

OGVS

Calculation factor: 100 sqm

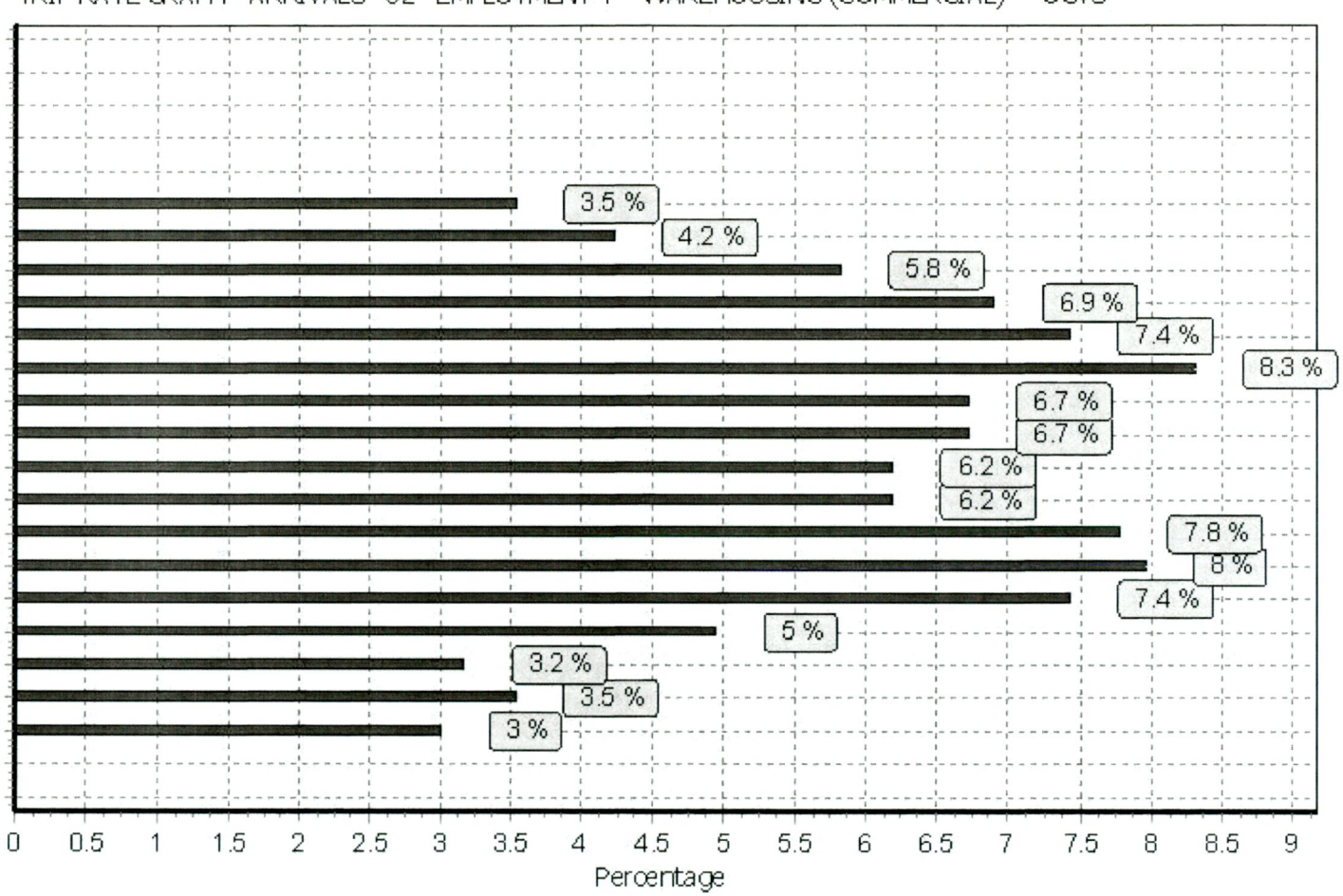
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30	12	15662	0.012	12	15662	0.006	12	15662	0.018
05:30 - 06:00	12	15662	0.008	12	15662	0.012	12	15662	0.020
06:00 - 06:30	13	14829	0.011	13	14829	0.015	13	14829	0.026
06:30 - 07:00	13	14829	0.013	13	14829	0.012	13	14829	0.025
07:00 - 07:30	25	11975	0.019	25	11975	0.020	25	11975	0.039
07:30 - 08:00	25	11975	0.014	25	11975	0.021	25	11975	0.035
08:00 - 08:30	25	11975	0.019	25	11975	0.021	25	11975	0.040
08:30 - 09:00	25	11975	0.020	25	11975	0.023	25	11975	0.043
09:00 - 09:30	25	11975	0.020	25	11975	0.024	25	11975	0.044
09:30 - 10:00	25	11975	0.022	25	11975	0.020	25	11975	0.042
10:00 - 10:30	**25**	**11975**	**0.027**	25	11975	0.021	**25**	**11975**	**0.048**
10:30 - 11:00	25	11975	0.020	**25**	**11975**	**0.026**	25	11975	0.046
11:00 - 11:30	25	11975	0.021	25	11975	0.017	25	11975	0.038
11:30 - 12:00	25	11975	0.017	25	11975	0.018	25	11975	0.035
12:00 - 12:30	25	11975	0.018	25	11975	0.018	25	11975	0.036
12:30 - 13:00	25	11975	0.020	25	11975	0.017	25	11975	0.037
13:00 - 13:30	25	11975	0.014	25	11975	0.020	25	11975	0.034
13:30 - 14:00	25	11975	0.021	25	11975	0.019	25	11975	0.040
14:00 - 14:30	25	11975	0.015	25	11975	0.017	25	11975	0.032
14:30 - 15:00	25	11975	0.020	25	11975	0.019	25	11975	0.039
15:00 - 15:30	25	11975	0.021	25	11975	0.019	25	11975	0.040
15:30 - 16:00	25	11975	0.023	25	11975	0.015	25	11975	0.038
16:00 - 16:30	25	11975	0.023	25	11975	0.019	25	11975	0.042
16:30 - 17:00	25	11975	0.022	25	11975	0.013	25	11975	0.035
17:00 - 17:30	25	11975	0.021	25	11975	0.012	25	11975	0.033
17:30 - 18:00	25	11975	0.021	25	11975	0.021	25	11975	0.042
18:00 - 18:30	24	12411	0.013	24	12411	0.014	24	12411	0.027
18:30 - 19:00	24	12411	0.015	24	12411	0.012	24	12411	0.027
19:00 - 19:30	12	15662	0.009	12	15662	0.012	12	15662	0.021
19:30 - 20:00	12	15662	0.009	12	15662	0.015	12	15662	0.024
20:00 - 20:30	11	15483	0.013	11	15483	0.018	11	15483	0.031
20:30 - 21:00	11	15483	0.007	11	15483	0.011	11	15483	0.018
21:00 - 21:30	1	5855	0.017	1	5855	0.000	1	5855	0.017
21:30 - 22:00	1	5855	0.000	1	5855	0.017	1	5855	0.017
22:00 - 22:30	1	5855	0.000	1	5855	0.000	1	5855	0.000
22:30 - 23:00	1	5855	0.000	1	5855	0.000	1	5855	0.000
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.565			0.564			1.129

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.*

TIME	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	0.020	3.5
06:00-07:00	0.024	4.2
07:00-08:00	0.033	5.8
08:00-09:00	0.039	6.9
09:00-10:00	0.042	7.4
10:00-11:00	0.047	8.3
11:00-12:00	0.038	6.7
12:00-13:00	0.038	6.7
13:00-14:00	0.035	6.2
14:00-15:00	0.035	6.2
15:00-16:00	0.044	7.8
16:00-17:00	0.045	8.0
17:00-18:00	0.042	7.4
18:00-19:00	0.028	5.0
19:00-20:00	0.018	3.2
20:00-21:00	0.020	3.5
21:00-22:00	0.017	3.0
22:00-23:00		
23:00-24:00		



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

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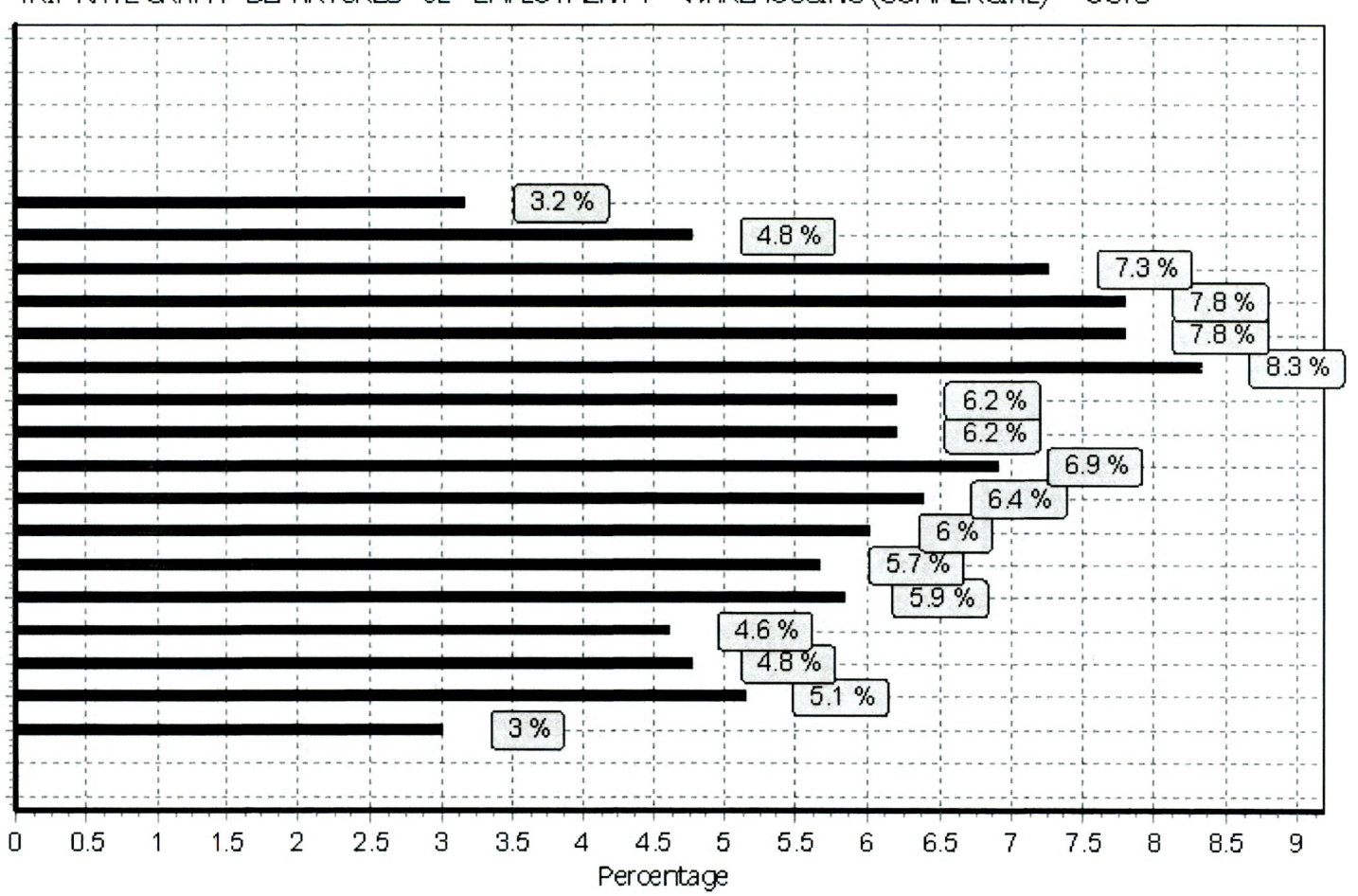
TIME	RATE	%
00:00-01:00		
01:00-02:00		
02:00-03:00		
03:00-04:00		
04:00-05:00		
05:00-06:00	0.018	3.2
06:00-07:00	0.027	4.8
07:00-08:00	0.041	7.3
08:00-09:00	0.044	7.8
09:00-10:00	0.044	7.8
10:00-11:00	0.047	8.3
11:00-12:00	0.035	6.2
12:00-13:00	0.035	6.2
13:00-14:00	0.039	6.9
14:00-15:00	0.036	6.4
15:00-16:00	0.034	6.0
16:00-17:00	0.032	5.7
17:00-18:00	0.033	5.9
18:00-19:00	0.026	4.6
19:00-20:00	0.027	4.8
20:00-21:00	0.029	5.1
21:00-22:00	0.017	3.0
22:00-23:00		
23:00-24:00		



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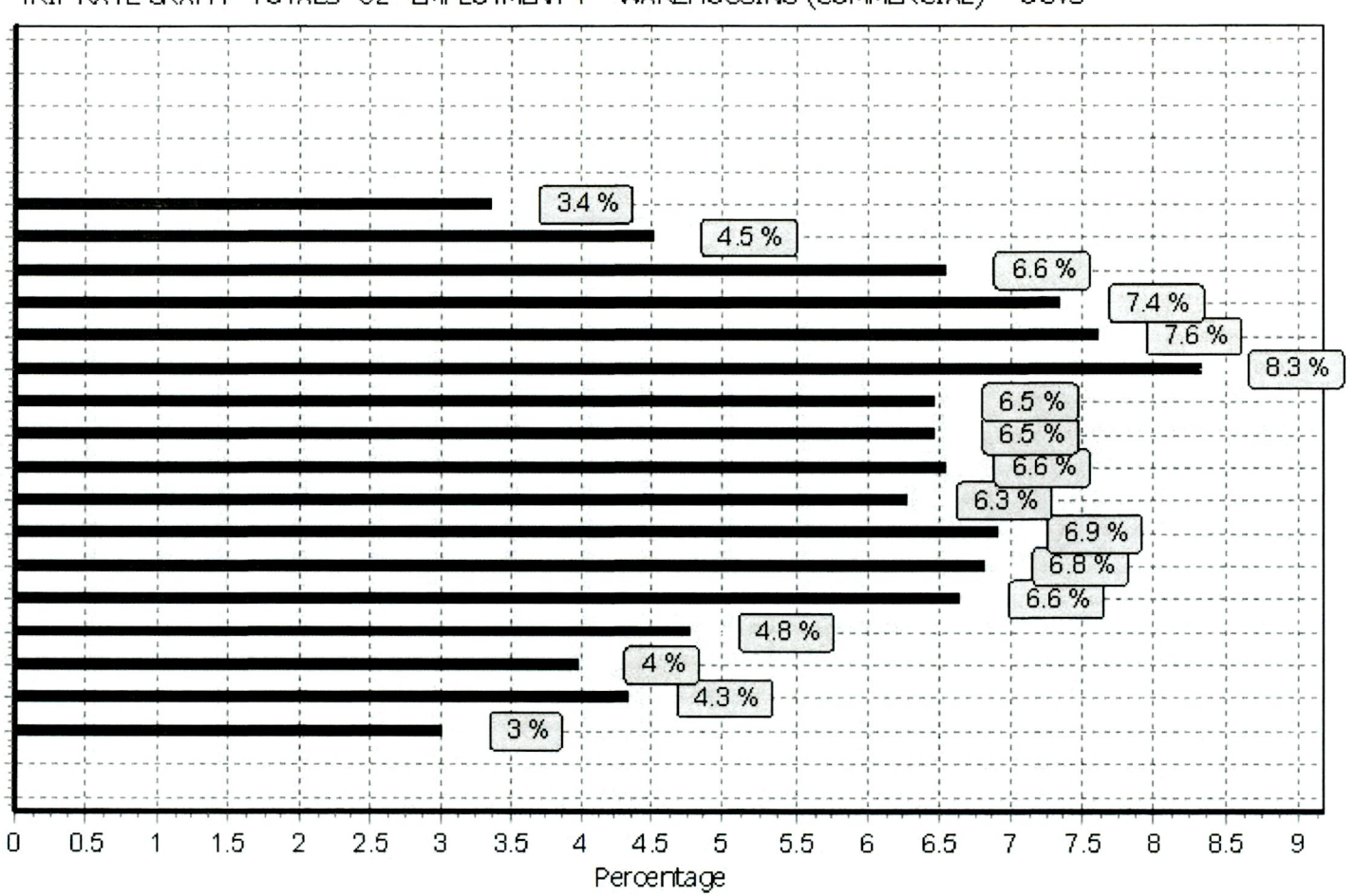
TIME	RATE	%
00:00-01:00		
01:00-02:00		
02:00-03:00		
03:00-04:00		
04:00-05:00		
05:00-06:00	0.038	3.4
06:00-07:00	0.051	4.5
07:00-08:00	0.074	6.6
08:00-09:00	0.083	7.4
09:00-10:00	0.086	7.6
10:00-11:00	0.094	8.3
11:00-12:00	0.073	6.5
12:00-13:00	0.073	6.5
13:00-14:00	0.074	6.6
14:00-15:00	0.071	6.3
15:00-16:00	0.078	6.9
16:00-17:00	0.077	6.8
17:00-18:00	0.075	6.6
18:00-19:00	0.054	4.8
19:00-20:00	0.045	4.0
20:00-21:00	0.049	4.3
21:00-22:00	0.034	3.0
22:00-23:00		
23:00-24:00		



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

Calculation Reference: AUDIT-160301-220820-0828

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 06 - HOTEL, FOOD & DRINK
Category : C - PUB/RESTAURANT

TOTAL VEHICLES

Selected regions and areas:

02	**SOUTH EAST**		
	ES	EAST SUSSEX	1 days
	HC	HAMPSHIRE	2 days
04	**EAST ANGLIA**		
	SF	SUFFOLK	1 days
05	**EAST MIDLANDS**		
	LN	LINCOLNSHIRE	1 days
	NR	NORTHAMPTONSHIRE	1 days
06	**WEST MIDLANDS**		
	WM	WEST MIDLANDS	1 days
	WO	WORCESTERSHIRE	1 days
07	**YORKSHIRE & NORTH LINCOLNSHIRE**		
	SY	SOUTH YORKSHIRE	1 days
	WY	WEST YORKSHIRE	1 days
08	**NORTH WEST**		
	CH	CHESHIRE	1 days
	GM	GREATER MANCHESTER	1 days
	LC	LANCASHIRE	2 days
09	**NORTH**		
	DH	DURHAM	1 days
11	**SCOTLAND**		
	RF	RENFREWSHIRE	1 days
13	**MUNSTER**		
	TI	TIPPERARY	1 days
14	**LEINSTER**		
	WC	WICKLOW	1 days
15	**GREATER DUBLIN**		
	DL	DUBLIN	1 days
16	**ULSTER (REPUBLIC OF IRELAND)**		
	CV	CAVAN	1 days
	DN	DONEGAL	1 days

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

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/C - PUB/RESTAURANT

TOTAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00	1	1550	0.065	1	1550	0.129	1	1550	0.194
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	1	600	0.000	1	600	0.000	1	600	0.000
08:00 - 09:00	1	600	0.000	1	600	0.000	1	600	0.000
09:00 - 10:00	1	600	0.000	1	600	0.000	1	600	0.000
10:00 - 11:00	19	687	0.528	19	687	0.283	19	687	0.811
11:00 - 12:00	21	748	0.936	21	748	0.477	21	748	1.413
12:00 - 13:00	21	748	2.063	21	748	0.847	21	748	2.910
13:00 - 14:00	21	748	1.865	21	748	1.617	21	748	3.482
14:00 - 15:00	21	748	1.063	21	748	1.661	21	748	2.724
15:00 - 16:00	21	748	1.139	21	748	0.993	21	748	2.132
16:00 - 17:00	21	748	1.534	21	748	1.031	21	748	2.565
17:00 - 18:00	21	748	2.018	21	748	1.337	21	748	3.355
18:00 - 19:00	**21**	**748**	**2.101**	21	748	1.776	21	748	3.877
19:00 - 20:00	21	748	1.840	**21**	**748**	**2.260**	**21**	**748**	**4.100**
20:00 - 21:00	21	748	1.209	21	748	2.018	21	748	3.227
21:00 - 22:00	21	748	0.688	21	748	1.350	21	748	2.038
22:00 - 23:00	21	748	0.414	21	748	1.311	21	748	1.725
23:00 - 24:00	16	668	0.122	16	668	0.459	16	668	0.581
Total Rates:			17.585			17.549			35.134

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:	200 - 2000 (units: sqm)
Survey date date range:	01/01/14 - 12/10/21
Number of weekdays (Monday-Friday):	21
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.

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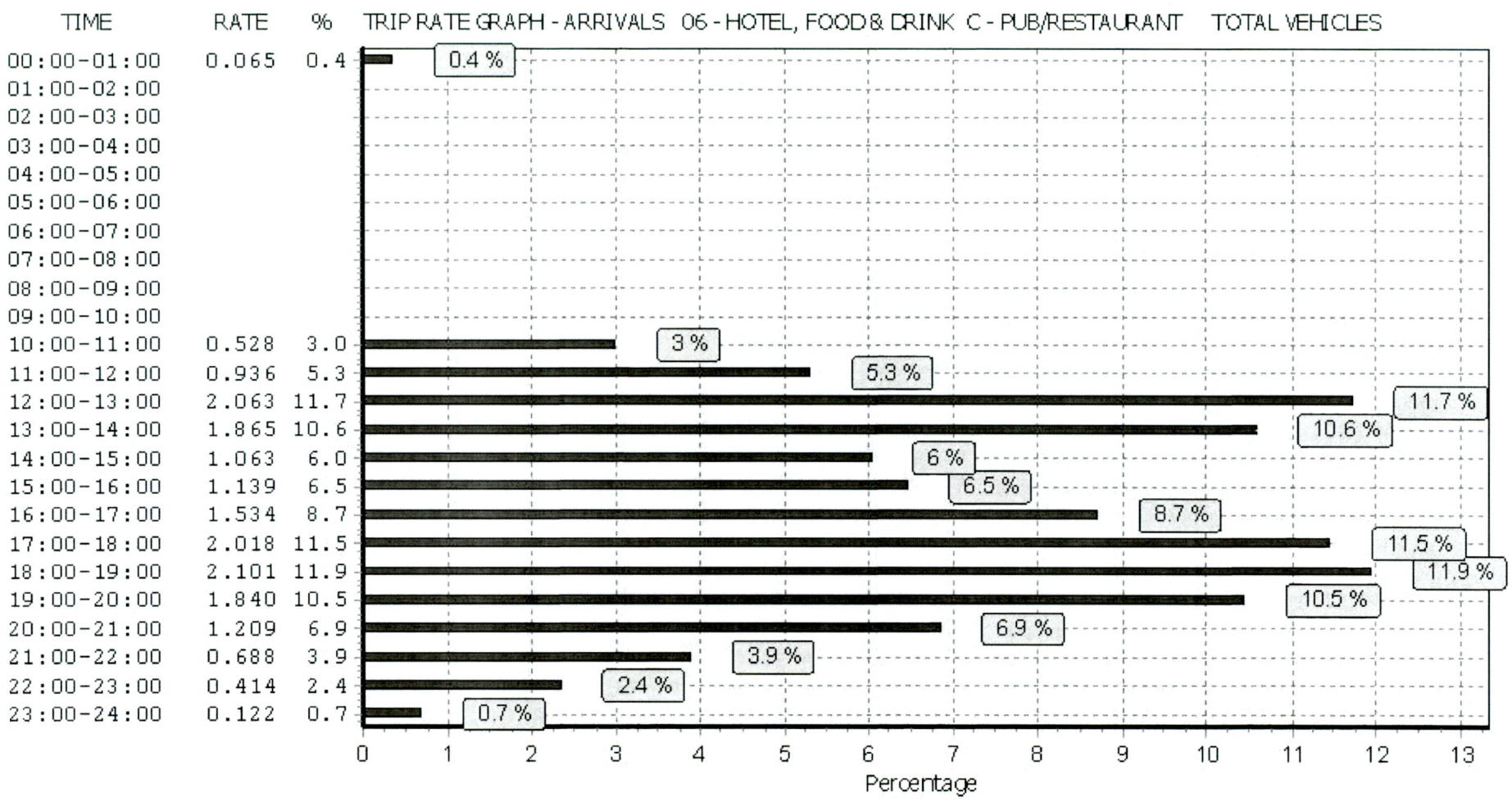
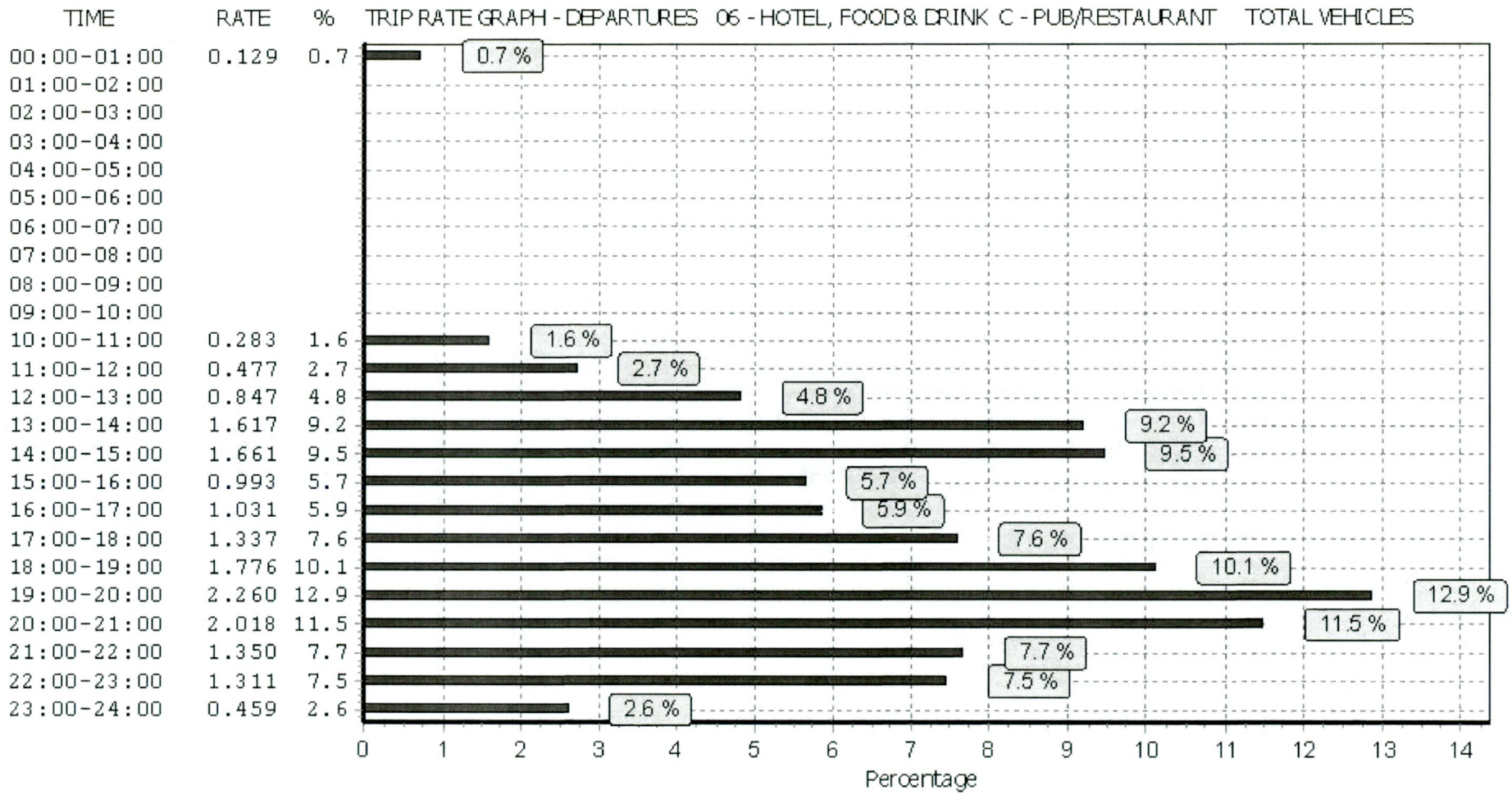


This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

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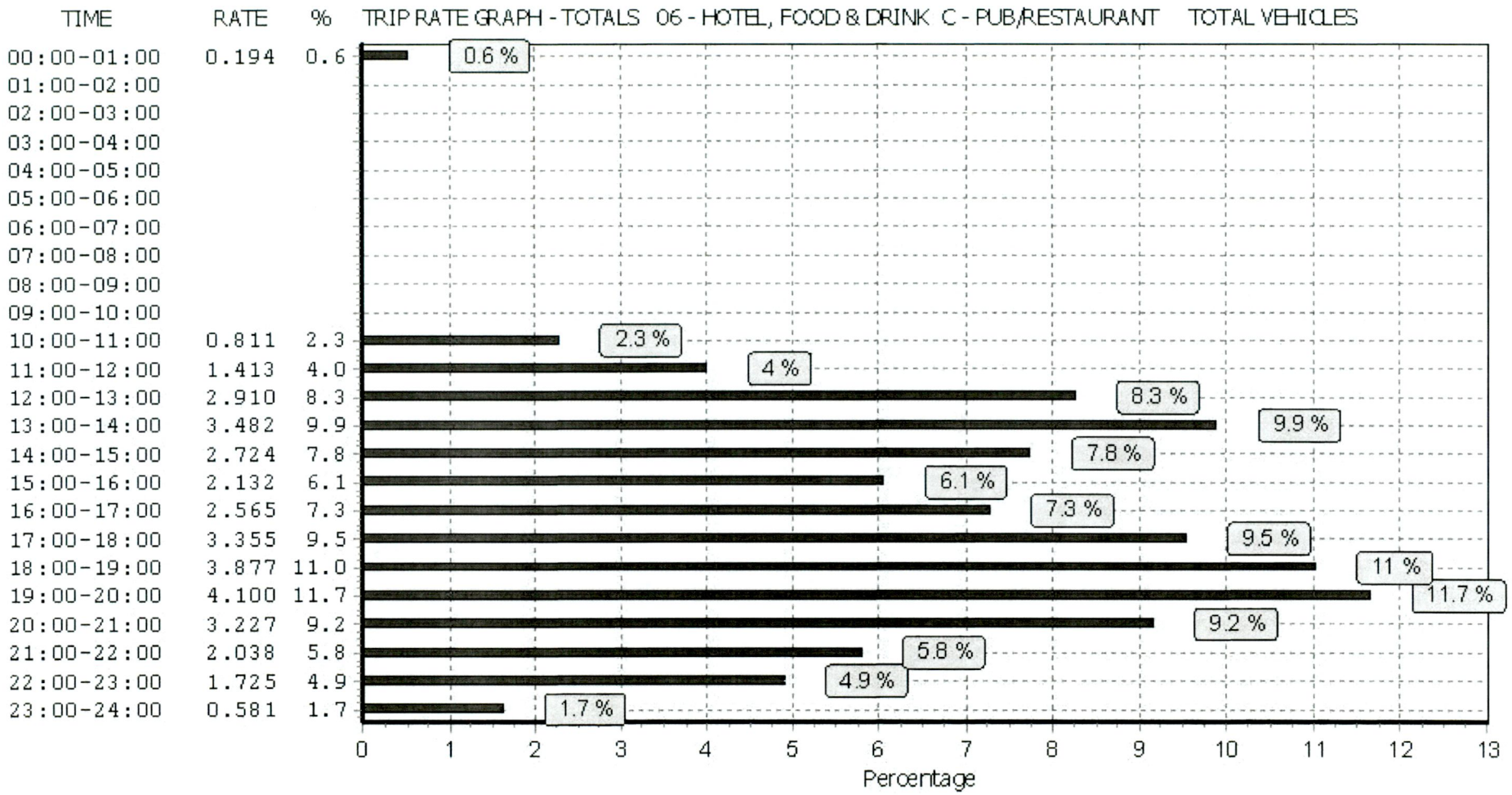

This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

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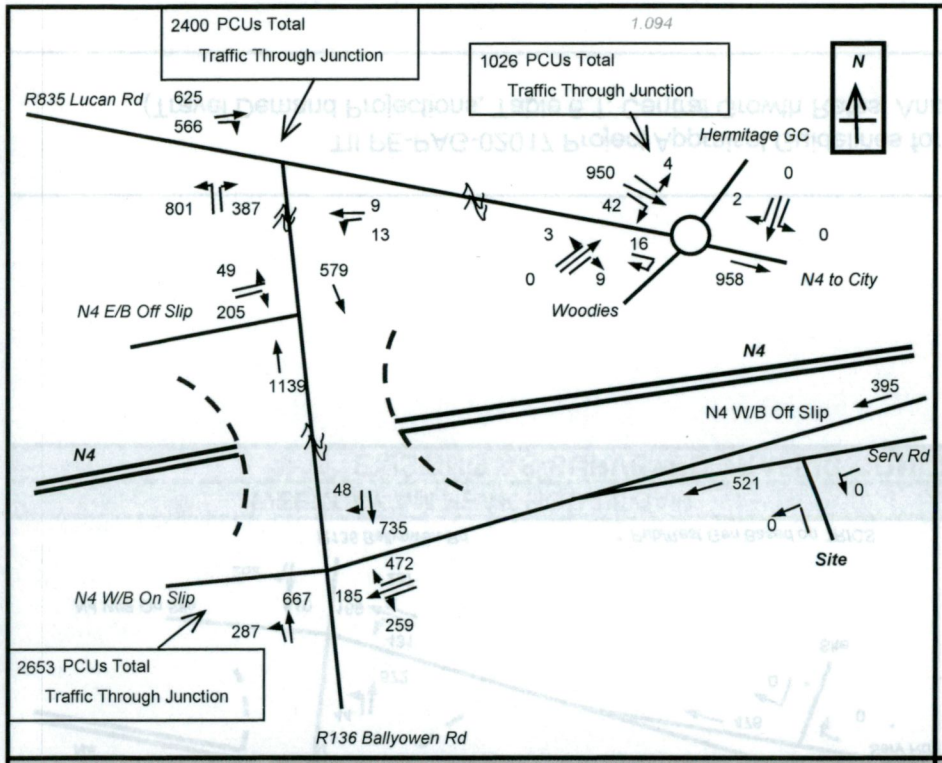
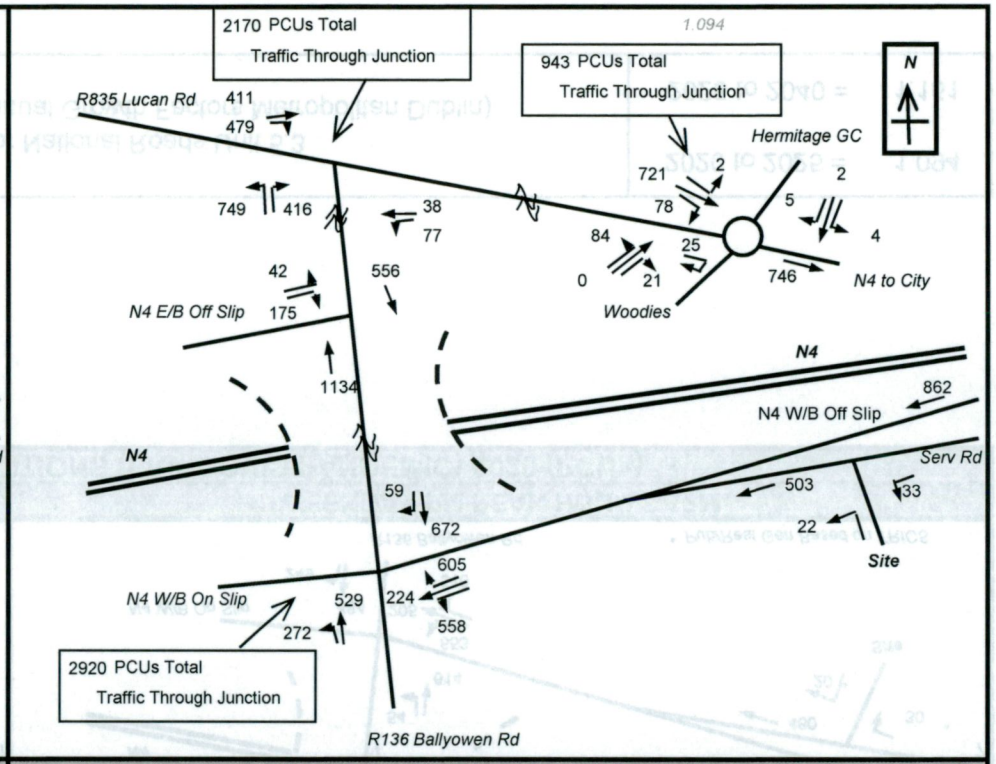
APPENDIX D

Traffic Surveys, Trip Distribution & Network Traffic Flow Projections & Diagrams With Subject Application Opened

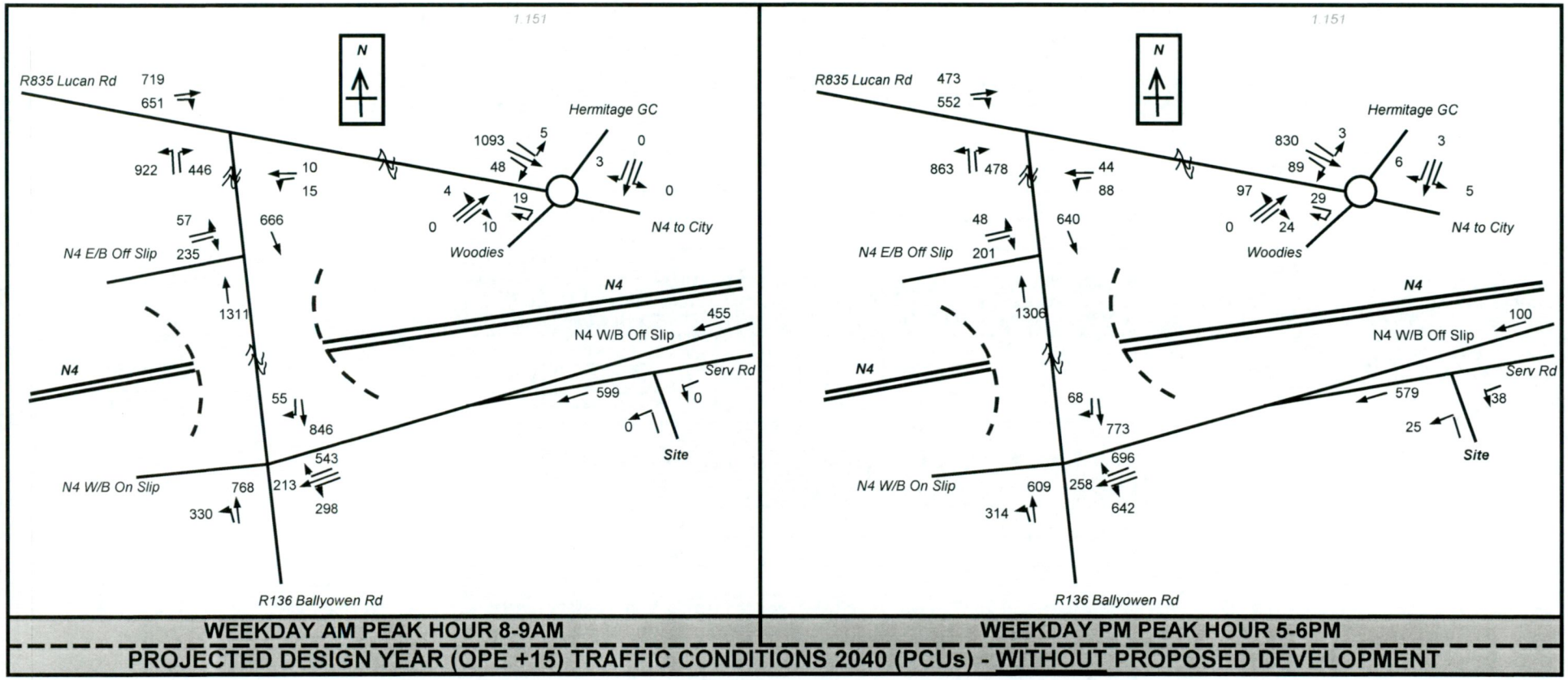


WEEKDAY AM PEAK HOUR 8-9AM



WEEKDAY PM PEAK HOUR 5-6PM

PROJECTED OPENING YEAR TRAFFIC CONDITIONS 2025 (PCUs) - WITHOUT PROPOSED DEVELOPMENT

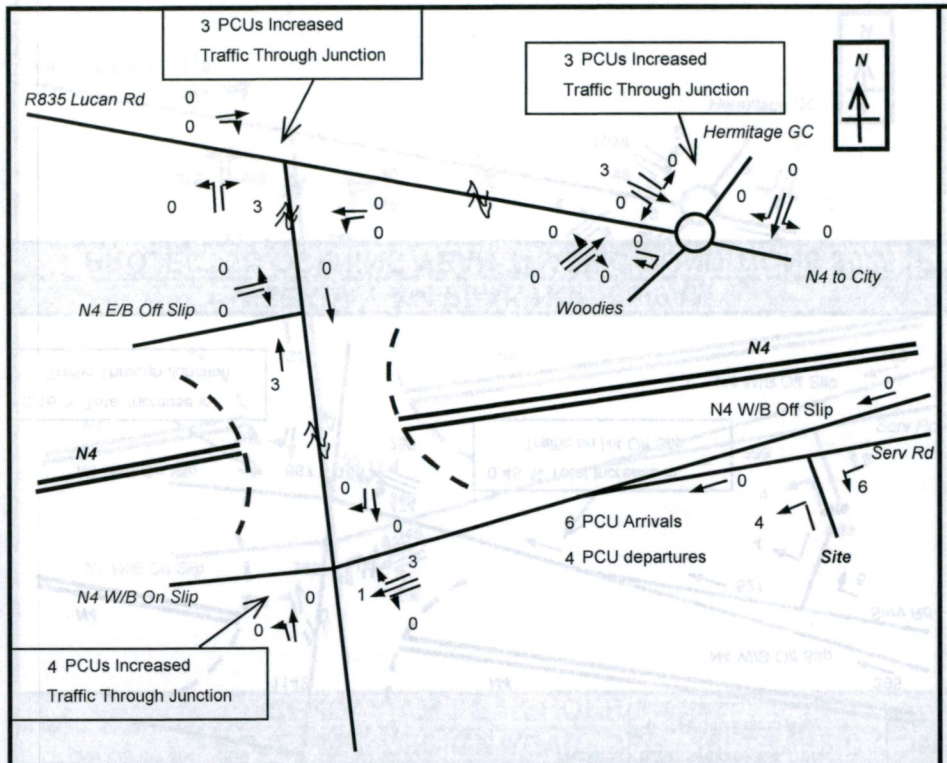


PROJECTED DESIGN YEAR (OPE +15) TRAFFIC CONDITIONS 2040 (PCUs) - WITHOUT PROPOSED DEVELOPMENT

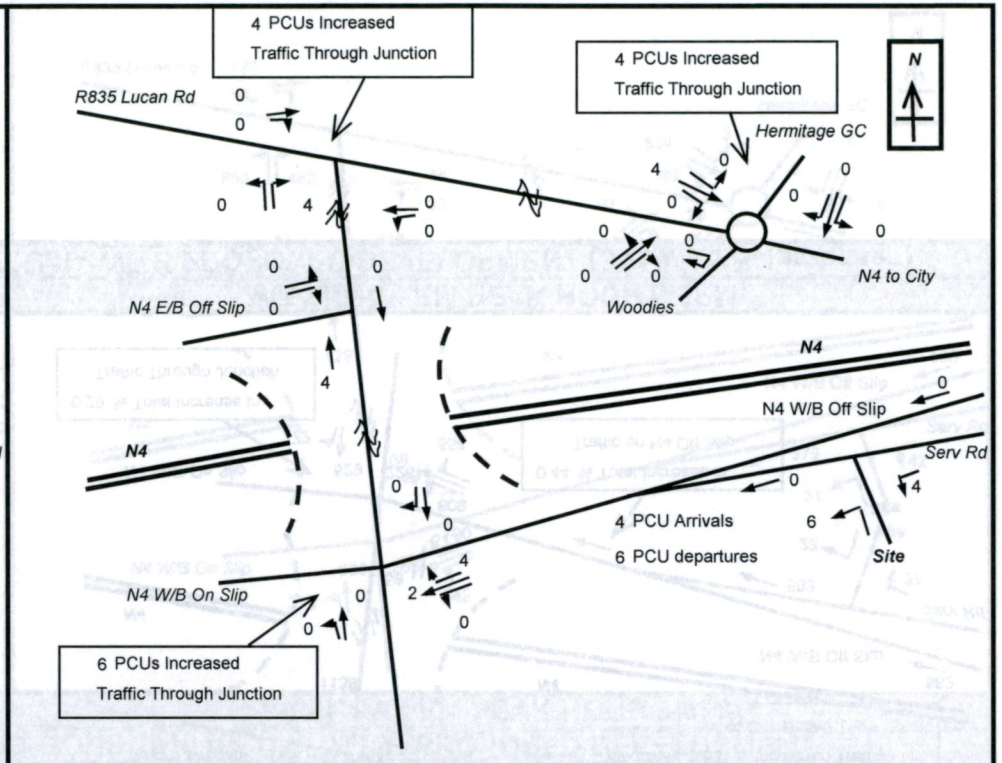
TRICS Traffic Generation Calculations
Subject Application - Warehousing
(Refer Same TRICS Output in Appendix C)

TOTAL VEHICLES					
3300 m2 GFA	Arrivals (PCUs)		Departures (PCUs)		Total 2-Way Traffic Generated
Warehouse	per 100	Dev	per 100	Dev	
Weekday AM Peak Hr	0.151	5	0.082	3	8
Weekday PM Peak Hr	0.082	3	0.147	5	8
24 Hr Day (AADT)	1.710	56	1.671	55	112
OF WHICH, GOODS VEHICLES					
3300 m2 GFA	Arrivals		Departures		Total 2-Way Traffic Generated
Warehouse	per 100	Dev	per 100	Dev	
Weekday AM Peak Hr	0.039	1	0.044	1	3
Weekday PM Peak Hr	0.042	1	0.033	1	2
24 Hr Day (AADT)	0.565	19	0.564	19	37
CONVERTING TO PCUs, TOTAL TRAFFIC					
Period	Arrivals		Departures		Total 2-Way
Weekday AM Peak Hr	6		4		10
Weekday PM Peak Hr	4		6		10
24 Hr Day (AADT)	75		74		149

The Above Traffic Generation Assessment confirms the VERY LOW Levels of Car Traffic Generated by Dist Warehouse Developments of



DEVELOPMENT TRAFFIC ASSIGNMENT WEEKDAY AM PEAK HOUR 8-



DEVELOPMENT TRAFFIC ASSIGNMENT WEEKDAY PM PEAK HOUR 5-6PM

ASSIGNMENT OF DEVELOPMENT TRAFFIC ONLY, BASED ON ESTABLISHED TURNING PROPORTIONS (INDUSTRY STANDARD

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APPENDIX E

'Junction 9' PICADY Capacity Model Output Data
(Service Rd/Site Access)

Service Road Site Access Junction
Summary PiCADY Results in Order as included herein
(Robust & Worst Case – with Entry/Exit Amalgamated)

Modelled Scenario	Period Mean Max Q (PCUs)	Period Max RFC
2025 Opening Year AM Peak	0.0	0.00
2025 Opening Year PM Peak	0.1	0.05
2040 Design Year AM Peak	0.0	0.00
2040 Design Year PM Peak	0.1	0.06

All Results Above are WAY below the recommended guiding RFC of 0.85 (85% Capacity) during the selected opening & design years and therefore no problems whatsoever are anticipated at the Junction in terms of Capacity or Predicted Vehicle Queues.

NB Any Small Changes to Selected Opening Year 2025 or Design Year 2040, or indeed significantly higher traffic volumes experienced, will clearly have no significant implications in terms of the conclusions of the Study.

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.0.1.4646 []

Filename: 2025 AM PM.j9
Path: C:\Users\Eoin\NRB Consulting Engineers Ltd\NRB Server - Documents\2022\22-046 Foxhunter Dist\Calculations\Site Access Picady
Report generation date: 21/08/2022 12:05:03

Summary of junction performance

	AM				PM			
	Q (PCU)	Delay (s)	RFC	LOS	Q (PCU)	Delay (s)	RFC	LOS
	2025							
Stream B-AC	0.0	0.00	0.00	A	0.1	8.47	0.05	A
Stream C-AB	0.0	0.00	0.00	A	0.0	0.00	0.00	A

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle.

File summary

File Description

Title	(untitled)
Location	
Site number	
Date	21/08/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	NRB-004\Eoin
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Av. delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Calculate Q Percentiles	Calculate residual capacity	RFC Threshold	Av. Delay threshold (s)	Q threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2025	AM	ONE HOUR	07:45	09:15	15
D2	2025	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2025, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Service Road Site Access	T-Junction	Two-way	0.00	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Service Rd East		Major
B	Site Access		Minor
C	Service Rd West		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	6.00			100.0	✓	1.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	3.50	100	100

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	589	0.107	0.271	0.171	0.387
1	B-C	721	0.111	0.279	-	-
1	C-B	632	0.245	0.245	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2025	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
A		✓	558	100.000
B		✓	4	100.000
C		✓	0	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	37	521
	B	0	0	4
	C	0	0	0

Vehicle Mix

HV %s

		To		
		A	B	C
From	A	0	25	2
	B	0	0	25
	C	2	2	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS
B-AC	0.00	0.00	0.0	A
C-AB	0.00	0.00	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	536	0.000	0	0.0	0.000	A
C-AB	0	1058	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	28			28			
A-C	392			392			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	515	0.000	0	0.0	0.000	A
C-AB	0	1018	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	33			33			
A-C	468			468			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	484	0.000	0	0.0	0.000	A
C-AB	0	963	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	41			41			
A-C	574			574			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	484	0.000	0	0.0	0.000	A
C-AB	0	963	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	41			41			
A-C	574			574			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	515	0.000	0	0.0	0.000	A
C-AB	0	1018	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	33			33			
A-C	468			468			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	536	0.000	0	0.0	0.000	A
C-AB	0	1058	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	28			28			
A-C	392			392			

2025, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Service Road Site Access	T-Junction	Two-way	0.42	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2025	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
A		✓	540	100.000
B		✓	28	100.000
C		✓	0	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	37	503
	B	0	0	28
	C	0	0	0

Vehicle Mix

HV %s

		To		
		A	B	C
From	A	0	25	2
	B	2	0	25
	C	2	2	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS
B-AC	0.05	8.47	0.1	A
C-AB	0.00	0.00	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	21	612	0.034	21	0.0	7.606	A
C-AB	0	1065	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	28			28			
A-C	379			379			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	25	591	0.043	25	0.1	7.949	A
C-AB	0	1026	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	33			33			
A-C	452			452			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	31	562	0.055	31	0.1	8.469	A
C-AB	0	973	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	41			41			
A-C	554			554			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	31	562	0.055	31	0.1	8.471	A
C-AB	0	973	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	41			41			
A-C	554			554			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	25	591	0.043	25	0.1	7.951	A
C-AB	0	1026	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	33			33			
A-C	452			452			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	21	612	0.034	21	0.0	7.610	A
C-AB	0	1065	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	28			28			
A-C	379			379			

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.0.1.4646 []

Filename: 2040 AM PM.j9
Path: C:\Users\Eoin\NRB Consulting Engineers Ltd\NRB Server - Documents\2022\22-046 Foxhunter Dist\Calculations\Site Access Picady
Report generation date: 21/08/2022 12:08:04

Summary of junction performance

	AM				PM			
	Q (PCU)	Delay (s)	RFC	LOS	Q (PCU)	Delay (s)	RFC	LOS
	2040							
Stream B-AC	0.0	0.00	0.00	A	0.1	8.93	0.06	A
Stream C-AB	0.0	0.00	0.00	A	0.0	0.00	0.00	A

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle.

File summary

File Description

Title	(untitled)
Location	
Site number	
Date	21/08/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	NRB-004\Eoin
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Av. delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Calculate Q Percentiles	Calculate residual capacity	RFC Threshold	Av. Delay threshold (s)	Q threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2040	AM	ONE HOUR	07:45	09:15	15
D2	2040	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2040, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Service Road Site Access	T-Junction	Two-way	0.00	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Service Rd East		Major
B	Site Access		Minor
C	Service Rd West		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	6.00			100.0	✓	1.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	3.50	100	100

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	589	0.107	0.271	0.171	0.387
1	B-C	721	0.111	0.279	-	-
1	C-B	632	0.245	0.245	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2040	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
A		✓	605	100.000
B		✓	4	100.000
C		✓	0	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	6	599
	B	0	0	4
	C	0	0	0

Vehicle Mix

HV %s

		To		
		A	B	C
From	A	0	25	2
	B	0	0	25
	C	2	2	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS
B-AC	0.00	0.00	0.0	A
C-AB	0.00	0.00	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	523	0.000	0	0.0	0.000	A
C-AB	0	1041	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	5			5			
A-C	451			451			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	498	0.000	0	0.0	0.000	A
C-AB	0	997	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	5			5			
A-C	538			538			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	464	0.000	0	0.0	0.000	A
C-AB	0	938	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	7			7			
A-C	660			660			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	464	0.000	0	0.0	0.000	A
C-AB	0	938	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	7			7			
A-C	660			660			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	498	0.000	0	0.0	0.000	A
C-AB	0	997	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	5			5			
A-C	538			538			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	523	0.000	0	0.0	0.000	A
C-AB	0	1041	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	5			5			
A-C	451			451			

2040, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Service Road Site Access	T-Junction	Two-way	0.42	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2040	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Av. Demand (PCU/hr)	Scaling Factor (%)
A		✓	621	100.000
B		✓	31	100.000
C		✓	0	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	42	579
	B	0	0	31
	C	0	0	0

Vehicle Mix

HV %s

		To		
		A	B	C
From	A	0	25	2
	B	2	0	25
	C	2	2	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Q (PCU)	Max LOS
B-AC	0.06	8.93	0.1	A
C-AB	0.00	0.00	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	23	596	0.039	23	0.1	7.853	A
C-AB	0	1035	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	32			32			
A-C	436			436			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	28	572	0.049	28	0.1	8.273	A
C-AB	0	990	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	38			38			
A-C	521			521			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	34	538	0.063	34	0.1	8.928	A
C-AB	0	929	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	46			46			
A-C	637			637			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	34	538	0.063	34	0.1	8.930	A
C-AB	0	929	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	46			46			
A-C	637			637			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	28	572	0.049	28	0.1	8.277	A
C-AB	0	990	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	38			38			
A-C	521			521			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	23	596	0.039	23	0.1	7.861	A
C-AB	0	1035	0.000	0	0.0	0.000	A
C-A	0			0			
A-B	32			32			
A-C	436			436			

NRB consulting engineers

APPENDIX F

Stage 1 Independent Road Safety Audit
(& Designer Feedback Form)

Title: **Stage 1 ROAD SAFETY AUDIT**

For;

Proposed Distribution Warehousing at [redacted]

Ballydowd, Lucan, Co. Dublin

Client: **NRB Consulting Engineers**

Date: **September 2022**

Report reference: **1589R01**

VERSION: **FINAL (19-9-2022)**

Prepared By:

Bruton Consulting Engineers Ltd

Glaspistol
Clogherhead
Drogheda
Co. Louth.

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BRUTON CONSULTING ENGINEERS

CONTENTS SHEET

Contents

1.0 Introduction

This report was prepared in response to a request from Mr. Eoin Reynolds, NRB Consulting Engineers, for a Stage 1 Road Safety Audit of a proposed Distribution Warehousing ~~at the Foxhunter Site~~ at Ballydowd, Lucan, Co. Dublin.

The Road Safety Audit Team comprised of;

Team Leader: **Norman Bruton**, BE CEng FIEI, Cert Comp RSA.

TII Auditor Approval no. NB 168446

Team Member: **Owen O'Reilly**, B.SC. Eng Dip Struct. Eng NCEA Civil Dip Civil. Eng CEng MIEI

TII Auditor Approval no. OO1291756

The Road Safety Audit involved the examination of drawings and other material provided by NRB and a site visit on the 9th of June 2022.

The weather at the time of the site visit was wet and the road surface was wet.

This Stage 1 Road Safety Audit has been carried out in accordance with the requirements of TII Publication Number GE-STY-01024, dated December 2017.

The scheme has been examined and this report compiled in respect of the consideration of those matters that have an adverse effect on road safety. It has not been examined or verified for compliance with any other standards or criteria.

The problems identified in this report are considered to require action in order to improve the safety of the scheme for road users.

If any of the recommendations within this safety audit report are not accepted, a written response is required, stating reasons for non-acceptance. Comments made within the report under the heading of Observation are intended to be for information only. Written responses to Observations are not required.

The information supplied to the Audit Team is listed in **Appendix A.**

The feedback form is contained in **Appendix B.**

A plan drawing showing the problem locations is contained in **Appendix C**.

TII Approval of the Audit Team is contained in **Appendix D.**

2.0 Background

It is proposed to construct a commercial warehouse unit (Gross Floor Area 3,174m2) and ancillary offices and canteen ~~on the former Foxhunter public house and restaurant site in~~ AT BALLYDOWD Lucan, Co. Dublin.

Access to the facility would be from the service road off the N4 which starts upstream at the Ballyowen Lane Junction 2A slip and is segregated from the N4 lanes by a series of splitter islands with bollards and served Ballyowen Lane , a filling station and other premises before joining the diverge lane of the N4 junction 3. The service road has an on-road cycle lane and a single traffic lane.

The site will share an access with the Foxhunter/Wow burger/Elephant & Castle premises and the exit will be to the west of the site along the 50km/hr section (i.e. further east than the existing egress point)

It is proposed to provide 20 no. car parking spaces and 16 no. bicycle spaces.

A pedestrian access is proposed to Hermitage Gardens.

The speed limit is 50km/hr.

The site location is shown below.

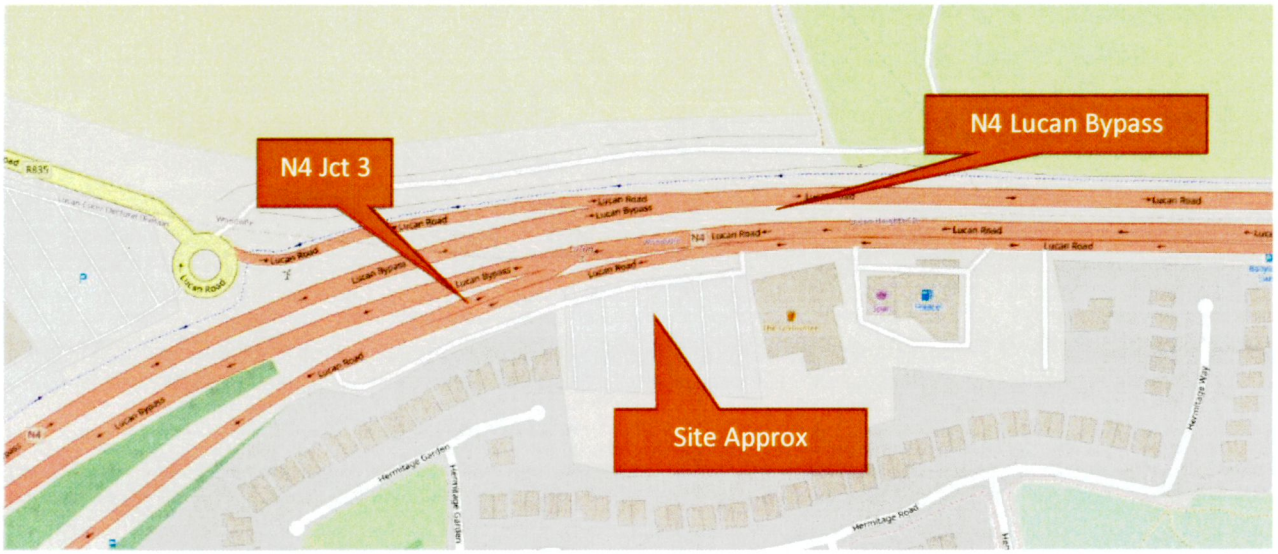


Image courtesy of openstreetmap.org

3.0 Items Raised in This Stage 1 Road Safety Audit.

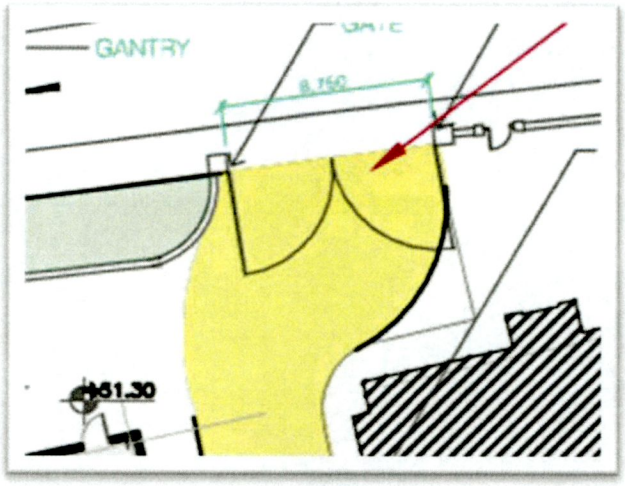
3.1. Problem

LOCATION

Drawing NRB -TA-001 Rev -

PROBLEM

The Access is shown to be gated. There is a risk that heavy goods vehicles (HGVs) associated with the warehousing will not be able to gain entry or will have delayed entry which could block the service road. This could lead to delays for emergency vehicles resulting in more severe injuries.



RECOMMENDATION

It is recommended that the gates be set back where HGVs can pull clear of the carriageway.

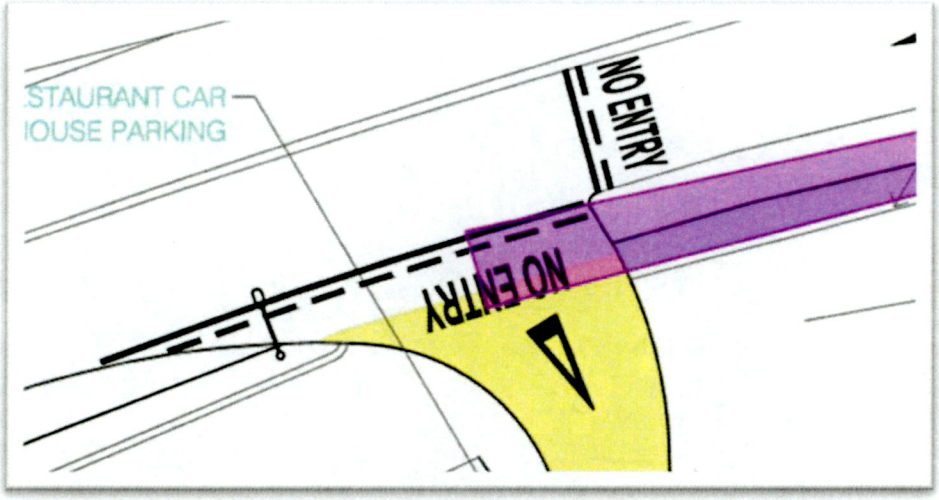
3.2 Problem

LOCATION

Drawing NRB -TA-001 Rev -

PROBLEM

Although road markings are proposed at the egress point to demonstrate that the service road is one-way only there is a risk that in certain weather conditions and lighting that drivers may not realise this. This could result in wrong way driving and head-on collisions.



RECOMMENDATION

It is recommended that signage be provided confirming that there is no right turn and that drivers must turn left. Such signs could be provided on approach to the egress point and on a the splitter island between the N4 and the service road.

3.3 Problem

LOCATION

Drawing NRB -TA-001 Rev -

PROBLEM

It was observed during the site visit that there is a height difference between the service road and the site and that the boundary wall which is to be set back acts as a retaining wall. There is a risk that the approach to the egress point may have a steep vertical alignment resulting in overshoot of the stop line/no entry line. This could lead to side-impact collisions.

RECOMMENDATION

Ensure a suitable gradient and dwell area is provided.

BRUTON CONSULTING ENGINEERS

4.0 Audit Statement

We certify that we have examined the information provided and the site. The examination has been carried out with the sole purpose of identifying any features of the design which could be removed or modified in order to improve the safety of the scheme.

The problems identified have been noted in this report together with associated safety improvement suggestions which we would recommend should be studied for implementation. The audit has been carried out by the persons named below who have not been involved in any design work on this scheme as a member of the Design Team.

Norman Bruton **Signed:** Norman Bruton

(Audit Team Leader) **Dated:** ____19-9-2022_____

Owen O'Reilly **Signed:** Owen O'Reilly

(Audit Team Member) **Dated:** ___19-9-2022_____

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Appendix A

List of Material Supplied for this Road Safety Audit;

- Drawing NRB TA-001
- Drawing NRB TA-002
- Drawing NRB TA-003
- Drawing NRB TA-004
- Transportation Assessment Report, NRB, August 2022

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Appendix B

Feedback Form

SAFETY AUDIT FORM – FEEDBACK ON AUDIT REPORT

Scheme: [redacted] warehousing BALLYDOWD
Stage: 1 Road Safety Audit
Date Audit (Site Visit) Completed: 9-6-2022

Paragraph No. in Safety Audit Report	Problem accepted (yes/no)	Recommended measure accepted (yes/no)	Alternative measures (describe)	Alternative measures accepted by Auditors (Yes/No)
3.1	Y	N	Gates have now been removed from the latest design drawings	Yes
3.2	Y – No Entry signage now provided along with proposed road markings	Y		
3.3	Y – approach to the proposed egress point to be regraded for c.20m (to facilitate a standard 16.5m Artic.) to provide a shallower gradient of c.2-2.5%.	Y		

Signed.....
Design Team Leader

Date.....

Signed.....
Audit Team Leader

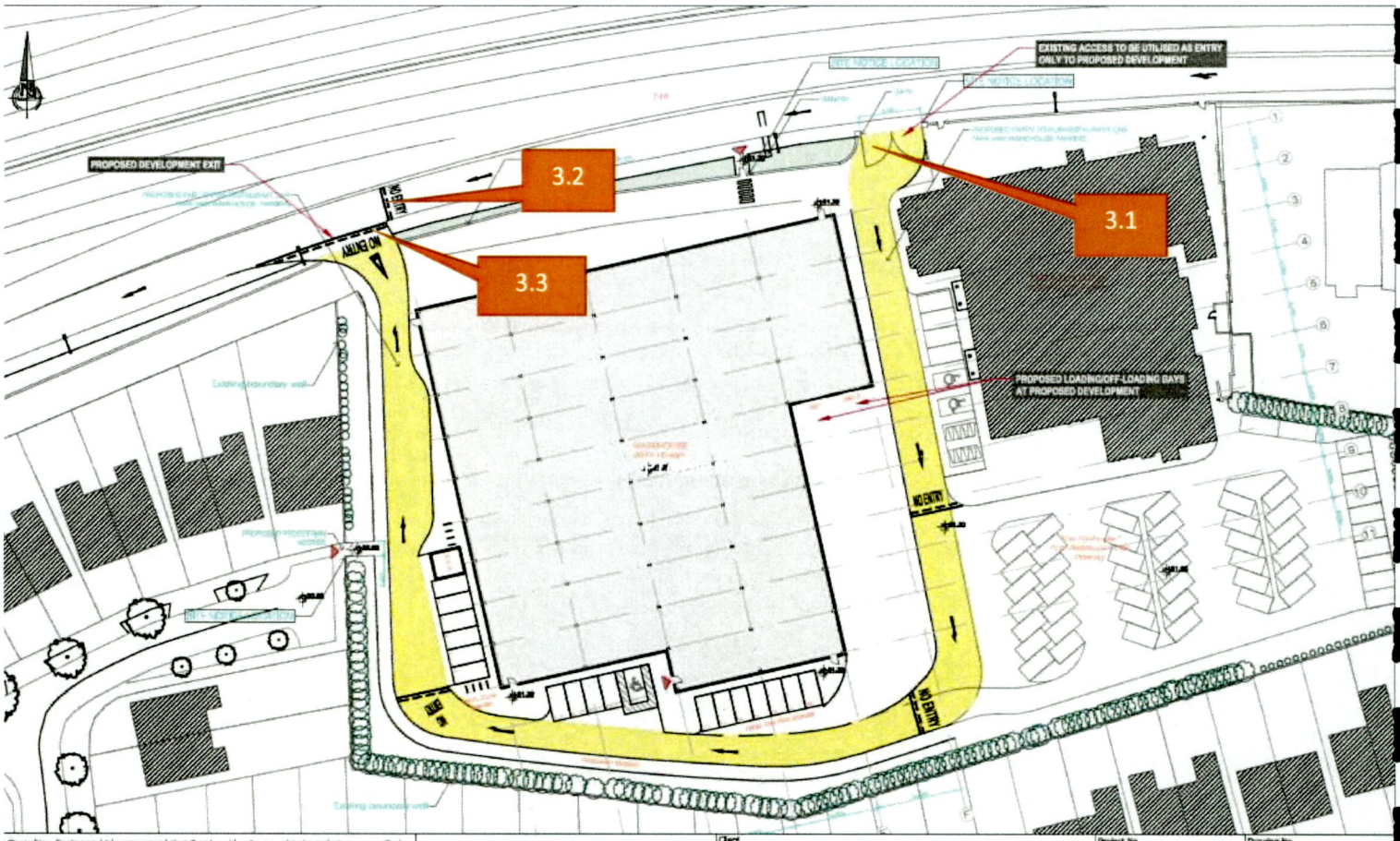
Date...19-9-2022...

Signed.....
Employer/Developer

Date...13/9/2022...

Appendix C

Problem Location Plan.



Consulting Engineers Ltd recommend that Road and land ownership boundaries are verified ugh Legal & Land searches by the Client.
drawing is based upon architects drawing 685.1 - D received 05/09/22. NRB Consulting neers Ltd shall not be liable for any inaccuracies or deficiencies.

DATE	AMENDMENTS	DRAWN	CHK	APP

NRB Consulting Engineers Ltd
1st Floor, Apollo Building
Dundrum Road
Dundrum
Dublin 14
Phone/Fax: +353 1 292 1941
Email: info@nrb.ie
Web: www.nrb.ie
Registered in Ireland No. 491670

NRB

Client		Project No. 22-046		Drawing No. NRB-TA-001
Project: Foxhunter Warehousing Lucan		Drawn PB	Checked ER 29/08/22	Approved ER 29/08/22
Title: Proposed Site Layout		Date 30-Aug-22	Scale @ A3 1:500	Rev -
NRB Consulting Engineers Ltd accept no responsibility for any unauthorised amendments to this drawing. Only figured dimensions to be worked to.		Purpose of Issue: ☐ Draft ☐ As Built ☐ Information ☐ Tender ☐ Approval ☐ Construction		

Appendix D – TII Auditor Approval

Seamus Nolan
1st Floor Apollo Building
Dundrum Road
Dundrum
Dublin 14

Date: 08/09/2022

Our Ref: 30469313/31226/Stage 1

re: N4 Distribution Warehouse BALLYDOWD

APPROVAL OF ROAD SAFETY AUDIT TEAM, Stage 1

Dear Seamus Nolan,

The following members of the proposed road safety audit team are approved to carry out the Stage 1 road safety audit of N4 Distribution Warehouse AT BALLYDOWD

1. Norman Bruton - Bruton Consulting Engineers Ltd - Leader
2. Owen O'Reilly - PEN Priory Engineering Network - Member

A copy of all audit reports, design team response and exception reports must be uploaded through RSAAS. Successful upload of these reports and completion of the audit approval process is necessary for any further audit approval on this scheme.

Yours sincerely,

Lucy Curtis

Regional Road Safety Engineer
roadsafetyaudits@tii.ie