

Goldthorpe (Site ES10) Analysis of Proposed Site Access (Updated GFA)

Client name Barnsley Metropolitan Borough Council	Project name Development of ES10, Goldthorpe	Date 05/11/2021	Prepared by James Stackhouse
Approved by Stephen Moss	Checked by David Cleasby		

Revision History

Revision	Revision date	Details	Authorised	Name	Position
0	05.11.2021	Updated GFA	SM	Stephen Moss	Associate Director

Introduction

This note has been prepared by AECOM on behalf of Barnsley Metropolitan Borough Council (BMBC) so that the operation of the proposed site access roundabout can be understood.

We have assessed the junction at the potential opening year of 2021 and the LDF design year of 2033 along with intermediate year of 2026 and 2031, to provide consistency with our previous work regarding the offsite mitigation.

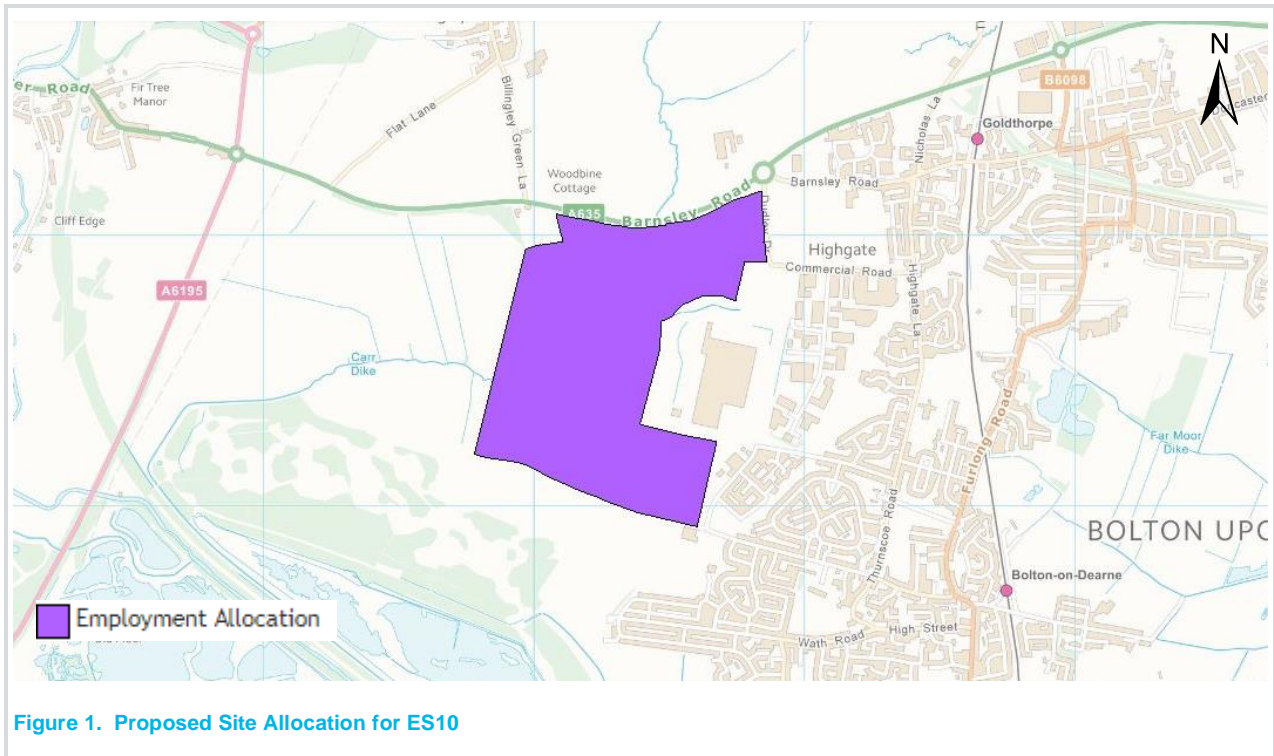
Whilst the full details are given below, it can be summarised that the proposed roundabout, as designed by BMBC, can satisfactorily accommodate the Sites increased GFA of 204,000m², with all RFC's remaining below 0.85. The increased development quantum of 204,000m² represents an increase of 35,381m² from that previously tested.

Site Overview:

The proposed development is an industrial estate development with a total Gross Floor Area (GFA) of 204,000m², located near to Goldthorpe, some 9.5km south-east of Barnsley.

The site is allocated for employment land use within the adopted Barnsley Local Plan (2019), under site reference ES10 'Land South of Dearne Valley Parkway'. AECOM previously worked with BMBC to agree the offsite mitigation, and this note now assesses the proposed site access roundabout.

The site extent is shown on Figure 1 below.



Development Proposal: Site access roundabout

The modelling software package Junctions 9 has been used to assess the operational capacity of the proposed roundabout. The junction has been modelled utilising the ARCADY module of the software, which uses Ratio to Flow Capacity (RFC) to measure the operational capacity of the junction.

Figure 2 below shows the proposed site access arrangements, which is formed of a 3-arm roundabout, located on the A635 near Goldthorpe. The proposed roundabout will encompass two lane entry, and one lane exit, on each arm, with the full layout being included within Appendix A.

The A635, as shown on Figure 3, is currently formed of one single carriageway in each direction divided by lane hatching in areas surrounding the proposed roundabout.



Figure 2. Proposed Roundabout



Figure 3. Existing Road Layout

Methodology:

Modelling of this junction was done using the ARCADY module within JUNCTIONS 9 software. To successfully run this model, geometric parameters have been taken from proposed design and inputted into the software.

ARCADY generates outputs including queue lengths given in PCU, Delays (s) and also generates an RFC value. RFC values of less than 0.85 are considered to indicate the junction operates at an acceptable level with values between 0.85

– 1.00 are considered to indicate the junction is reaching capacity with above 1.00 indicating a junction operating over capacity.

A traffic count has been conducted to assess the current east and westbound traffic flows along the A635 within the vicinity of the proposed site access.

The survey was conducted on Wednesday 8th September 2021 and recorded east and westbound flows between 07:00-10:00 and 16:00-19:00. The identified AM and PM Peak Hours are set out below.

- AM Peak Hour: 07:15 – 08:15am
- PM Peak Hour: 16:30 – 17:30pm

This data formed a baseline for each year, with TEMPro v 7.2 growth factors then applied to the 2021 count data to factor up to future assessment years of 2026, 2031 and 2033. The relevant TEMPro growth factors are presented in Table 1 below

Table 1. Growth Factors – Barnsley District (RTF15)

AM	PM
2021-2026	
1.0748	1.0748
2021-2031	
1.1257	1.1260
2021-2033	
1.1476	1.1475

Source: TEMPro V7.2

It should be noted that the TEMPro growth factors presented above have been derived from TEMPro v 7.2, which depends on NTM Traffic Growth Calculations from RTF15, which has recently been superseded by RTF18, as part of the latest TEMPro 7.2 release.

Generally, NTM Traffic Growth Calculations from the most recent RTF18 are seen to be less than those predicted by the now superseded RTF15. Therefore, a sensitivity test has been conducted to establish whether the revised traffic growth forecasts are materially different to those previously used.

Table 2 below shows TEMPro Growth Factors derived from the most up to date TEMPro 7.2c software, which utilises NTM Traffic Growth Calculations from RTF18.

Table 2. Growth Factors – Barnsley District (RTF18)

AM	PM
2021-2026	
1.0455	1.0455
2021-2031	
1.0883	1.0886
2021-2033	
1.1075	1.1074

Source: TEMPro V7.2c

The growth factors presented within Table 2, as taken from the latest TEMPro 7.2c release, can be seen to be on average approximately 4% less than the levels of growth predicted by the previous RTF15, when taken as an average across the 6 scenarios.

For the purposes of this assessment, the slightly higher growth factors presented within Table 1 have been utilised, to offer consistency with other modelling conducted across the study area, and to offer the most robust assessment.

The additional traffic generated by the development was calculated using TRICS and census data was utilised to distribute the trips onto the local highway network, in terms of origin destination data. The site access distribution is presented within Appendix B

In order to assess the capacity of the junctions and the impact of the potential development site on the local road network, development trip generation has been derived using TRICS software. The AM (08:00-09:00) and PM (17:00-18:00) peak hour vehicle trip rates have been selected for sites of a similar size and nature to the development proposal. Sites have been chosen based on TRICS land use category 'Employment – Industrial Estate' for geographical areas excluding London, Northern Ireland and Republic of Ireland.

The full outputs from TRICS are contained within Appendix C of this Technical Note whilst the vehicle trip rates and resultant trip generation are summarised below.

Based on a plan of the overall D1 site, the total Gross Floor Area (GFA) is 204,000m².

Table 3. TRICS Trip Generation

Site	Trips	AM Peak (08:00-09:00)			PM Peak (17:00-18:00)		
		Arrivals	Departures	Two-Way	Arrivals	Departures	Two-Way
ES10 Site (204,000m ²)	Vehicle Trip Rate (per 100 sq.m)	0.269	0.132	0.401	0.085	0.234	0.319
	Vehicle Trip Generation	549	269	818	173	477	650

The distribution of traffic for the development trips given above was based on Journey to Work data from the 2011 Census for the two output areas of E02001530: Barnsley 022 and E02001533: Barnsley 025. The distributions are summarised below, with the 'Other' category summarising all remaining destinations with less than 6% of traffic that is then distributed according to the other destinations.

Table 0.2 – Census Journey to Work Distribution Pattern

Route / Destination	Percentage
Barnsley	55%
Doncaster	13%
Rotherham	16%
Sheffield	5%
Wakefield	5%
Other	6%
Total	100%

All distribution data results at the assessed junctions are provided in Appendix B

Model Results:

The modelling results from ARCADY are included in Appendix D but can be summarised as follows for each of the assessed years.

The junction has been modelled in the following scenarios:

- Base 2021 + Development;
- Base 2026 + Development;

- Base 2031 + Development; and
- Base 2033 + Development.

Assessment Year 2021

The Table below shows the 2021 results from the ARCADY modelling.

Base 2021 + Development

Table 4. Proposed Roundabout 2021 Base + Development

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
Arm 1 – A635 (East)	0.6	1.6	0.36	0.6	1.5	0.38
Arm 2 – Site Access	0.1	1.4	0.10	0.3	1.8	0.20
Arm 3 - A635 (West)	0.8	1.7	0.43	0.5	1.5	0.34

Source: JUNCTIONS 9

The results presented above show that, with the addition of the development traffic, the junction operates well within the desired practical capacity (below 0.85 RFC), with a maximum RFC of 0.43 along the A635 (W) arm during the AM Peak Hour and a max RFC of 0.38 along the A635 (E) arm during the PM Peak Hour.

Assessment Year 2026

The Table below show the Base 2026 results from the ARCADY modelling.

Base 2026 + Development

Table 5. Proposed Roundabout 2026 Base + Development

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
Arm 1 – A635 (East)	0.6	1.6	0.38	0.7	1.6	0.40
Arm 2 – Site Access	0.1	1.4	0.10	0.3	1.9	0.21
Arm 3 – A635 (West)	0.8	1.7	0.46	0.6	1.5	0.36

Source: JUNCTIONS 9

The results presented above show that, with the addition of the development traffic and background traffic growth between 2021 and 2026, the junction continues to operate well within the desired practical capacity (below 0.85 RFC), with a maximum RFC of 0.46 along the A635 (W) arm during the AM Peak Hour and a max RFC of 0.40 along the A635 (E) during the PM Peak Hour.

Assessment Year 2031

The Table below shows the Base 2031 results from ARCADY.

Base 2031 + Development

Table 6. Proposed Roundabout 2031 Base + Development

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
Arm 1 – A635 (East)	0.7	1.6	0.40	0.7	1.6	0.42

Arm 2 – Site Access	0.1	1.4	0.11	0.3	2.0	0.22
Arm 3 – A635 (West)	0.9	1.8	0.47	0.6	1.5	0.37

Source: *JUNCTIONS 9*

The results presented above show that, with the addition of the development traffic and background traffic growth between 2021 and 2031, the junction continues to operate well within the desired practical capacity (below 0.85 RFC), with a maximum RFC of 0.47 along the A635 (W) arm during the AM Peak Hour and a max RFC of 0.42 along the A635 (E) during the PM Peak Hour.

Assessment Year 2033

The Table below shows the base 2033 results from ARCADY modelling.

Base 2033 + Development

Table 7. Proposed Roundabout 2033 Base + Development

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
Arm 1 – A635 (East)	0.7	1.7	0.40	0.8	1.7	0.43
Arm 2 – Site Access	0.1	1.5	0.11	0.3	2.0	0.22
Arm 3 – A635 (West)	0.9	1.8	0.48	0.6	1.6	0.38

Source: *JUNCTIONS 9*

The results presented above show that, with the addition of the development traffic and background traffic growth between 2021 and 2033, the junction continues to operate well within the desired practical capacity (below 0.85 RFC), with a maximum RFC of 0.48 along the A635 (W) arm during the AM Peak Hour and a max RFC of 0.43 along the A635 (E) during the PM Peak Hour.

Summary of results:

The results demonstrate that the proposed roundabout site access junction can accommodate traffic generated by the total employment land allocation as well as background traffic growth up to 2033 and will continue to operate well within the desired practical capacity of up to 0.85 RFC. The junction also operates with minimal queuing and delay in all design scenarios.

Appendix A : Site Access Design (Fore Drawing no. 3465-100-SK-001-E)

- GENERAL NOTES**
- a. THE TOPOGRAPHICAL SURVEY IS BASED ON INFORMATION PRODUCED BY HIS SURVEYS, DRAWING NO. 040/18/19/10, DATED 14 SEPTEMBER 2021. THE INFORMATION USED IN PREPARATION OF THIS AND ALL OTHER FORE CONSULTING DESIGNS AND DRAWINGS IS NOT GUARANTEED. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL SURVEY INFORMATION PROVIDED AND REPORT ANY ANOMALIES TO FORE CONSULTING.
- DESIGN NOTES**
- ALL DESIGN AND WORKS TO COMPLY WITH CURRENT VERSION OF THE FOLLOWING DOCUMENTS:
 - DESIGN MANUAL FOR ROADS AND BRIDGES (DMRB);
 - SPECIFICATION FOR HIGHWAY WORKS (SHW);
 - MANUAL FOR STREETS (MFS); AND
 - BARNSLEY METROPOLITAN BOROUGH COUNCIL (BMBBC) DESIGN GUIDE AND SPECIFICATION.
 - FOOTPATH GRADIENT AT TACTILE PAVING TO BE A MAXIMUM OF 1:12.
 - EXISTING FENCES, VERGES/SHUBBERY, FOOTWAY, AND OTHER PHYSICAL FEATURES TO BE REMOVED WITHIN THE AREA OF WORKS.
 - ALL KERBS TO BE 182, EXCEPT DROPPED KERBS AT PEDESTRIAN CROSSING.
 - ALL IRONWORK WITHIN EXTENT OF WORKS TO BE LOWERED / RAISED AS REQUIRED.
 - ALL PROPOSED ROAD MARKINGS TO BE IN ACCORDANCE WITH THE FOLLOWING:
 - TRAFFIC SIGNS REGULATIONS AND GENERAL DIRECTIONS (TSRGD); AND
 - TRAFFIC SIGNS MANUALS CHAPTER 5 - ROAD MARKINGS.
 - A635 DESIGN SPEED: 60mph
 - EARTHWORKS SLOPES TO BE MAXIMUM 1:3.
 - CHANNEL BLOCKS TO BE INSTALLED ALONG ALL THE NEW KERBS.

KEY

	CARRIAGEWAY
	FOOT/CYCLEWAY
	TACTILE PAVING (UNCONTROLLED CROSSING)
	BLOCK PAVING
	GRASS VERGE
	EARTHWORKS/LANDSCAPING



REV	DESCRIPTION	DATE	BY
E	CHANGES FOLLOWING COMMENTS	12.10.21	ML
D	TOPO SURVEY UPDATED	28.09.21	ML
C	CHANGES FOLLOWING COMMENTS	31.08.21	ML
B	CHANGES FOLLOWING COMMENTS	22.07.21	ML
A	CHANGES FOLLOWING COMMENTS	19.07.21	ML

Client:
BARNSLEY METROPOLITAN BOROUGH COUNCIL

Project:
PROPOSED ROUNDABOUT A635 GOLDTHORPE

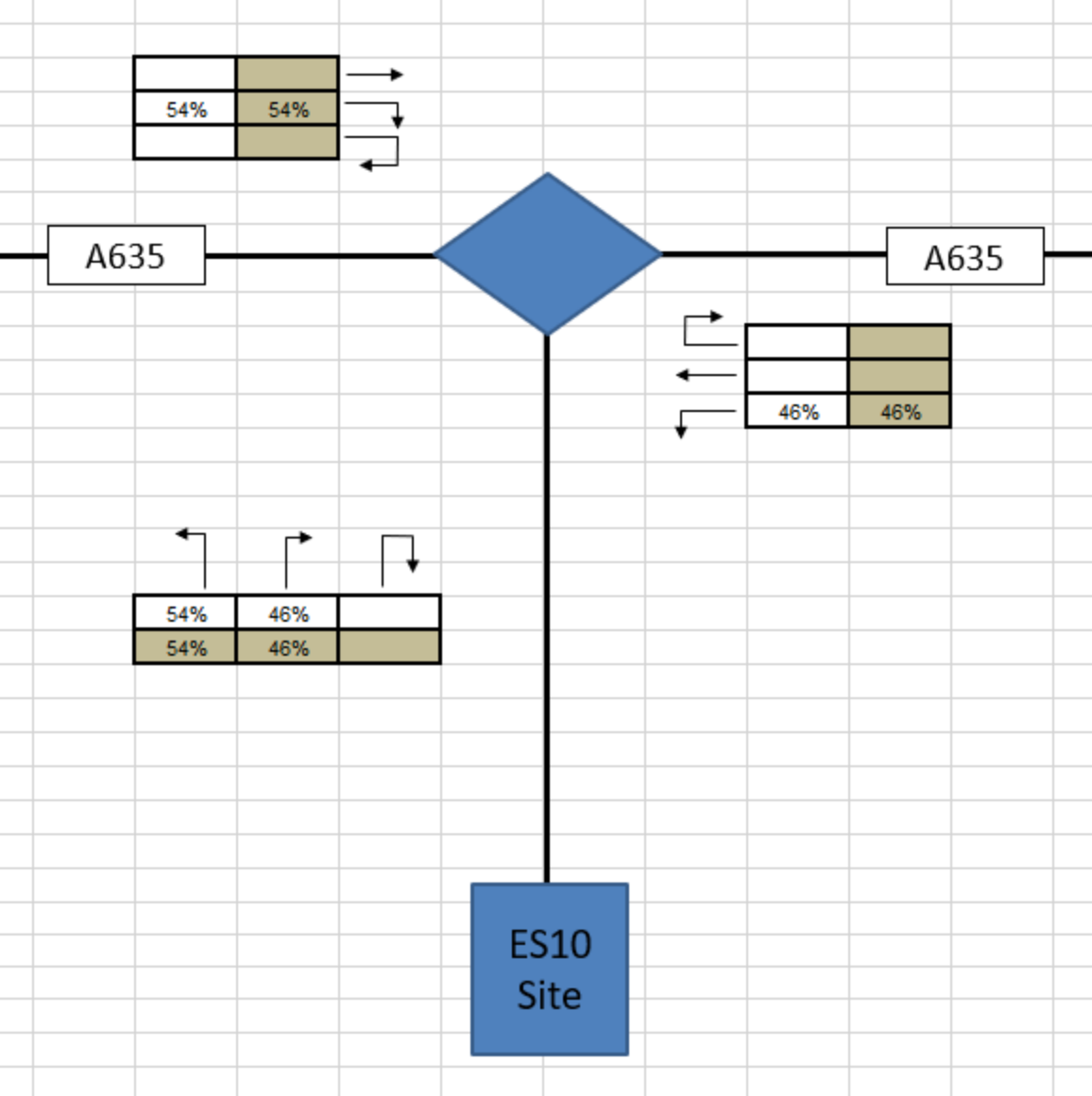
Drawing Title:
GENERAL ARRANGEMENT

PRELIMINARY

Fore Consulting Limited
1st Floor, 15 St Paul's Street
Sleeds
LS1 2SD
0113 2460204
enquiries@foreconsulting.co.uk
www.foreconsulting.co.uk

3465 100-SK-001 E

Appendix B : Trip Distributions to and from the site



54%	54%

A635



A635

46%	46%

54%	46%	
54%	46%	

ES10
Site

Appendix C TRICS Output

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
 Category : D - INDUSTRIAL ESTATE
 VEHICLES

Selected regions and areas:

04	EAST ANGLIA	
	SF SUFFOLK	1 days
15	GREATER DUBLIN	
	DL DUBLIN	1 days

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

Filtering Stage 2 selection:

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

Parameter:	Gross floor area
Actual Range:	102000 to 120000 (units: sqm)
Range Selected by User:	100000 to 234115 (units: sqm)

Public Transport Provision:

Selection by:	Include all surveys
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Date Range:	01/01/06 to 26/06/07
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This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Tuesday	2 days
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This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	2 days
Directional ATC Count	0 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	2
------------------------------------	---

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

Selected Location Sub Categories:

Industrial Zone	1
Built-Up Zone	1

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

Filtering Stage 3 selection:

Use Class:

Not Known

1 days

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

Population within 1 mile:

15,001 to 20,000

2 days

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

Population within 5 miles:

125,001 to 250,000

1 days

250,001 to 500,000

1 days

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

Car ownership within 5 miles:

0.6 to 1.0

2 days

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

Travel Plan:

No

2 days

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

LIST OF SITES relevant to selection parameters

1	DL-02-D-03	INDUSTRIAL ESTATE	DUBLIN
	CLOVERHILL ROAD		
	DUBLIN		
	Suburban Area (PPS6 Out of Centre)		
	Industrial Zone		
	Total Gross floor area:	120000 sqm	
	Survey date: TUESDAY	26/06/07	Survey Type: MANUAL
2	SF-02-D-02	INDUSTRIAL ESTATE	SUFFOLK
	HADLEIGH ROAD		
	WESTBOURNE		
	IPSWICH		
	Suburban Area (PPS6 Out of Centre)		
	Built-Up Zone		
	Total Gross floor area:	102000 sqm	
	Survey date: TUESDAY	22/05/07	Survey Type: MANUAL

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

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 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									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	2	111000	0.105	2	111000	0.039	2	111000	0.144
07:30 - 08:00	2	111000	0.134	2	111000	0.055	2	111000	0.189
08:00 - 08:30	2	111000	0.134	2	111000	0.060	2	111000	0.194
08:30 - 09:00	2	111000	0.135	2	111000	0.072	2	111000	0.207
09:00 - 09:30	2	111000	0.136	2	111000	0.069	2	111000	0.205
09:30 - 10:00	2	111000	0.103	2	111000	0.091	2	111000	0.194
10:00 - 10:30	2	111000	0.073	2	111000	0.085	2	111000	0.158
10:30 - 11:00	2	111000	0.099	2	111000	0.091	2	111000	0.190
11:00 - 11:30	2	111000	0.084	2	111000	0.090	2	111000	0.174
11:30 - 12:00	2	111000	0.093	2	111000	0.100	2	111000	0.193
12:00 - 12:30	2	111000	0.105	2	111000	0.118	2	111000	0.223
12:30 - 13:00	2	111000	0.101	2	111000	0.105	2	111000	0.206
13:00 - 13:30	2	111000	0.092	2	111000	0.136	2	111000	0.228
13:30 - 14:00	2	111000	0.114	2	111000	0.089	2	111000	0.203
14:00 - 14:30	2	111000	0.091	2	111000	0.082	2	111000	0.173
14:30 - 15:00	2	111000	0.086	2	111000	0.085	2	111000	0.171
15:00 - 15:30	2	111000	0.091	2	111000	0.101	2	111000	0.192
15:30 - 16:00	2	111000	0.082	2	111000	0.117	2	111000	0.199
16:00 - 16:30	2	111000	0.086	2	111000	0.126	2	111000	0.212
16:30 - 17:00	2	111000	0.061	2	111000	0.139	2	111000	0.200
17:00 - 17:30	2	111000	0.051	2	111000	0.118	2	111000	0.169
17:30 - 18:00	2	111000	0.034	2	111000	0.116	2	111000	0.150
18:00 - 18:30	2	111000	0.037	2	111000	0.044	2	111000	0.081
18:30 - 19:00	2	111000	0.028	2	111000	0.048	2	111000	0.076
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			2.155			2.176			4.331

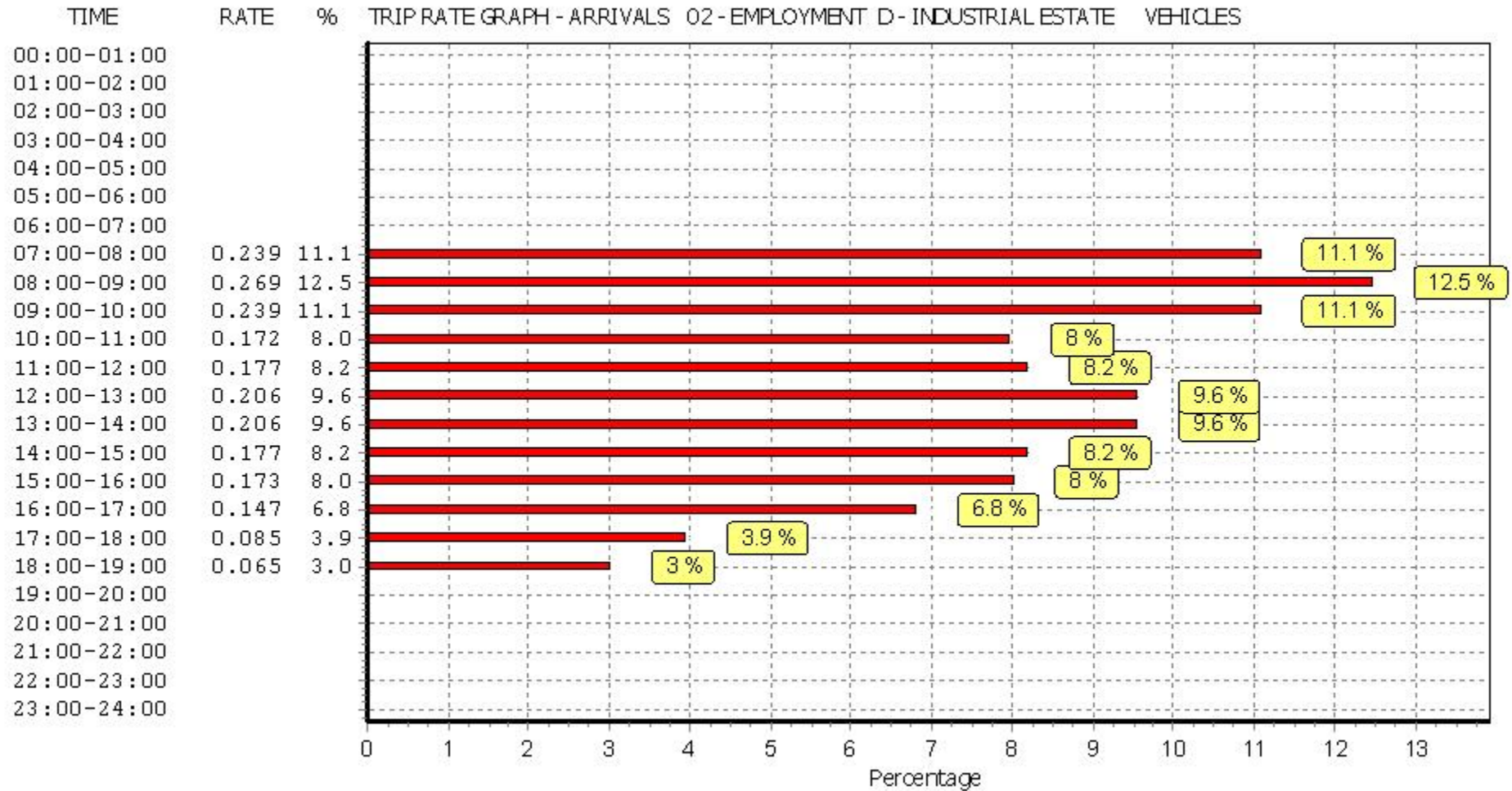
This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are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

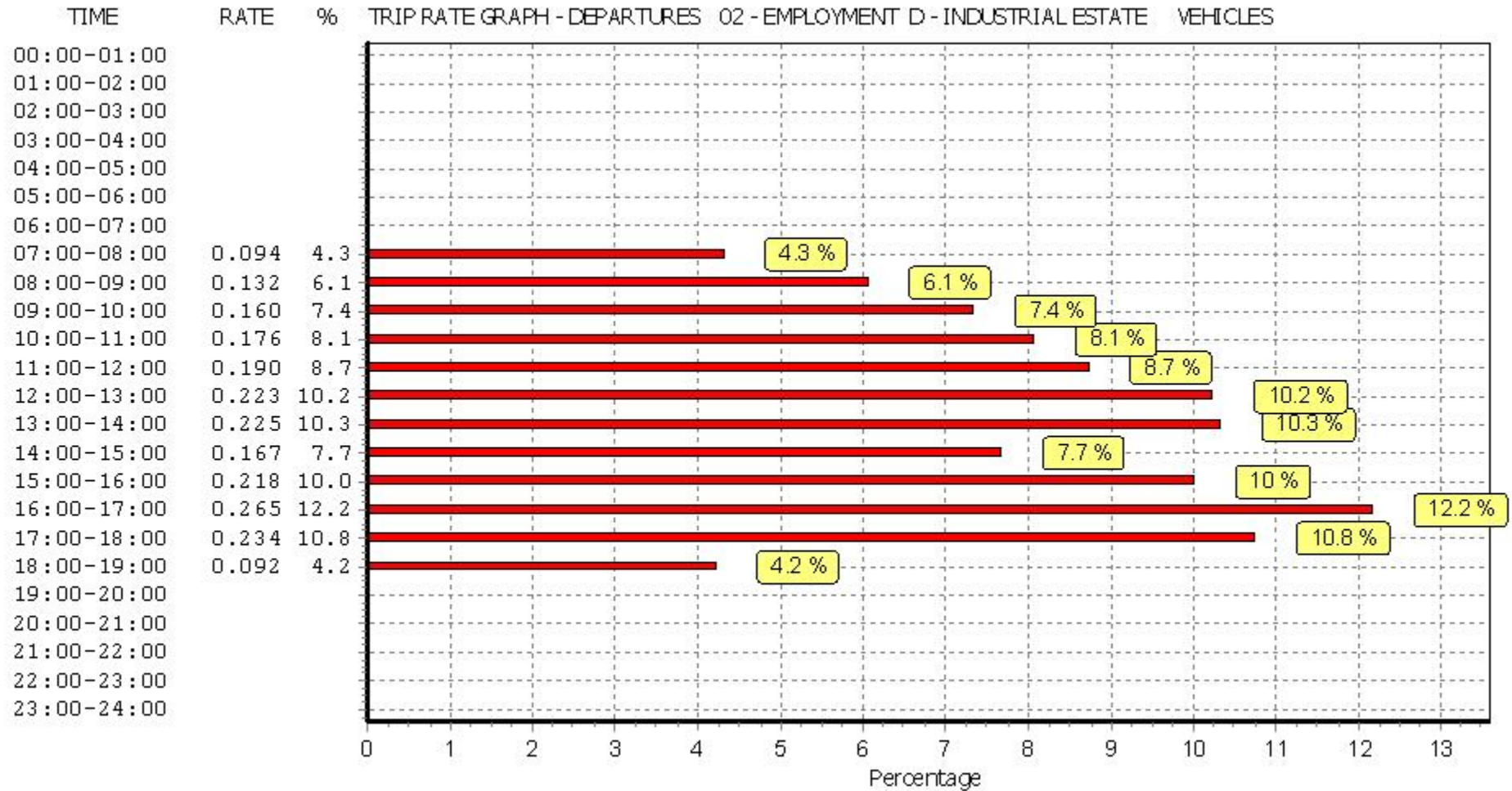
Parameter summary

Trip rate parameter range selected:	102000 - 120000 (units: sqm)
Survey date date range:	01/01/06 - 26/06/07
Number of weekdays (Monday-Friday):	2
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	0

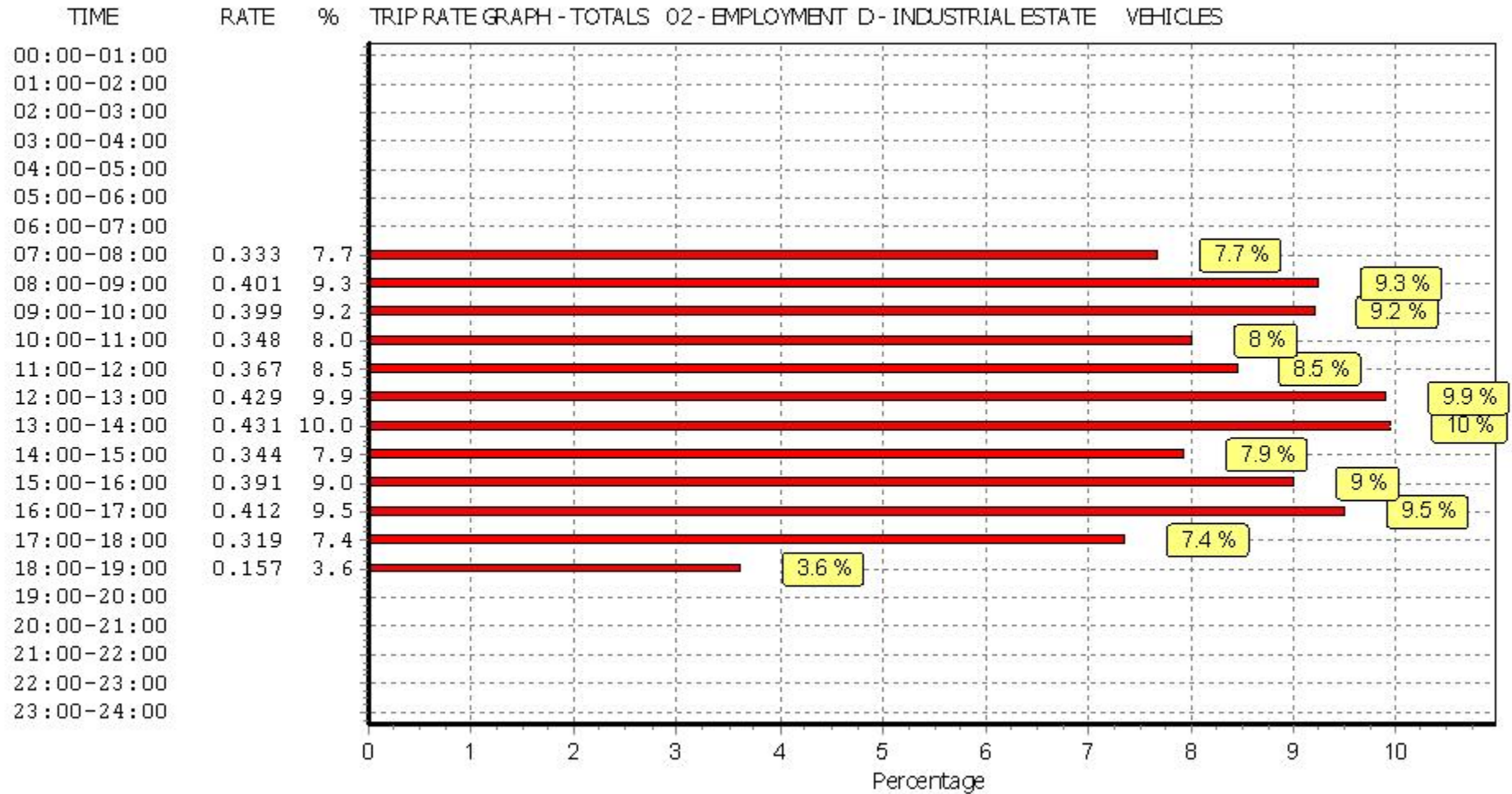
This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected 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.



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TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE

TAXIS

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									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	2	111000	0.000	2	111000	0.000	2	111000	0.000
07:30 - 08:00	2	111000	0.000	2	111000	0.000	2	111000	0.000
08:00 - 08:30	2	111000	0.000	2	111000	0.000	2	111000	0.000
08:30 - 09:00	2	111000	0.000	2	111000	0.000	2	111000	0.000
09:00 - 09:30	2	111000	0.001	2	111000	0.000	2	111000	0.001
09:30 - 10:00	2	111000	0.000	2	111000	0.000	2	111000	0.000
10:00 - 10:30	2	111000	0.001	2	111000	0.001	2	111000	0.002
10:30 - 11:00	2	111000	0.002	2	111000	0.002	2	111000	0.004
11:00 - 11:30	2	111000	0.001	2	111000	0.001	2	111000	0.002
11:30 - 12:00	2	111000	0.001	2	111000	0.001	2	111000	0.002
12:00 - 12:30	2	111000	0.000	2	111000	0.000	2	111000	0.000
12:30 - 13:00	2	111000	0.000	2	111000	0.000	2	111000	0.000
13:00 - 13:30	2	111000	0.000	2	111000	0.000	2	111000	0.000
13:30 - 14:00	2	111000	0.002	2	111000	0.002	2	111000	0.004
14:00 - 14:30	2	111000	0.002	2	111000	0.002	2	111000	0.004
14:30 - 15:00	2	111000	0.001	2	111000	0.001	2	111000	0.002
15:00 - 15:30	2	111000	0.000	2	111000	0.000	2	111000	0.000
15:30 - 16:00	2	111000	0.000	2	111000	0.000	2	111000	0.000
16:00 - 16:30	2	111000	0.000	2	111000	0.000	2	111000	0.000
16:30 - 17:00	2	111000	0.002	2	111000	0.002	2	111000	0.004
17:00 - 17:30	2	111000	0.000	2	111000	0.000	2	111000	0.000
17:30 - 18:00	2	111000	0.000	2	111000	0.000	2	111000	0.000
18:00 - 18:30	2	111000	0.000	2	111000	0.000	2	111000	0.000
18:30 - 19:00	2	111000	0.000	2	111000	0.000	2	111000	0.000
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.013			0.012			0.025

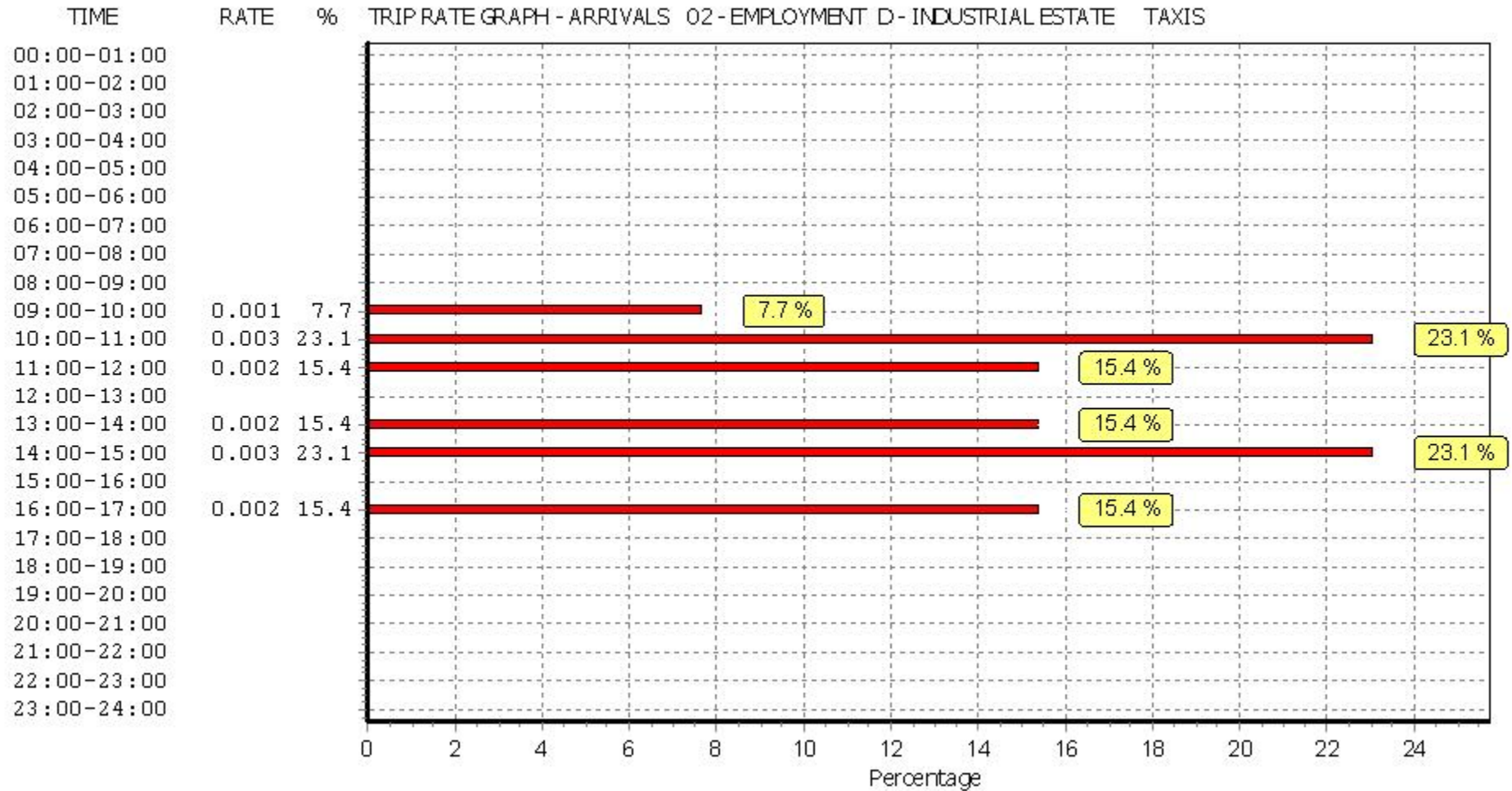
This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are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

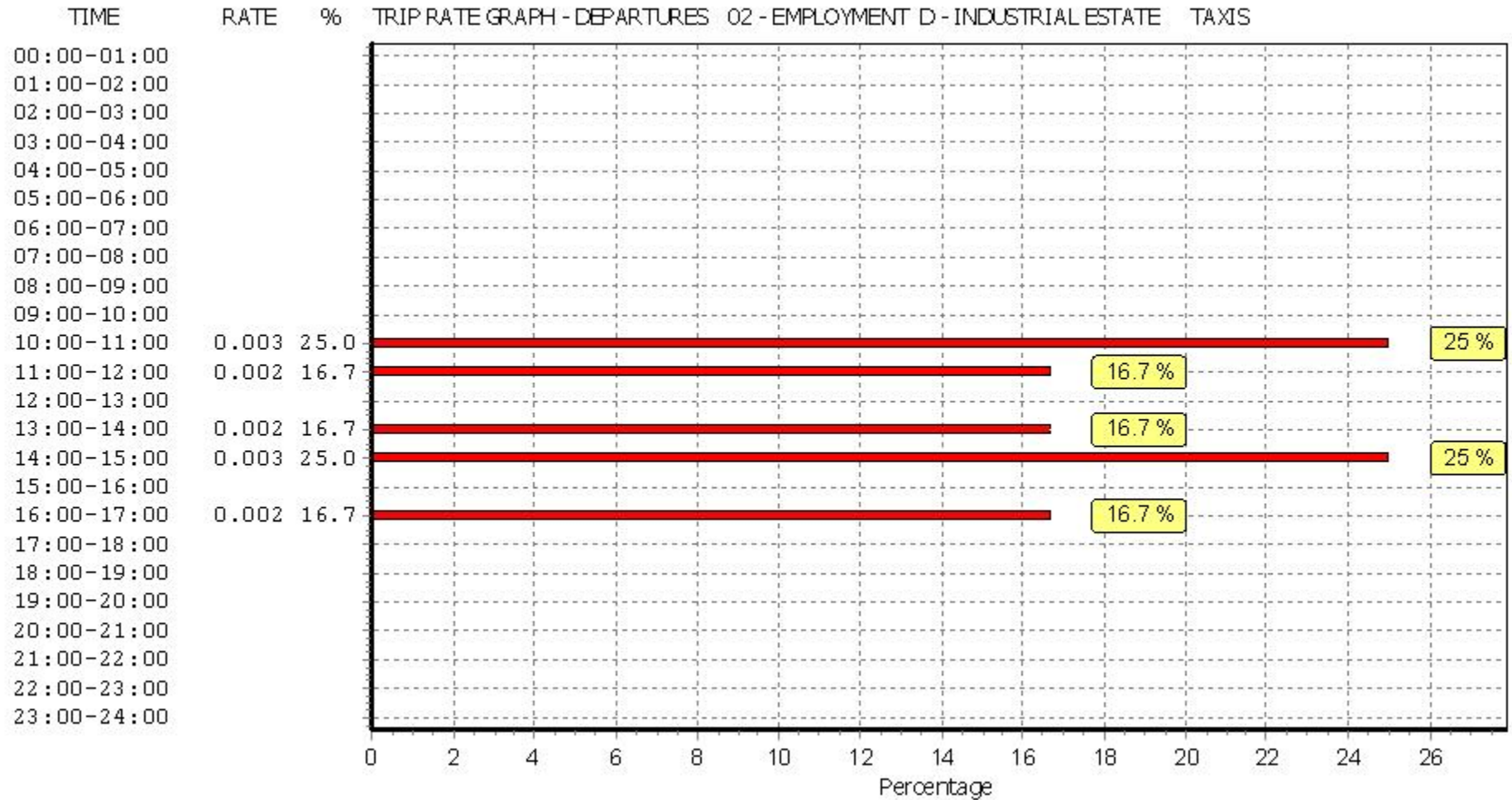
Parameter summary

Trip rate parameter range selected:	102000 - 120000 (units: sqm)
Survey date date range:	01/01/06 - 26/06/07
Number of weekdays (Monday-Friday):	2
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	0

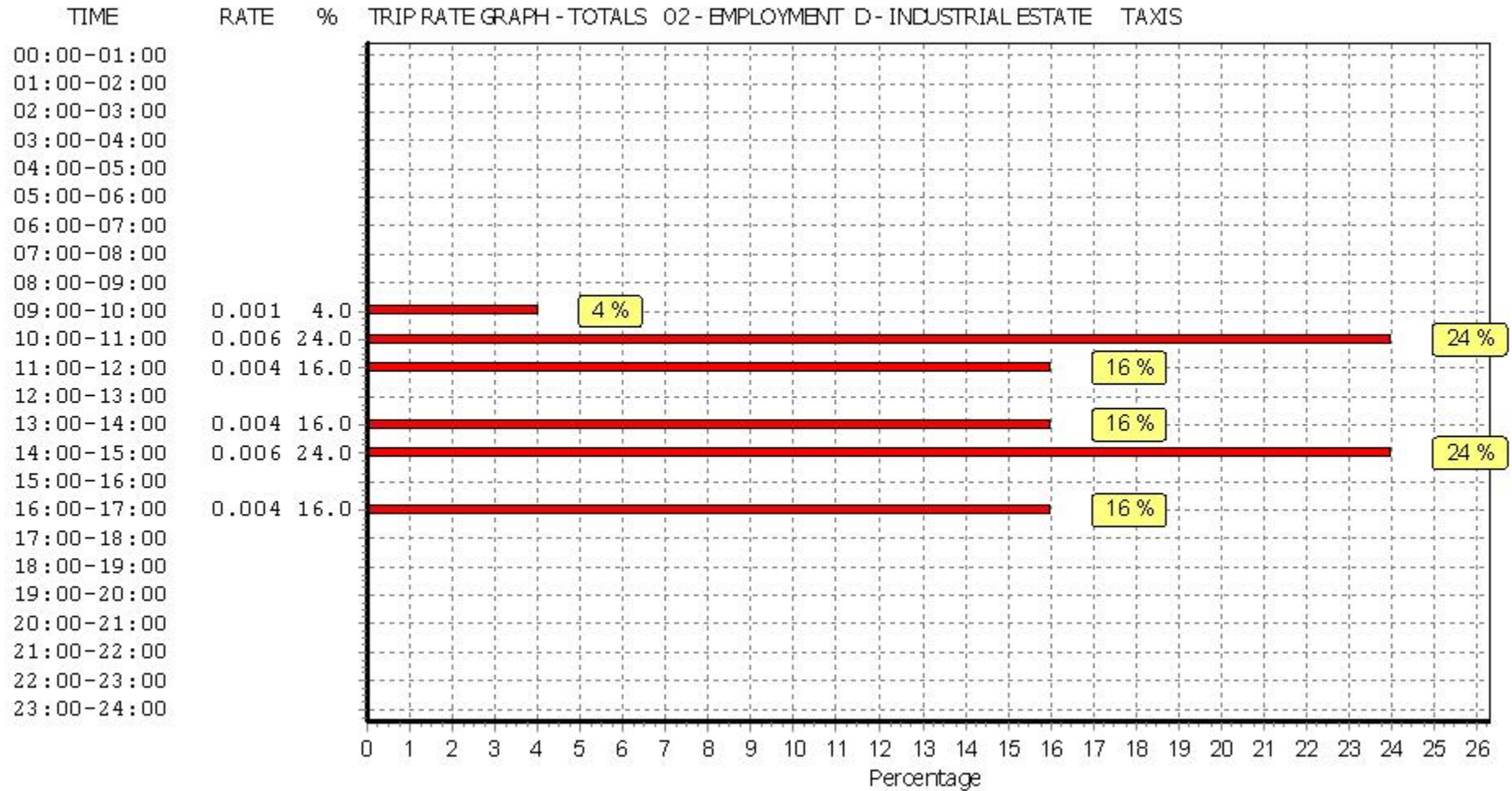
This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected 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.



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.

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE

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									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	2	111000	0.005	2	111000	0.018	2	111000	0.023
07:30 - 08:00	2	111000	0.006	2	111000	0.020	2	111000	0.026
08:00 - 08:30	2	111000	0.005	2	111000	0.016	2	111000	0.021
08:30 - 09:00	2	111000	0.008	2	111000	0.010	2	111000	0.018
09:00 - 09:30	2	111000	0.014	2	111000	0.010	2	111000	0.024
09:30 - 10:00	2	111000	0.017	2	111000	0.015	2	111000	0.032
10:00 - 10:30	2	111000	0.015	2	111000	0.012	2	111000	0.027
10:30 - 11:00	2	111000	0.017	2	111000	0.014	2	111000	0.031
11:00 - 11:30	2	111000	0.011	2	111000	0.011	2	111000	0.022
11:30 - 12:00	2	111000	0.017	2	111000	0.013	2	111000	0.030
12:00 - 12:30	2	111000	0.018	2	111000	0.016	2	111000	0.034
12:30 - 13:00	2	111000	0.013	2	111000	0.014	2	111000	0.027
13:00 - 13:30	2	111000	0.014	2	111000	0.015	2	111000	0.029
13:30 - 14:00	2	111000	0.018	2	111000	0.010	2	111000	0.028
14:00 - 14:30	2	111000	0.014	2	111000	0.006	2	111000	0.020
14:30 - 15:00	2	111000	0.015	2	111000	0.018	2	111000	0.033
15:00 - 15:30	2	111000	0.012	2	111000	0.014	2	111000	0.026
15:30 - 16:00	2	111000	0.013	2	111000	0.009	2	111000	0.022
16:00 - 16:30	2	111000	0.009	2	111000	0.006	2	111000	0.015
16:30 - 17:00	2	111000	0.006	2	111000	0.012	2	111000	0.018
17:00 - 17:30	2	111000	0.005	2	111000	0.004	2	111000	0.009
17:30 - 18:00	2	111000	0.004	2	111000	0.004	2	111000	0.008
18:00 - 18:30	2	111000	0.004	2	111000	0.002	2	111000	0.006
18:30 - 19:00	2	111000	0.003	2	111000	0.001	2	111000	0.004
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.263			0.270			0.533

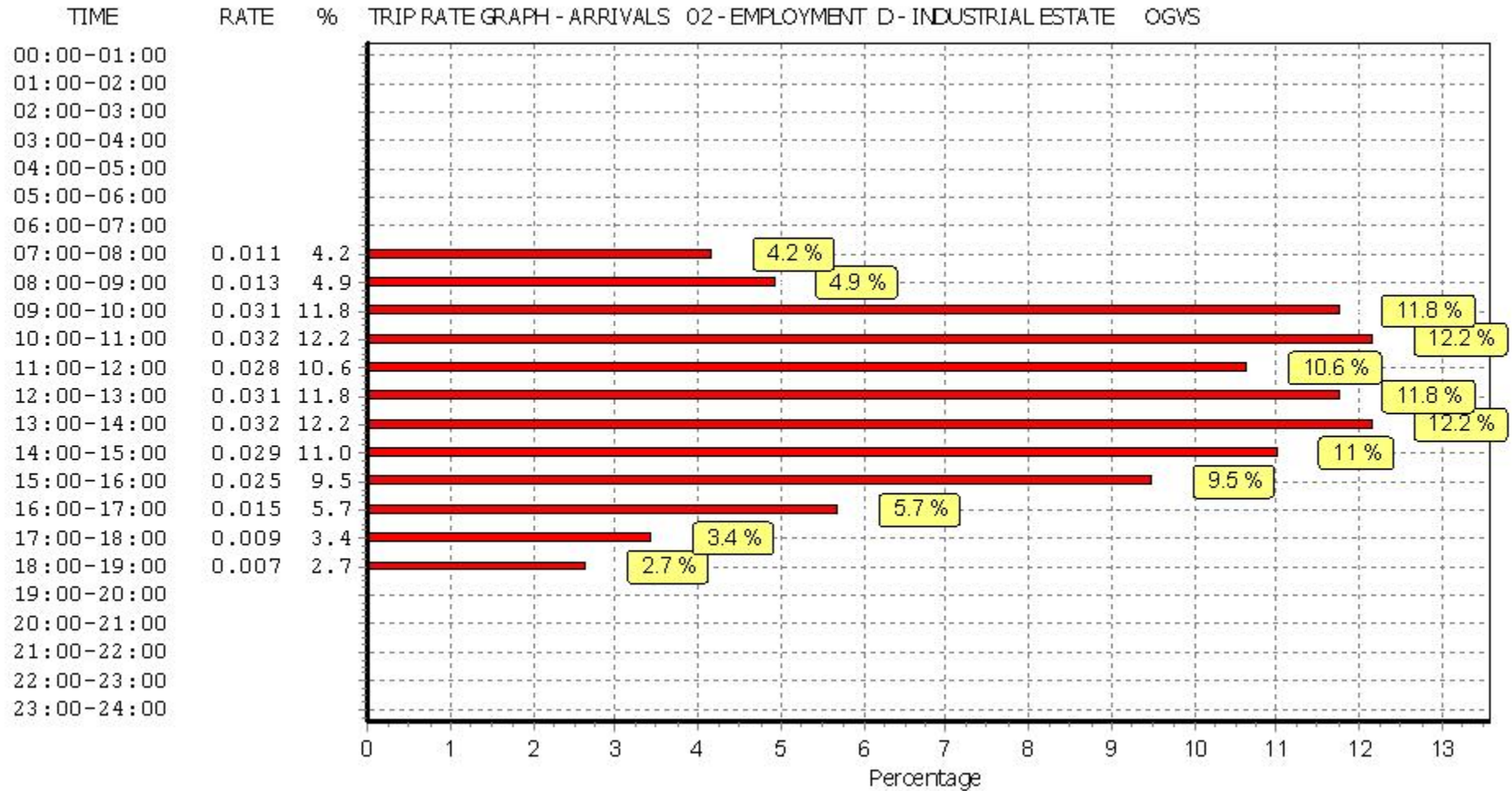
This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are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

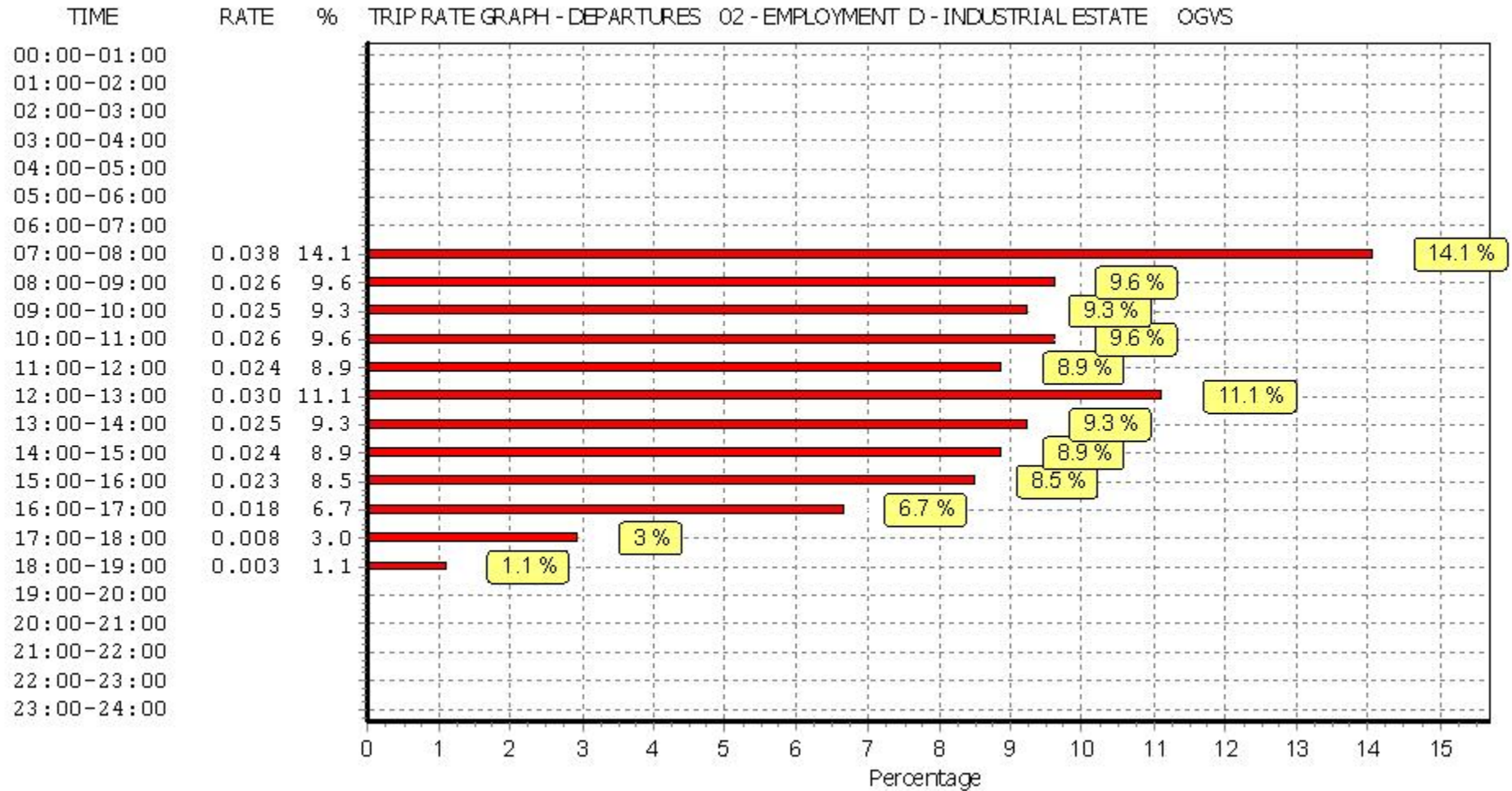
Parameter summary

Trip rate parameter range selected:	102000 - 120000 (units: sqm)
Survey date date range:	01/01/06 - 26/06/07
Number of weekdays (Monday-Friday):	2
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	0

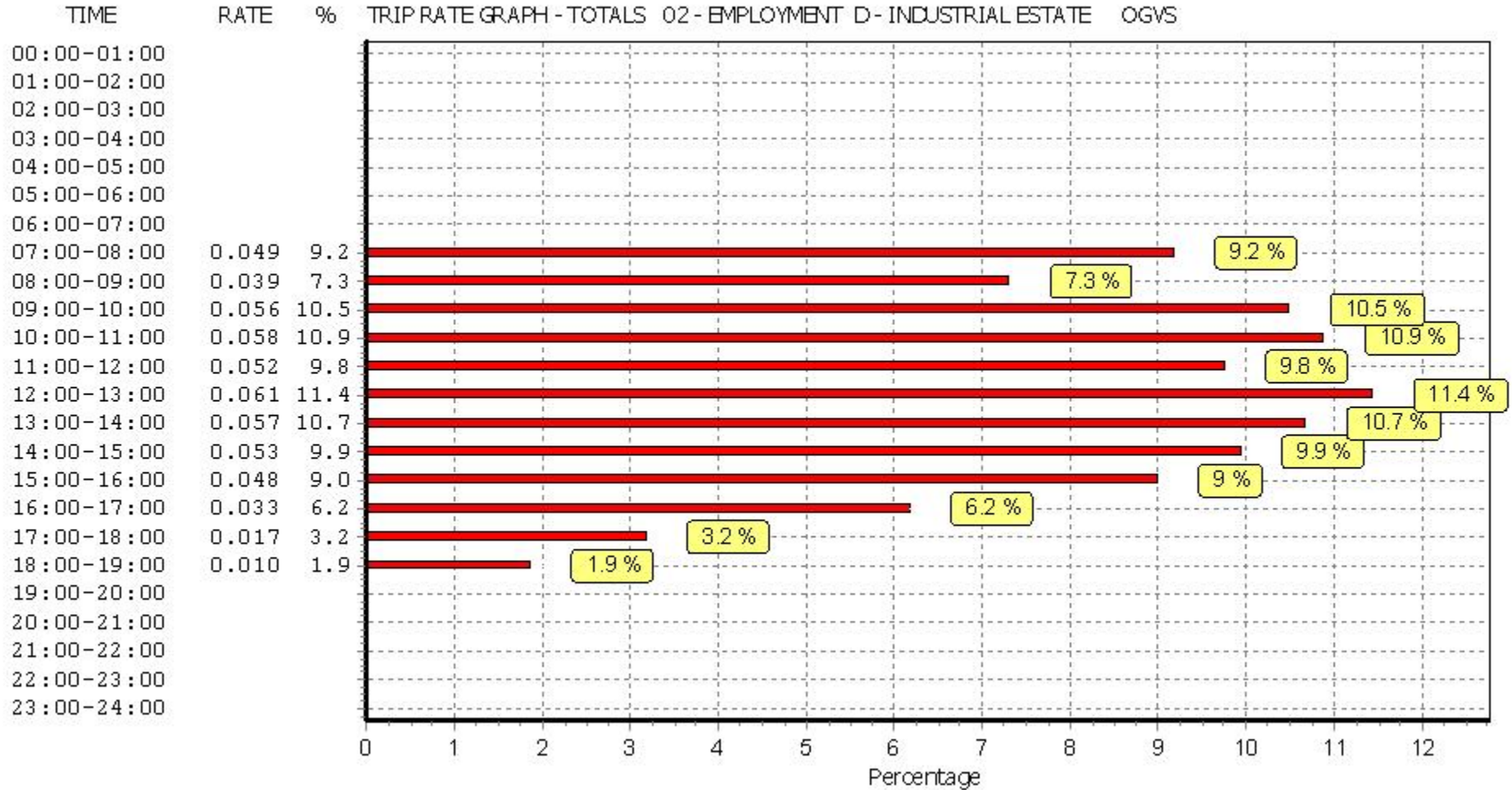
This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected 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.



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.

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE

PSVS

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									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	2	111000	0.000	2	111000	0.000	2	111000	0.000
07:30 - 08:00	2	111000	0.000	2	111000	0.000	2	111000	0.000
08:00 - 08:30	2	111000	0.000	2	111000	0.000	2	111000	0.000
08:30 - 09:00	2	111000	0.000	2	111000	0.000	2	111000	0.000
09:00 - 09:30	2	111000	0.000	2	111000	0.000	2	111000	0.000
09:30 - 10:00	2	111000	0.000	2	111000	0.000	2	111000	0.000
10:00 - 10:30	2	111000	0.000	2	111000	0.000	2	111000	0.000
10:30 - 11:00	2	111000	0.000	2	111000	0.000	2	111000	0.000
11:00 - 11:30	2	111000	0.000	2	111000	0.000	2	111000	0.000
11:30 - 12:00	2	111000	0.000	2	111000	0.000	2	111000	0.000
12:00 - 12:30	2	111000	0.000	2	111000	0.000	2	111000	0.000
12:30 - 13:00	2	111000	0.000	2	111000	0.000	2	111000	0.000
13:00 - 13:30	2	111000	0.000	2	111000	0.000	2	111000	0.000
13:30 - 14:00	2	111000	0.000	2	111000	0.000	2	111000	0.000
14:00 - 14:30	2	111000	0.000	2	111000	0.000	2	111000	0.000
14:30 - 15:00	2	111000	0.000	2	111000	0.000	2	111000	0.000
15:00 - 15:30	2	111000	0.000	2	111000	0.000	2	111000	0.000
15:30 - 16:00	2	111000	0.000	2	111000	0.000	2	111000	0.000
16:00 - 16:30	2	111000	0.000	2	111000	0.000	2	111000	0.000
16:30 - 17:00	2	111000	0.000	2	111000	0.000	2	111000	0.000
17:00 - 17:30	2	111000	0.000	2	111000	0.000	2	111000	0.000
17:30 - 18:00	2	111000	0.000	2	111000	0.000	2	111000	0.000
18:00 - 18:30	2	111000	0.000	2	111000	0.000	2	111000	0.000
18:30 - 19:00	2	111000	0.000	2	111000	0.000	2	111000	0.000
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.000			0.000			0.000

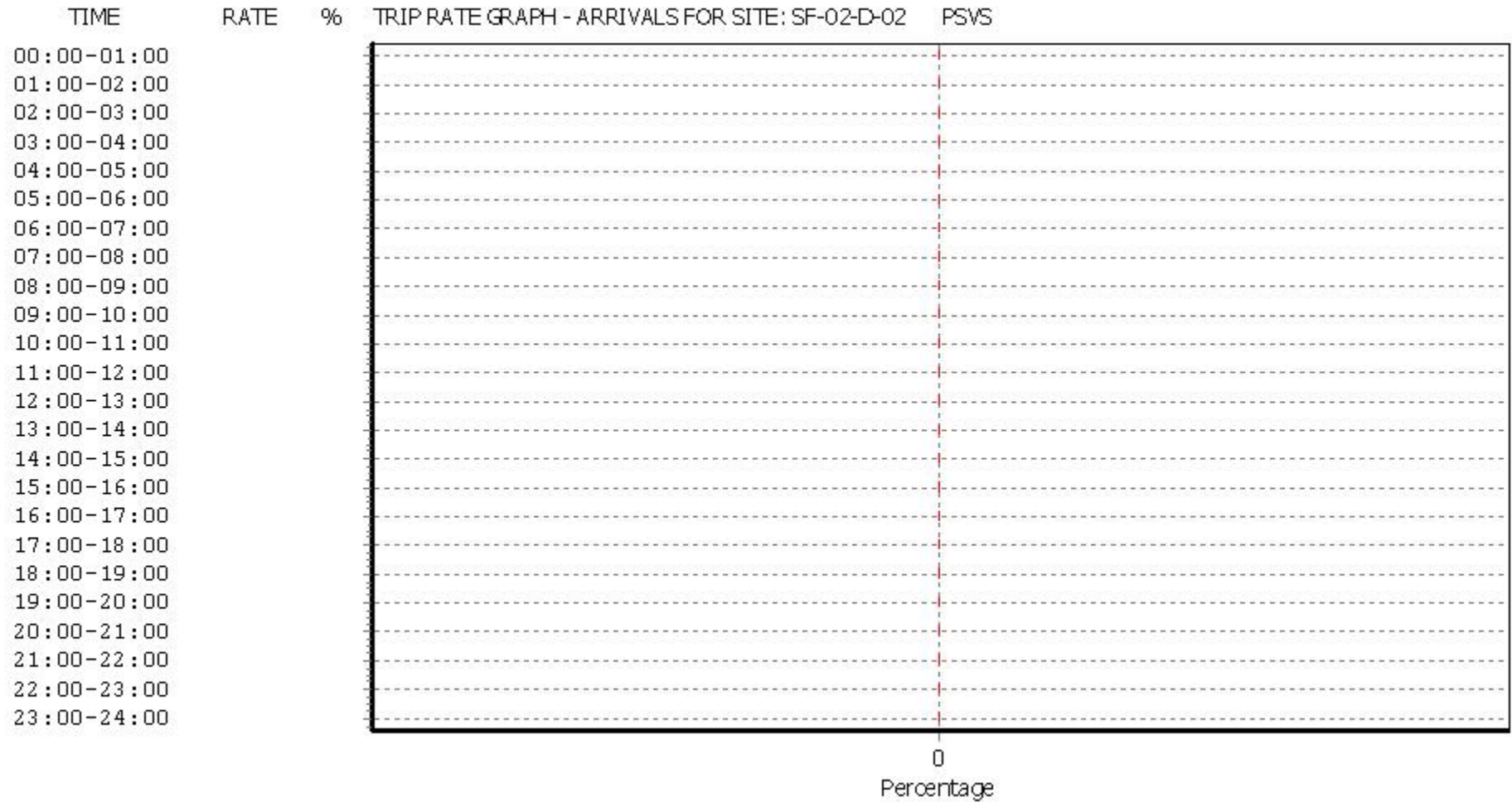
This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are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

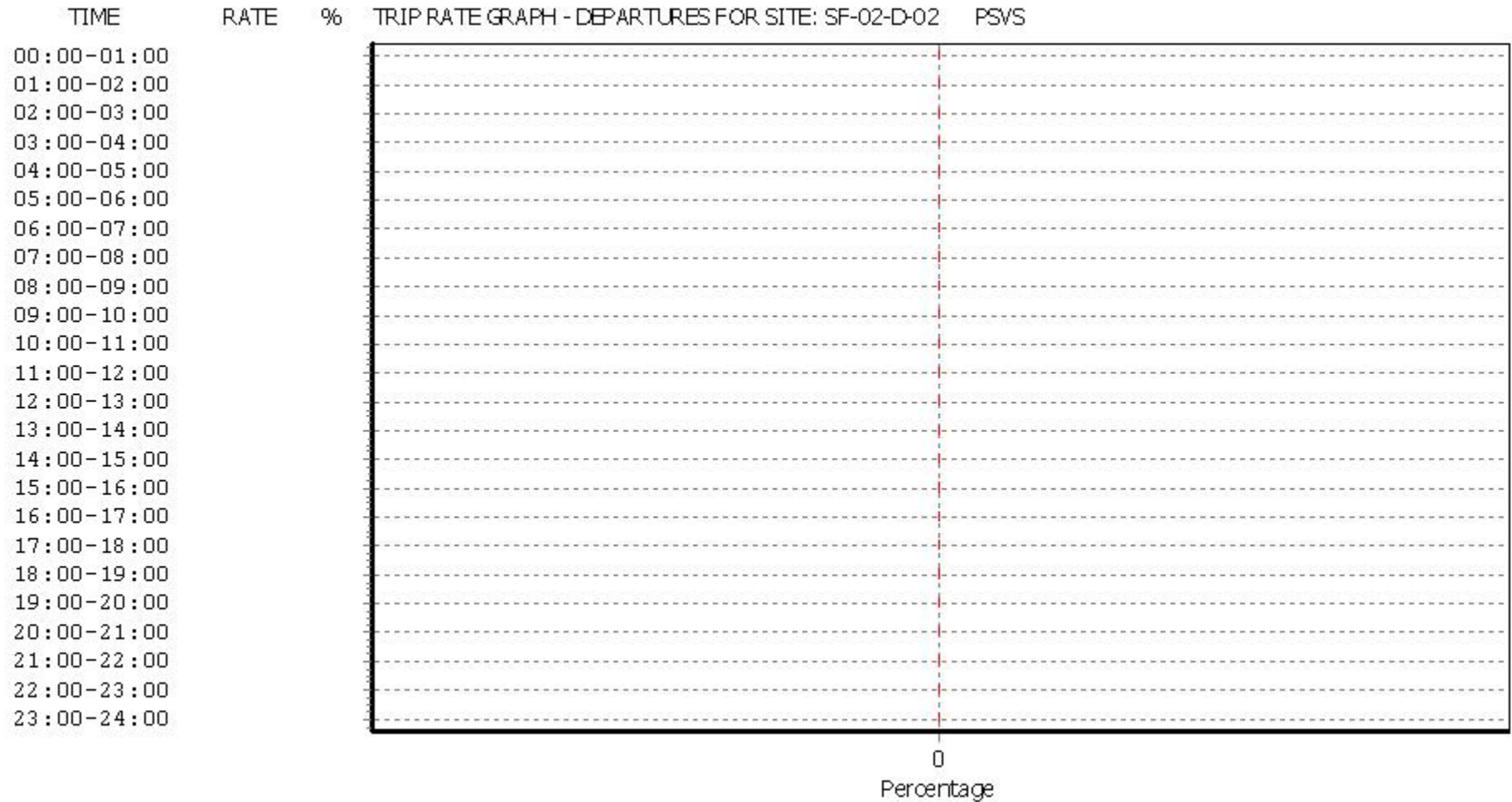
Parameter summary

Trip rate parameter range selected:	102000 - 120000 (units: sqm)
Survey date date range:	01/01/06 - 26/06/07
Number of weekdays (Monday-Friday):	2
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	0

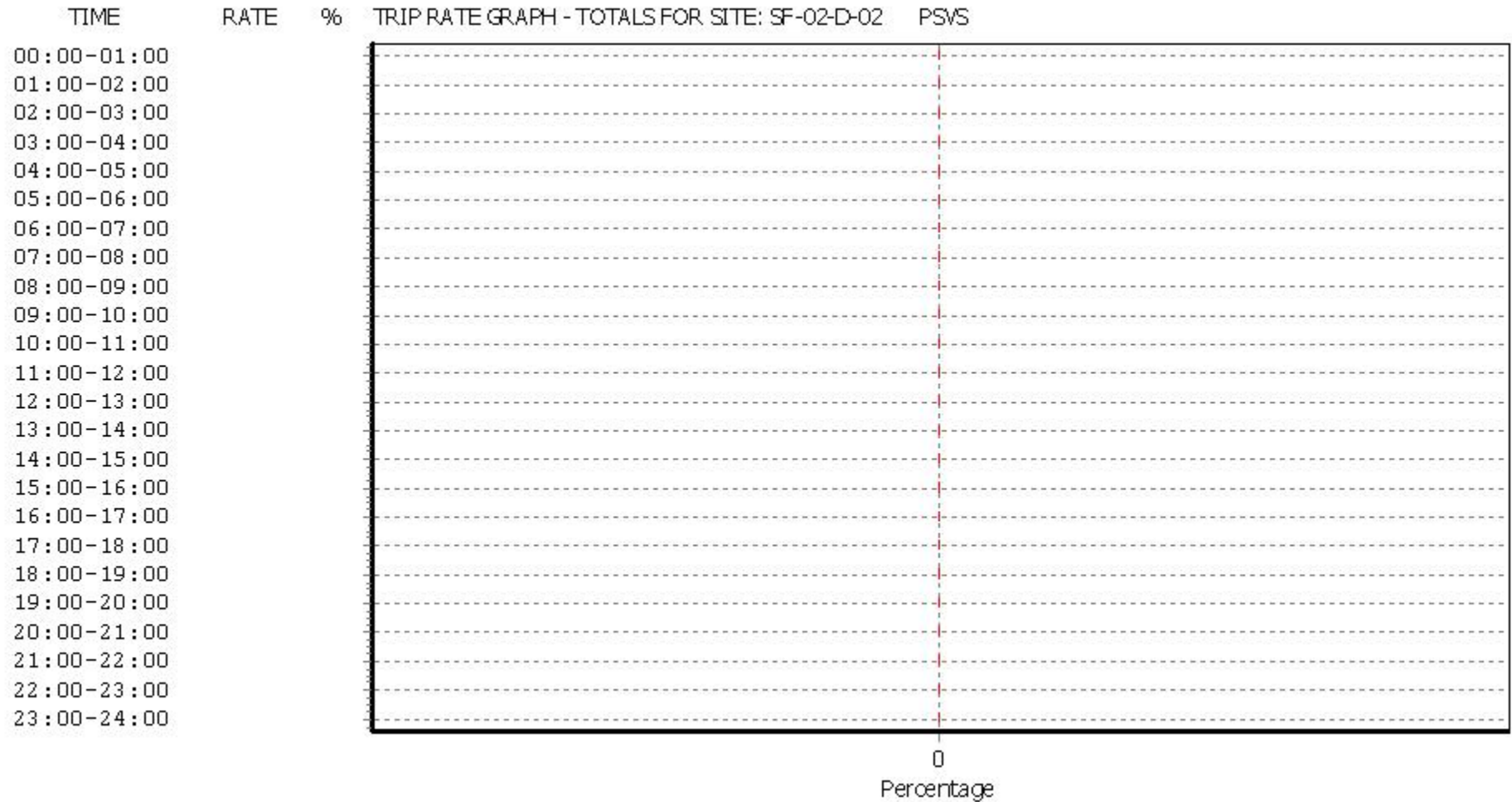
This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected 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.



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TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE

CYCLISTS

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									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	2	111000	0.010	2	111000	0.001	2	111000	0.011
07:30 - 08:00	2	111000	0.006	2	111000	0.002	2	111000	0.008
08:00 - 08:30	2	111000	0.006	2	111000	0.000	2	111000	0.006
08:30 - 09:00	2	111000	0.007	2	111000	0.000	2	111000	0.007
09:00 - 09:30	2	111000	0.001	2	111000	0.000	2	111000	0.001
09:30 - 10:00	2	111000	0.001	2	111000	0.000	2	111000	0.001
10:00 - 10:30	2	111000	0.001	2	111000	0.000	2	111000	0.001
10:30 - 11:00	2	111000	0.002	2	111000	0.000	2	111000	0.002
11:00 - 11:30	2	111000	0.000	2	111000	0.000	2	111000	0.000
11:30 - 12:00	2	111000	0.000	2	111000	0.000	2	111000	0.000
12:00 - 12:30	2	111000	0.001	2	111000	0.001	2	111000	0.002
12:30 - 13:00	2	111000	0.000	2	111000	0.001	2	111000	0.001
13:00 - 13:30	2	111000	0.000	2	111000	0.002	2	111000	0.002
13:30 - 14:00	2	111000	0.004	2	111000	0.005	2	111000	0.009
14:00 - 14:30	2	111000	0.002	2	111000	0.005	2	111000	0.007
14:30 - 15:00	2	111000	0.000	2	111000	0.002	2	111000	0.002
15:00 - 15:30	2	111000	0.000	2	111000	0.000	2	111000	0.000
15:30 - 16:00	2	111000	0.001	2	111000	0.008	2	111000	0.009
16:00 - 16:30	2	111000	0.001	2	111000	0.007	2	111000	0.008
16:30 - 17:00	2	111000	0.002	2	111000	0.007	2	111000	0.009
17:00 - 17:30	2	111000	0.002	2	111000	0.009	2	111000	0.011
17:30 - 18:00	2	111000	0.000	2	111000	0.006	2	111000	0.006
18:00 - 18:30	2	111000	0.000	2	111000	0.003	2	111000	0.003
18:30 - 19:00	2	111000	0.000	2	111000	0.002	2	111000	0.002
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.047			0.061			0.108

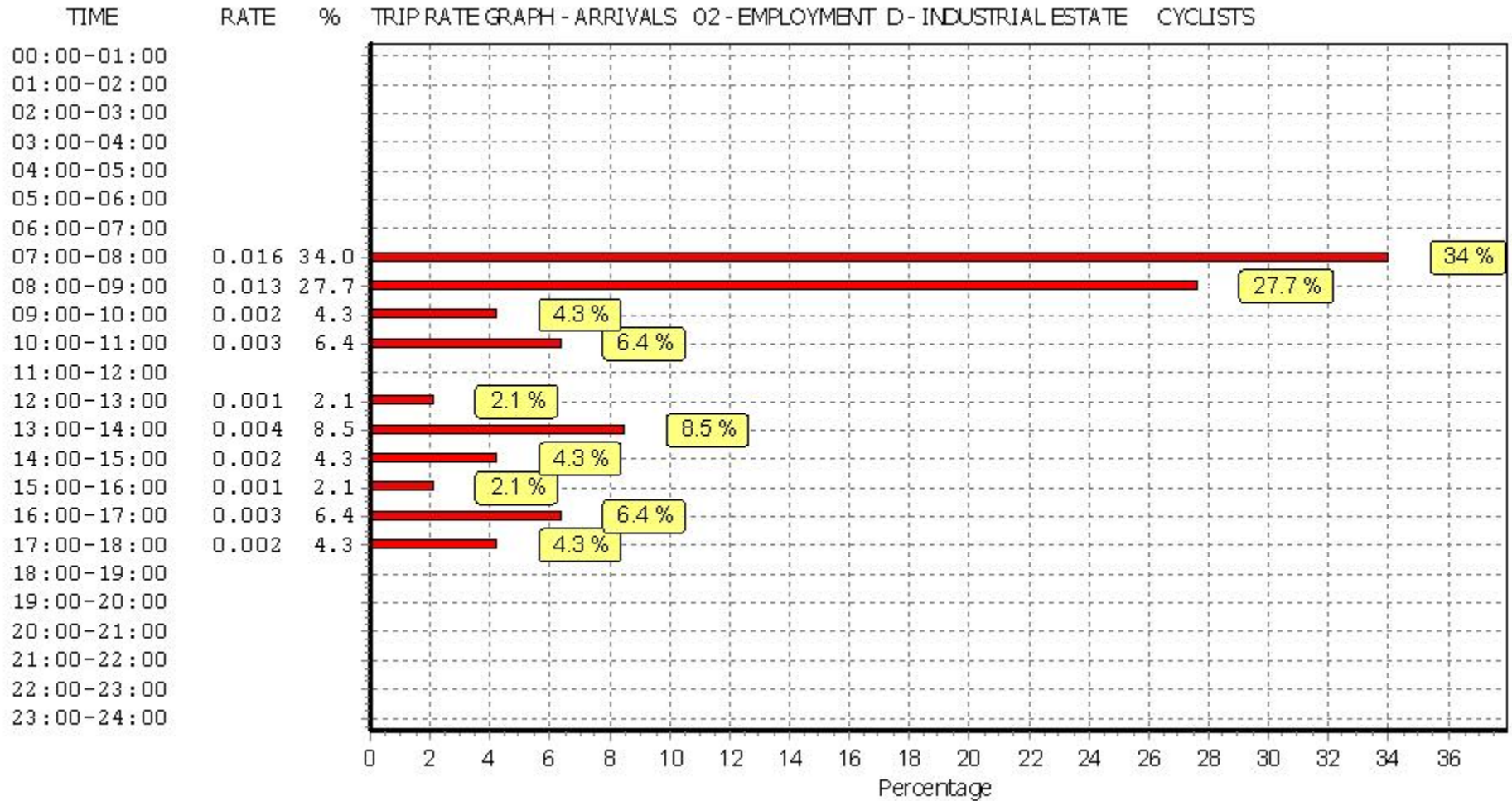
This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are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

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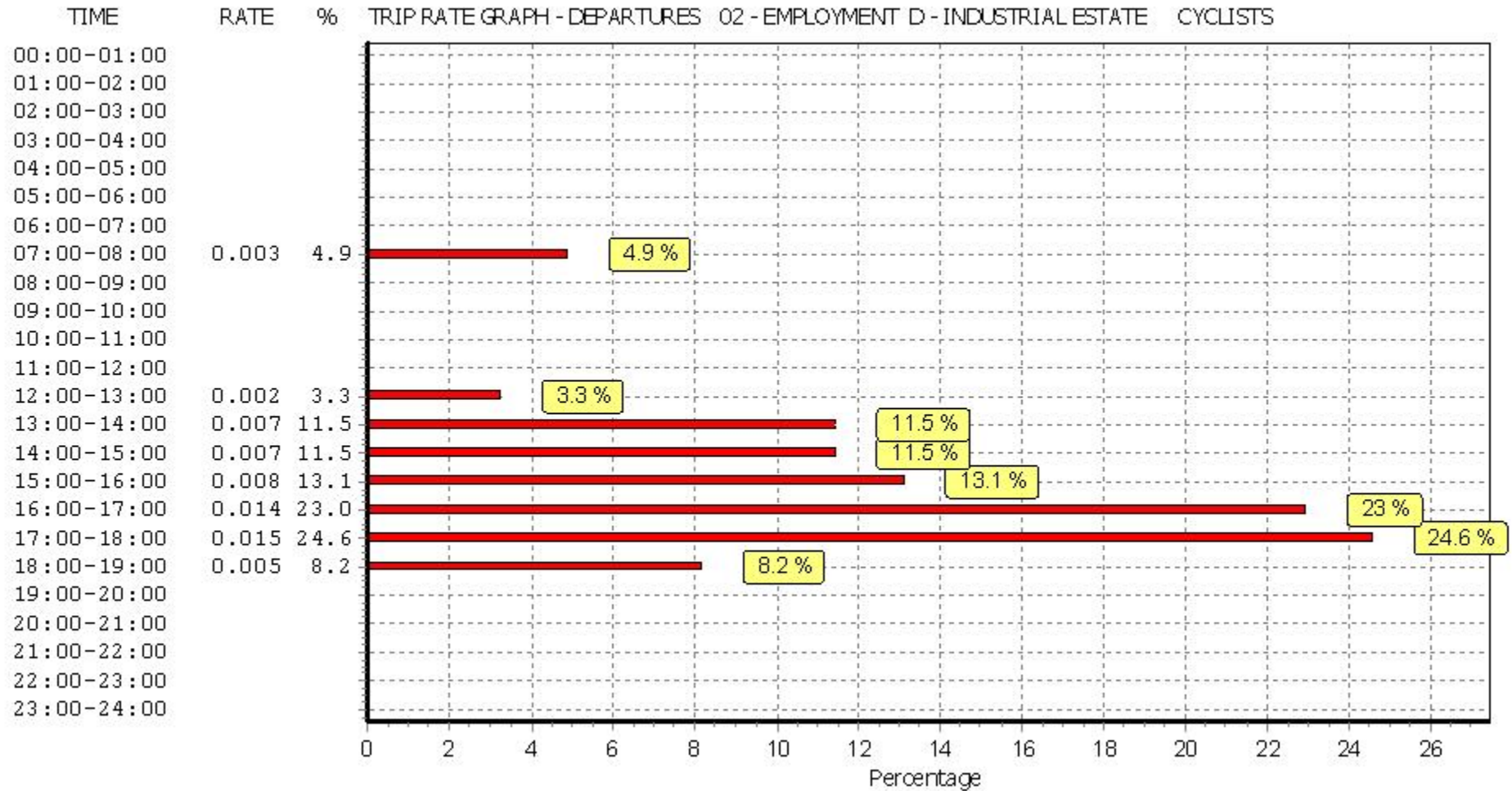
Parameter summary

Trip rate parameter range selected:	102000 - 120000 (units: sqm)
Survey date date range:	01/01/06 - 26/06/07
Number of weekdays (Monday-Friday):	2
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	0

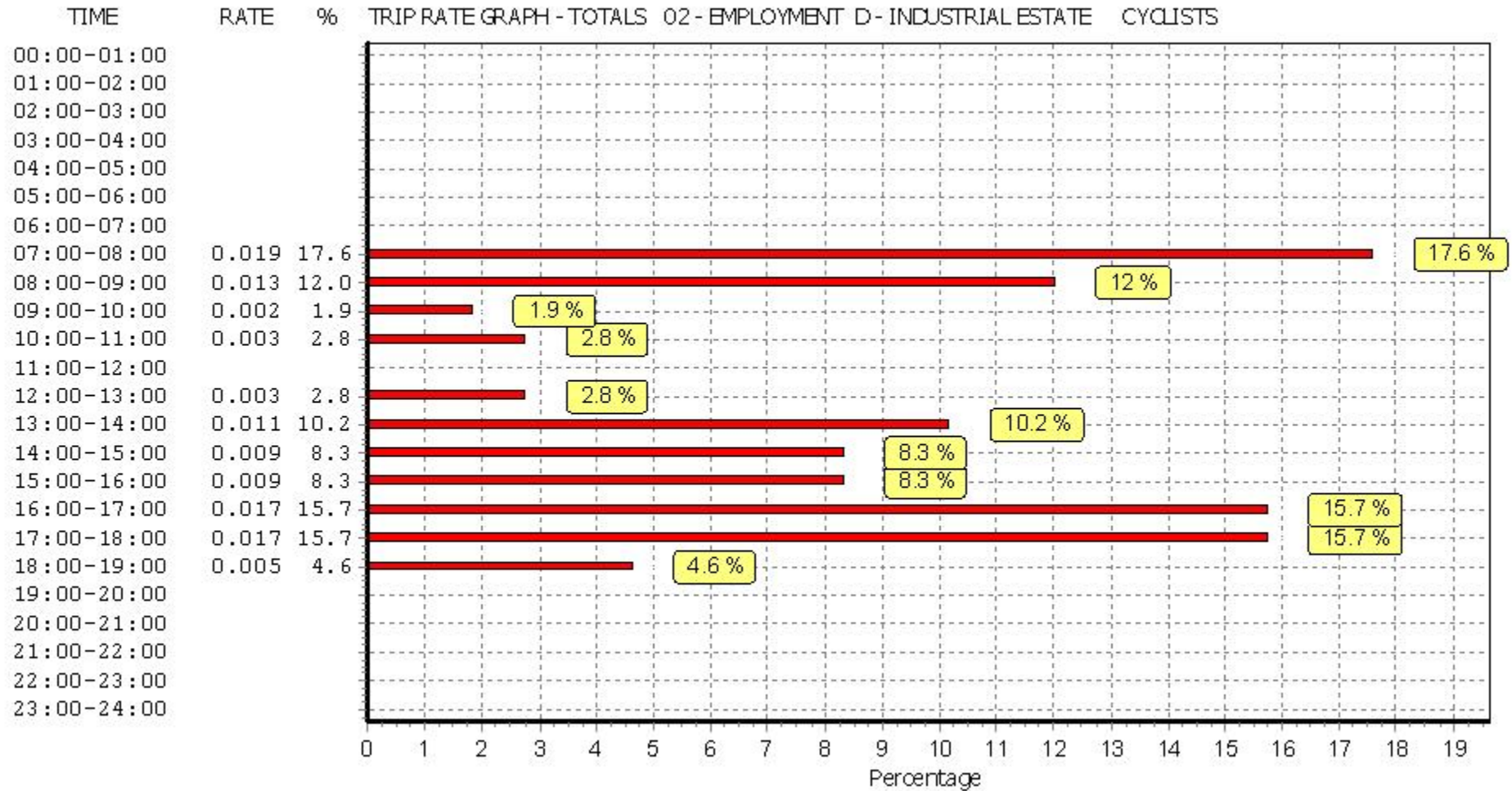
This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected 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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Appendix D J9 ARCADY Results

Junctions 9
ARCADY 9 - Roundabout Module
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Filename: A635 Site Access 3-arm roundabout.j9
Path: C:\Users\CLEASBYD\Desktop\Goldthorpe
Report generation date: 29/10/2021 13:49:00

- »Base 2021 + Development, AM
- »Base 2021 + Development, PM
- »Base 2026 + Development, AM
- »Base 2026 + Development, PM
- »Base 2031 + Development, AM
- »Base 2031 + Development, PM
- »Base 2033 + Development, AM
- »Base 2033 + Development, PM

Summary of junction performance

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
Base 2021 + Development						
1 - A635 (E)	0.5	1.49	0.34	0.6	1.50	0.37
2 - Site Access	0.1	1.33	0.08	0.2	1.68	0.17
3 - A635 (W)	0.7	1.61	0.41	0.5	1.42	0.33
Base 2026 + Development						
1 - A635 (E)	0.6	1.54	0.36	0.7	1.57	0.40
2 - Site Access	0.1	1.37	0.09	0.2	1.78	0.18
3 - A635 (W)	0.8	1.68	0.44	0.5	1.47	0.35
Base 2031 + Development						
1 - A635 (E)	0.6	1.58	0.38	0.7	1.61	0.42
2 - Site Access	0.1	1.41	0.09	0.2	1.85	0.18
3 - A635 (W)	0.8	1.73	0.46	0.6	1.51	0.37
Base 2033 + Development						
1 - A635 (E)	0.6	1.59	0.39	0.7	1.64	0.42
2 - Site Access	0.1	1.42	0.09	0.2	1.89	0.19
3 - A635 (W)	0.9	1.76	0.47	0.6	1.53	0.37

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

File summary

File Description

Title	A635-Site Access Roundabout
Location	A635
Site number	
Date	29/10/2021
Version	
Status	Proposed
Identifier	JS
Client	BMDC
Jobnumber	
Enumerator	EU\CLEASBYD
Description	

Units

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

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				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)	Run automatically
D1	Base 2021 + Development	AM	ONE HOUR	07:00	08:30	15	✓
D2	Base 2021 + Development	PM	ONE HOUR	16:15	17:45	15	✓
D3	Base 2026 + Development	AM	ONE HOUR	07:00	08:30	15	✓
D4	Base 2026 + Development	PM	ONE HOUR	16:15	17:45	15	✓
D5	Base 2031 + Development	AM	ONE HOUR	07:00	08:30	15	✓
D6	Base 2031 + Development	PM	ONE HOUR	16:15	17:45	15	✓
D7	Base 2033 + Development	AM	ONE HOUR	07:00	08:30	15	✓
D8	Base 2033 + Development	PM	ONE HOUR	16:15	17:45	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Base 2021 + Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A635 - Site Access Roundabout	Standard Roundabout		1, 2, 3	1.54	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A635 (E)	
2	Site Access	
3	A635 (W)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - A635 (E)	11.48	13.06	3.3	47.1	89.6	21.2	
2 - Site Access	11.42	13.87	11.9	25.8	28.1	13.3	
3 - A635 (W)	11.50	12.56	12.9	34.8	88.8	22.1	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A635 (E)	0.779	3882
2 - Site Access	1.190	4178
3 - A635 (W)	0.783	3918

The slope and intercept shown above include any corrections and adjustments.

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)	Run automatically
D1	Base 2021 + Development	AM	ONE HOUR	07:00	08:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A635 (E)		ONE HOUR	✓	1147	100.000
2 - Site Access		ONE HOUR	✓	222	100.000
3 - A635 (W)		ONE HOUR	✓	1442	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To		
	1 - A635 (E)	2 - Site Access	3 - A635 (W)
1 - A635 (E)	0	211	936
2 - Site Access	103	0	119
3 - A635 (W)	1199	243	0

Vehicle Mix

Heavy Vehicle Percentages

From	To		
	1 - A635 (E)	2 - Site Access	3 - A635 (W)
1 - A635 (E)	0	0	0
2 - Site Access	0	0	0
3 - A635 (W)	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A635 (E)	0.34	1.49	0.5	A	1053	1579
2 - Site Access	0.08	1.33	0.1	A	204	306
3 - A635 (W)	0.41	1.61	0.7	A	1323	1985

Main Results for each time segment

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	864	216	183	3740	0.231	862	979	0.0	0.3	1.251	A
2 - Site Access	167	42	704	3341	0.050	167	341	0.0	0.1	1.133	A
3 - A635 (W)	1086	271	77	3857	0.281	1084	793	0.0	0.4	1.298	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1031	258	218	3712	0.278	1031	1170	0.3	0.4	1.342	A
2 - Site Access	200	50	841	3178	0.063	200	408	0.1	0.1	1.208	A
3 - A635 (W)	1296	324	93	3845	0.337	1296	948	0.4	0.5	1.411	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1263	316	267	3674	0.344	1262	1433	0.4	0.5	1.492	A
2 - Site Access	244	61	1030	2953	0.083	244	500	0.1	0.1	1.328	A
3 - A635 (W)	1588	397	113	3829	0.415	1587	1161	0.5	0.7	1.605	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1263	316	268	3674	0.344	1263	1434	0.5	0.5	1.492	A
2 - Site Access	244	61	1031	2952	0.083	244	500	0.1	0.1	1.328	A
3 - A635 (W)	1588	397	113	3829	0.415	1588	1162	0.7	0.7	1.605	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1031	258	219	3712	0.278	1032	1171	0.5	0.4	1.344	A
2 - Site Access	200	50	842	3177	0.063	200	408	0.1	0.1	1.208	A
3 - A635 (W)	1296	324	93	3845	0.337	1297	949	0.7	0.5	1.414	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	864	216	183	3740	0.231	864	981	0.4	0.3	1.253	A
2 - Site Access	167	42	705	3340	0.050	167	342	0.1	0.1	1.136	A
3 - A635 (W)	1086	271	78	3857	0.281	1086	795	0.5	0.4	1.300	A

Base 2021 + Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A635 - Site Access Roundabout	Standard Roundabout		1, 2, 3	1.49	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)	Run automatically
D2	Base 2021 + Development	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A635 (E)		ONE HOUR	✓	1289	100.000
2 - Site Access		ONE HOUR	✓	394	100.000
3 - A635 (W)		ONE HOUR	✓	1120	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - A635 (E)	2 - Site Access	3 - A635 (W)
From	1 - A635 (E)	0	67	1222
	2 - Site Access	183	0	211
	3 - A635 (W)	1043	77	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - A635 (E)	2 - Site Access	3 - A635 (W)
From	1 - A635 (E)	0	0	0
	2 - Site Access	0	0	0
	3 - A635 (W)	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A635 (E)	0.37	1.50	0.6	A	1183	1774
2 - Site Access	0.17	1.68	0.2	A	362	542
3 - A635 (W)	0.33	1.42	0.5	A	1028	1542

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	970	243	58	3837	0.253	969	922	0.0	0.3	1.255	A
2 - Site Access	297	74	919	3085	0.096	296	108	0.0	0.1	1.290	A
3 - A635 (W)	843	211	138	3810	0.221	842	1077	0.0	0.3	1.213	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1159	290	69	3828	0.303	1158	1102	0.3	0.4	1.347	A
2 - Site Access	354	89	1098	2872	0.123	354	129	0.1	0.1	1.429	A
3 - A635 (W)	1007	252	164	3789	0.266	1007	1288	0.3	0.4	1.293	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1419	355	85	3816	0.372	1419	1349	0.4	0.6	1.501	A
2 - Site Access	434	108	1345	2578	0.168	434	158	0.1	0.2	1.677	A
3 - A635 (W)	1233	308	201	3760	0.328	1233	1577	0.4	0.5	1.424	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1419	355	85	3816	0.372	1419	1350	0.6	0.6	1.501	A
2 - Site Access	434	108	1345	2578	0.168	434	159	0.2	0.2	1.678	A
3 - A635 (W)	1233	308	201	3760	0.328	1233	1578	0.5	0.5	1.424	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1159	290	69	3828	0.303	1159	1103	0.6	0.4	1.350	A
2 - Site Access	354	89	1099	2871	0.123	354	130	0.2	0.1	1.430	A
3 - A635 (W)	1007	252	165	3789	0.266	1007	1289	0.5	0.4	1.294	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	970	243	58	3837	0.253	971	923	0.4	0.3	1.255	A
2 - Site Access	297	74	920	3083	0.096	297	108	0.1	0.1	1.291	A
3 - A635 (W)	843	211	138	3810	0.221	844	1079	0.4	0.3	1.213	A

Base 2026 + Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A635 - Site Access Roundabout	Standard Roundabout		1, 2, 3	1.60	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)	Run automatically
D3	Base 2026 + Development	AM	ONE HOUR	07:00	08:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A635 (E)		ONE HOUR	✓	1217	100.000
2 - Site Access		ONE HOUR	✓	222	100.000
3 - A635 (W)		ONE HOUR	✓	1531	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	1 - A635 (E)	2 - Site Access	3 - A635 (W)	
From	1 - A635 (E)	0	211	1006
	2 - Site Access	103	0	119
	3 - A635 (W)	1288	243	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	1 - A635 (E)	2 - Site Access	3 - A635 (W)	
From	1 - A635 (E)	0	0	0
	2 - Site Access	0	0	0
	3 - A635 (W)	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A635 (E)	0.36	1.54	0.6	A	1117	1675
2 - Site Access	0.09	1.37	0.1	A	204	306
3 - A635 (W)	0.44	1.68	0.8	A	1405	2107

Main Results for each time segment

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	916	229	183	3740	0.245	915	1046	0.0	0.3	1.274	A
2 - Site Access	167	42	756	3279	0.051	167	341	0.0	0.1	1.156	A
3 - A635 (W)	1153	288	77	3857	0.299	1151	846	0.0	0.4	1.330	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1094	274	218	3712	0.295	1094	1250	0.3	0.4	1.374	A
2 - Site Access	200	50	904	3103	0.064	200	408	0.1	0.1	1.239	A
3 - A635 (W)	1376	344	93	3845	0.358	1376	1011	0.4	0.6	1.457	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1340	335	267	3674	0.365	1339	1531	0.4	0.6	1.541	A
2 - Site Access	244	61	1107	2861	0.085	244	500	0.1	0.1	1.375	A
3 - A635 (W)	1686	421	113	3829	0.440	1685	1238	0.6	0.8	1.678	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1340	335	268	3674	0.365	1340	1532	0.6	0.6	1.541	A
2 - Site Access	244	61	1108	2861	0.085	244	500	0.1	0.1	1.375	A
3 - A635 (W)	1686	421	113	3829	0.440	1686	1239	0.8	0.8	1.678	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1094	274	219	3712	0.295	1095	1251	0.6	0.4	1.377	A
2 - Site Access	200	50	905	3102	0.064	200	408	0.1	0.1	1.241	A
3 - A635 (W)	1376	344	93	3845	0.358	1377	1012	0.8	0.6	1.458	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	916	229	183	3740	0.245	917	1048	0.4	0.3	1.274	A
2 - Site Access	167	42	758	3277	0.051	167	342	0.1	0.1	1.157	A
3 - A635 (W)	1153	288	78	3857	0.299	1153	847	0.6	0.4	1.331	A

Base 2026 + Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A635 - Site Access Roundabout	Standard Roundabout		1, 2, 3	1.56	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)	Run automatically
D4	Base 2026 + Development	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A635 (E)		ONE HOUR	✓	1380	100.000
2 - Site Access		ONE HOUR	✓	394	100.000
3 - A635 (W)		ONE HOUR	✓	1198	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - A635 (E)	2 - Site Access	3 - A635 (W)
From	1 - A635 (E)	0	67	1313
	2 - Site Access	183	0	211
	3 - A635 (W)	1121	77	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - A635 (E)	2 - Site Access	3 - A635 (W)
From	1 - A635 (E)	0	0	0
	2 - Site Access	0	0	0
	3 - A635 (W)	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A635 (E)	0.40	1.57	0.7	A	1266	1899
2 - Site Access	0.18	1.78	0.2	A	362	542
3 - A635 (W)	0.35	1.47	0.5	A	1099	1649

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1039	260	58	3837	0.271	1037	980	0.0	0.4	1.286	A
2 - Site Access	297	74	987	3004	0.099	296	108	0.0	0.1	1.329	A
3 - A635 (W)	902	225	138	3810	0.237	901	1146	0.0	0.3	1.237	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1241	310	69	3828	0.324	1240	1172	0.4	0.5	1.390	A
2 - Site Access	354	89	1180	2775	0.128	354	129	0.1	0.1	1.486	A
3 - A635 (W)	1077	269	164	3789	0.284	1077	1370	0.3	0.4	1.326	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1519	380	85	3816	0.398	1519	1435	0.5	0.7	1.566	A
2 - Site Access	434	108	1445	2459	0.176	434	158	0.1	0.2	1.776	A
3 - A635 (W)	1319	330	201	3760	0.351	1318	1677	0.4	0.5	1.474	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1519	380	85	3816	0.398	1519	1436	0.7	0.7	1.566	A
2 - Site Access	434	108	1446	2458	0.176	434	159	0.2	0.2	1.777	A
3 - A635 (W)	1319	330	201	3760	0.351	1319	1678	0.5	0.5	1.474	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1241	310	69	3828	0.324	1241	1173	0.7	0.5	1.391	A
2 - Site Access	354	89	1181	2773	0.128	354	130	0.2	0.1	1.490	A
3 - A635 (W)	1077	269	165	3789	0.284	1078	1371	0.5	0.4	1.329	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1039	260	58	3837	0.271	1039	982	0.5	0.4	1.286	A
2 - Site Access	297	74	989	3002	0.099	297	108	0.1	0.1	1.332	A
3 - A635 (W)	902	225	138	3810	0.237	902	1148	0.4	0.3	1.239	A

Base 2031 + Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A635 - Site Access Roundabout	Standard Roundabout		1, 2, 3	1.65	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)	Run automatically
D5	Base 2031 + Development	AM	ONE HOUR	07:00	08:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A635 (E)		ONE HOUR	✓	1265	100.000
2 - Site Access		ONE HOUR	✓	222	100.000
3 - A635 (W)		ONE HOUR	✓	1592	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - A635 (E)	2 - Site Access	3 - A635 (W)
From	1 - A635 (E)	0	211	1054
	2 - Site Access	103	0	119
	3 - A635 (W)	1349	243	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - A635 (E)	2 - Site Access	3 - A635 (W)
From	1 - A635 (E)	0	0	0
	2 - Site Access	0	0	0
	3 - A635 (W)	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A635 (E)	0.38	1.58	0.6	A	1161	1741
2 - Site Access	0.09	1.41	0.1	A	204	306
3 - A635 (W)	0.46	1.73	0.8	A	1461	2191

Main Results for each time segment

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	952	238	183	3740	0.255	951	1092	0.0	0.3	1.290	A
2 - Site Access	167	42	792	3236	0.052	167	341	0.0	0.1	1.172	A
3 - A635 (W)	1199	300	77	3857	0.311	1197	882	0.0	0.4	1.353	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1137	284	218	3712	0.306	1137	1305	0.3	0.4	1.397	A
2 - Site Access	200	50	947	3051	0.065	200	408	0.1	0.1	1.261	A
3 - A635 (W)	1431	358	93	3845	0.372	1431	1054	0.4	0.6	1.490	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1393	348	267	3674	0.379	1392	1598	0.4	0.6	1.577	A
2 - Site Access	244	61	1160	2798	0.087	244	500	0.1	0.1	1.408	A
3 - A635 (W)	1753	438	113	3829	0.458	1752	1291	0.6	0.8	1.733	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1393	348	268	3674	0.379	1393	1599	0.6	0.6	1.577	A
2 - Site Access	244	61	1160	2798	0.087	244	500	0.1	0.1	1.409	A
3 - A635 (W)	1753	438	113	3829	0.458	1753	1291	0.8	0.8	1.733	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1137	284	219	3712	0.306	1138	1306	0.6	0.4	1.398	A
2 - Site Access	200	50	948	3050	0.065	200	408	0.1	0.1	1.264	A
3 - A635 (W)	1431	358	93	3845	0.372	1432	1055	0.8	0.6	1.491	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	952	238	183	3740	0.255	953	1094	0.4	0.3	1.293	A
2 - Site Access	167	42	794	3234	0.052	167	342	0.1	0.1	1.175	A
3 - A635 (W)	1199	300	78	3857	0.311	1199	883	0.6	0.5	1.356	A

Base 2031 + Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A635 - Site Access Roundabout	Standard Roundabout		1, 2, 3	1.60	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)	Run automatically
D6	Base 2031 + Development	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A635 (E)		ONE HOUR	✓	1443	100.000
2 - Site Access		ONE HOUR	✓	394	100.000
3 - A635 (W)		ONE HOUR	✓	1251	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		1 - A635 (E)	2 - Site Access	3 - A635 (W)
From	1 - A635 (E)	0	67	1376
	2 - Site Access	183	0	211
	3 - A635 (W)	1174	77	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		1 - A635 (E)	2 - Site Access	3 - A635 (W)
From	1 - A635 (E)	0	0	0
	2 - Site Access	0	0	0
	3 - A635 (W)	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A635 (E)	0.42	1.61	0.7	A	1324	1986
2 - Site Access	0.18	1.85	0.2	A	362	542
3 - A635 (W)	0.37	1.51	0.6	A	1148	1722

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1086	272	58	3837	0.283	1085	1020	0.0	0.4	1.308	A
2 - Site Access	297	74	1034	2948	0.101	296	108	0.0	0.1	1.357	A
3 - A635 (W)	942	235	138	3810	0.247	941	1193	0.0	0.3	1.254	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1297	324	69	3828	0.339	1297	1219	0.4	0.5	1.421	A
2 - Site Access	354	89	1237	2707	0.131	354	129	0.1	0.2	1.529	A
3 - A635 (W)	1125	281	164	3789	0.297	1124	1426	0.3	0.4	1.350	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1589	397	85	3816	0.416	1588	1493	0.5	0.7	1.615	A
2 - Site Access	434	108	1514	2377	0.183	434	158	0.2	0.2	1.851	A
3 - A635 (W)	1377	344	201	3760	0.366	1377	1746	0.4	0.6	1.510	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1589	397	85	3816	0.416	1589	1494	0.7	0.7	1.615	A
2 - Site Access	434	108	1515	2376	0.183	434	159	0.2	0.2	1.852	A
3 - A635 (W)	1377	344	201	3760	0.366	1377	1747	0.6	0.6	1.510	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1297	324	69	3828	0.339	1298	1221	0.7	0.5	1.424	A
2 - Site Access	354	89	1238	2706	0.131	354	130	0.2	0.2	1.530	A
3 - A635 (W)	1125	281	165	3789	0.297	1125	1428	0.6	0.4	1.353	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1086	272	58	3837	0.283	1087	1022	0.5	0.4	1.308	A
2 - Site Access	297	74	1036	2945	0.101	297	108	0.2	0.1	1.358	A
3 - A635 (W)	942	235	138	3810	0.247	942	1195	0.4	0.3	1.255	A

Base 2033 + Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A635 - Site Access Roundabout	Standard Roundabout		1, 2, 3	1.67	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)	Run automatically
D7	Base 2033 + Development	AM	ONE HOUR	07:00	08:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A635 (E)		ONE HOUR	✓	1285	100.000
2 - Site Access		ONE HOUR	✓	222	100.000
3 - A635 (W)		ONE HOUR	✓	1619	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - A635 (E)	2 - Site Access	3 - A635 (W)
From	1 - A635 (E)	0	211	1074
	2 - Site Access	103	0	119
	3 - A635 (W)	1376	243	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - A635 (E)	2 - Site Access	3 - A635 (W)
From	1 - A635 (E)	0	0	0
	2 - Site Access	0	0	0
	3 - A635 (W)	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A635 (E)	0.39	1.59	0.6	A	1179	1769
2 - Site Access	0.09	1.42	0.1	A	204	306
3 - A635 (W)	0.47	1.76	0.9	A	1486	2228

Main Results for each time segment

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	967	242	183	3740	0.259	966	1112	0.0	0.3	1.297	A
2 - Site Access	167	42	807	3218	0.052	167	341	0.0	0.1	1.179	A
3 - A635 (W)	1219	305	77	3857	0.316	1217	897	0.0	0.5	1.364	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1155	289	218	3712	0.311	1155	1329	0.3	0.5	1.407	A
2 - Site Access	200	50	965	3030	0.066	200	408	0.1	0.1	1.271	A
3 - A635 (W)	1455	364	93	3845	0.379	1455	1072	0.5	0.6	1.505	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1415	354	267	3674	0.385	1414	1627	0.5	0.6	1.592	A
2 - Site Access	244	61	1182	2772	0.088	244	500	0.1	0.1	1.423	A
3 - A635 (W)	1783	446	113	3829	0.466	1782	1313	0.6	0.9	1.758	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1415	354	268	3674	0.385	1415	1628	0.6	0.6	1.592	A
2 - Site Access	244	61	1182	2772	0.088	244	500	0.1	0.1	1.423	A
3 - A635 (W)	1783	446	113	3829	0.466	1783	1314	0.9	0.9	1.758	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1155	289	219	3712	0.311	1156	1331	0.6	0.5	1.410	A
2 - Site Access	200	50	966	3029	0.066	200	408	0.1	0.1	1.271	A
3 - A635 (W)	1455	364	93	3845	0.379	1456	1073	0.9	0.6	1.509	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	967	242	183	3740	0.259	968	1114	0.5	0.3	1.298	A
2 - Site Access	167	42	809	3216	0.052	167	342	0.1	0.1	1.180	A
3 - A635 (W)	1219	305	78	3857	0.316	1219	899	0.6	0.5	1.366	A

Base 2033 + Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	A635 - Site Access Roundabout	Standard Roundabout		1, 2, 3	1.62	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)	Run automatically
D8	Base 2033 + Development	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - A635 (E)		ONE HOUR	✓	1469	100.000
2 - Site Access		ONE HOUR	✓	394	100.000
3 - A635 (W)		ONE HOUR	✓	1274	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - A635 (E)	2 - Site Access	3 - A635 (W)
From	1 - A635 (E)	0	67	1402
	2 - Site Access	183	0	211
	3 - A635 (W)	1197	77	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - A635 (E)	2 - Site Access	3 - A635 (W)
From	1 - A635 (E)	0	0	0
	2 - Site Access	0	0	0
	3 - A635 (W)	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - A635 (E)	0.42	1.64	0.7	A	1348	2022
2 - Site Access	0.19	1.89	0.2	A	362	542
3 - A635 (W)	0.37	1.53	0.6	A	1169	1754

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1106	276	58	3837	0.288	1104	1037	0.0	0.4	1.317	A
2 - Site Access	297	74	1054	2924	0.101	296	108	0.0	0.1	1.369	A
3 - A635 (W)	959	240	138	3810	0.252	958	1213	0.0	0.3	1.262	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1321	330	69	3828	0.345	1320	1240	0.4	0.5	1.434	A
2 - Site Access	354	89	1260	2679	0.132	354	129	0.1	0.2	1.547	A
3 - A635 (W)	1145	286	164	3789	0.302	1145	1450	0.3	0.4	1.361	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1617	404	85	3816	0.424	1617	1519	0.5	0.7	1.636	A
2 - Site Access	434	108	1543	2343	0.185	434	158	0.2	0.2	1.884	A
3 - A635 (W)	1403	351	201	3760	0.373	1402	1775	0.4	0.6	1.526	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1617	404	85	3816	0.424	1617	1519	0.7	0.7	1.636	A
2 - Site Access	434	108	1544	2342	0.185	434	159	0.2	0.2	1.885	A
3 - A635 (W)	1403	351	201	3760	0.373	1403	1776	0.6	0.6	1.526	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1321	330	69	3828	0.345	1321	1241	0.7	0.5	1.438	A
2 - Site Access	354	89	1261	2678	0.132	354	130	0.2	0.2	1.551	A
3 - A635 (W)	1145	286	165	3789	0.302	1146	1451	0.6	0.4	1.364	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - A635 (E)	1106	276	58	3837	0.288	1106	1039	0.5	0.4	1.320	A
2 - Site Access	297	74	1056	2922	0.102	297	108	0.2	0.1	1.372	A
3 - A635 (W)	959	240	138	3810	0.252	960	1215	0.4	0.3	1.264	A