

# Technical note

<b>Project:</b>	Pirelli Derby Road Site	<b>To:</b>	Staffordshire County Council
<b>Subject:</b>	TA Addendum _ Trip Generation	<b>From:</b>	Atkins
<b>Date:</b>	14 Mar 2017	<b>cc:</b>	St Modwen Developments Ltd

## 1.1. Introduction

Atkins were commissioned by St Modwen Developments Ltd in 2016 to prepare a Transport Assessment (TA) to support a planning application on the land adjacent to the Pirelli Factory, Derby Road, Stretton.

The development site is located approximately 2km north of Burton-upon-Trent and approximately 1.5km south of the A38 Burton North Junction (Clay Mills). The site is bounded to the south by the A5121 Burton Road, to the West by Princess Way and to the north by Beeches Park Business Park.

### 1.1.1. Proposed Development

The proposed development quantum for the site comprises of the following development mix<sup>1</sup>:

- 7,010 sq.m GIA - B2/B8 Units<sup>2</sup>;
- 1,244 sq.m GIA - Builders' Merchant with outside storage (sui generis)
- 595 sq.m GIA - D2 Leisure Unit (Gym)
- 465 sq.m GIA – A1/A3/A5 Retail Units
- 156 sq.m GIA – A3/A5 Coffee Shop Drive Through/ Restaurant and
- 1,857 sq.m GIA – A1 Supermarket.

## 1.2. Report Purpose

The 2016 TA assumed that the revised development quantum would comprise of 7,010 sq.m of B2/B8 (50/50 split assumed in circumstances where proposed tenants were unknown). In order to provide a robust assessment of the proposed trip generation, this Technical Note will present a sensitivity scenario to evaluate the net impact of revising the proposed development quantum to include B1c (Light Industry) in place of B2.

This Technical Note will act as an addendum to the 2016 TA prepared by Atkins.

## 1.3. 2016 TA Trip Generation

The total vehicular trip generation for the proposed development site, as presented in the 2016 TA prepared by Atkins, is outlined in **Table 1** below.

<sup>1</sup> Note: The development mix is presented in GIA (Gross Internal Area).

<sup>2</sup> 50/50 split between B2/B8. Balance of employment uses assumed in circumstances where proposed tenants were unknown.

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**Table 1. Total Vehicular Trip Generation\_ Pirelli Derby Road Site**

Land Use	AM Peak			PM Peak		
	Arrivals	Departures	Two-Way	Arrivals	Departures	Two-Way
Revised B2 Traffic (3,502 sq.m)	9	2	11	2	12	14
Revised B8 Traffic (3,502 sq.m)	8	4	12	4	11	15
A1 Food Store Traffic (1,857 sq.m)	18	13	31	59	68	127
Drive Through Coffee Retailer (156 sq.m)	15	14	29	19	18	37
A1 Builders Merchants (1,244 sq.m)	8	7	15	2	3	5
D2 Leisure Unit (Gym) (595 sq.m)	5	4	9	11	6	17
A1/A3/A5 Retail Units (465 sq.m)	20	19	39	18	20	38
<b>Total Trip Generation</b>	<b>83</b>	<b>63</b>	<b>146</b>	<b>115</b>	<b>138</b>	<b>253</b>

## 1.4. Sensitivity Scenario (B1c Land Use)

In order to determine the net impact of revising the proposed development quantum to include B1c (Light Industry) in place of B2, the TRIP rates and resultant trip generation from the 2016 TA (prepared by Atkins) for B2 have been compared to trip rates for B1c (light industry), which have been extracted from the TRICs database (full TRICs output provided in **Appendix A**).

The trip rates and resultant trip generation for B2, as presented in the 2016 TA prepared by Atkins, is outlined in **Table 2**.

**Table 2. B2 Trip Rates and Trip Generation (2016 Atkins TA)**

Land Use		AM Peak			PM Peak		
		Arrivals	Departures	Two-Way	Arrivals	Departures	Two-Way
B2	Trip Rates per 100sq.m	0.266	0.068	0.334	0.059	0.33	0.389
	Trip Generation 3,502 sq.m	9	2	11	2	12	14

The trip rate and resultant trip generation for B1c (Light Industry) is presented in **Table 3**.

**Table 3. B1c Trip Rates and Trip Generation**

Land Use		AM Peak			PM Peak		
		Arrivals	Departures	Two-Way	Arrivals	Departures	Two-Way
B1c (Light Industry)	Trip Rates per 100sq.m	0.38	0.179	0.559	0.08	0.349	0.429
	Trip Generation 3,502 sq.m	14	6	20	3	12	15

The resultant trip generation for B2 (2016 Atkins TA) is compared to the resultant trip generation for B1c (Light Industry) in **Table 4** below.

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**Table 4. Trip Generation Summary**

Land Use		AM Peak			PM Peak		
		Arrivals	Departures	Two-Way	Arrivals	Departures	Two-Way
B2	Trip Generation 3,502 sq.m	9	2	11	2	12	14
B1c (Light Industry)	Trip Generation 3,502 sq.m	14	6	20	3	12	15
<b>Net Difference</b>		<b>5</b>	<b>4</b>	<b>9</b>	<b>1</b>	<b>0</b>	<b>1</b>

**Table 4** demonstrates that revising the proposed development quantum to include B1c (Light Industry) in place of B2 would result in an additional 9 two-way trips during the AM peak, and 1 additional two-way trip during the PM peak. It is considered that this impact is negligible.

## 1.5. Summary

Atkins were commissioned by St Modwen Developments Ltd in 2016 to prepare a Transport Assessment (TA) to support a planning application on the land adjacent to the Pirelli Factory, Derby Road, Stretton.

The 2016 TA assumed that the revised development quantum would comprise of 7,010 sq.m of B2/B8 (50/50 split assumed in circumstances where proposed tenants were unknown). In order to provide a robust assessment of the proposed trip generation, this Technical Note has presented a sensitivity scenario to evaluate the net impact of revising the proposed development quantum to include B1c (Light Industry) in place of B2.

This technical note has demonstrated that revising the proposed development quantum to include B1c (Light Industry) in place of B2 would result in an additional 9 two-way trips during the AM peak, and 1 additional two-way trip during the PM peak. It is considered that this impact is negligible.

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## Appendix A. TRICs Outputs

Calculation Reference: AUDIT-803409-170303-0340

## TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT  
 Category : C - INDUSTRIAL UNIT  
 VEHICLES

Selected regions and areas:

01	GREATER LONDON	
	HD HILLINGDON	1 days
02	SOUTH EAST	
	HF HERTFORDSHIRE	1 days
	RE READING	1 days
03	SOUTH WEST	
	BR BRISTOL CITY	1 days
04	EAST ANGLIA	
	SF SUFFOLK	1 days
06	WEST MIDLANDS	
	WM WEST MIDLANDS	2 days
08	NORTH WEST	
	CH CHESHIRE	1 days
11	SCOTLAND	
	EB CITY OF EDINBURGH	1 days
	SR STIRLING	1 days
13	MUNSTER	
	CR CORK	1 days
	WA WATERFORD	1 days
17	ULSTER (NORTHERN IRELAND)	
	AN ANTRIM	1 days
	AR ARMAGH	1 days
	DE DERRY	1 days

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

## Secondary Filtering selection:

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

Parameter: Gross floor area  
 Actual Range: 300 to 8100 (units: sqm)  
 Range Selected by User: 300 to 43325 (units: sqm)

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/08 to 19/10/15

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:

Monday	2 days
Tuesday	3 days
Wednesday	2 days
Thursday	5 days
Friday	3 days

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

Selected survey types:

Manual count	15 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)	5
Edge of Town	10

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	12
Commercial Zone	1
No Sub Category	2

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

## Secondary Filtering selection:

Use Class:

B1	15 days
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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®.

## Secondary Filtering selection (Cont.):

Population within 1 mile:

1,001 to 5,000	4 days
5,001 to 10,000	2 days
10,001 to 15,000	5 days
15,001 to 20,000	1 days
25,001 to 50,000	3 days

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

Population within 5 miles:

25,001 to 50,000	1 days
50,001 to 75,000	1 days
75,001 to 100,000	4 days
100,001 to 125,000	1 days
125,001 to 250,000	6 days
250,001 to 500,000	2 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	3 days
1.1 to 1.5	10 days
1.6 to 2.0	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	15 days
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This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	15 days
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This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	AN-02-C-01 FERGUSON ROAD	COMPOSITES	ANTRIM
	LISBURN Suburban Area (PPS6 Out of Centre) No Sub Category Total Gross floor area: 6500 sqm Survey date: FRIDAY 19/06/15		Survey Type: MANUAL
2	AR-02-C-02 SILVERWOOD ROAD SILVERWOOD INDUSTRIAL AREA LURGAN Edge of Town Industrial Zone Total Gross floor area: 2980 sqm Survey date: THURSDAY 12/11/09	EMTEK	ARMAGH  Survey Type: MANUAL
3	BR-02-C-02 SOUTH LIBERTY LANE	STAINLESS FITTINGS	BRISTOL CITY  Survey Type: MANUAL
	BRISTOL Edge of Town Industrial Zone Total Gross floor area: 1475 sqm Survey date: TUESDAY 22/09/15		Survey Type: MANUAL
4	CH-02-C-02 JUPITER DRIVE CHESTER W. EMP. PARK CHESTER Edge of Town Industrial Zone Total Gross floor area: 8100 sqm Survey date: WEDNESDAY 19/11/14	INDUSTRIAL MATERIALS	CHESHIRE  Survey Type: MANUAL
5	CR-02-C-01	FABRICATIONS	CORK  Survey Type: MANUAL
	WALLINGSTOWN IND.EST. CORK Suburban Area (PPS6 Out of Centre) Industrial Zone Total Gross floor area: 1175 sqm Survey date: THURSDAY 13/12/12		Survey Type: MANUAL
6	DE-02-C-01 MCLEAN ROAD EGLINTON LONDONDERRY Edge of Town Industrial Zone Total Gross floor area: 1858 sqm Survey date: THURSDAY 12/11/09	C. LAMINATE SYS.	DERRY  Survey Type: MANUAL
7	EB-02-C-01 DRYDEN ROAD LOANHEAD EDINBURGH Edge of Town Industrial Zone Total Gross floor area: 1200 sqm Survey date: MONDAY 16/06/08	BREWERY	CITY OF EDINBURGH  Survey Type: MANUAL
8	HD-02-C-01 PUMP LANE	TARMAC PRODUCTION	HILLINGDON  Survey Type: MANUAL
	HAYES Suburban Area (PPS6 Out of Centre) Industrial Zone Total Gross floor area: 3912 sqm Survey date: FRIDAY 11/05/12		Survey Type: MANUAL



LIST OF SITES relevant to selection parameters (Cont.)

9	HF-02-C-01	INDUSTRIAL UNIT	HERTFORDSHIRE
	BRIDGE ROAD EAST		
	WELWYN GARDEN CITY		
	Suburban Area (PPS6 Out of Centre)		
	Industrial Zone		
	Total Gross floor area:	1800 sqm	
	Survey date:	THURSDAY 17/07/08	Survey Type: MANUAL
10	RE-02-C-01	SHEET METAL FABRICATION	READING
	COMMERCIAL ROAD		
	READING		
	Edge of Town		
	Industrial Zone		
	Total Gross floor area:	645 sqm	
	Survey date:	THURSDAY 22/11/12	Survey Type: MANUAL
11	SF-02-C-01	JOINERY	SUFFOLK
	ANSON ROAD		
	MARTLESHAM HEATH		
	IPSWICH		
	Edge of Town		
	Industrial Zone		
	Total Gross floor area:	1100 sqm	
	Survey date:	FRIDAY 12/07/13	Survey Type: MANUAL
12	SR-02-C-01	SPECIALIST MODEL MAKING	STIRLING
	BORROWMEADOW ROAD		
	STIRLING		
	Edge of Town		
	Industrial Zone		
	Total Gross floor area:	2350 sqm	
	Survey date:	MONDAY 16/06/14	Survey Type: MANUAL
13	WA-02-C-01	FOODS COMPANY	WATERFORD
	MAYPARK LANE		
	WATERFORD		
	Edge of Town		
	No Sub Category		
	Total Gross floor area:	2800 sqm	
	Survey date:	TUESDAY 18/11/08	Survey Type: MANUAL
14	WM-02-C-02	ARDONPRINT	WEST MIDLANDS
	SYDNEY ROAD		
	SMALL HEATH		
	BIRMINGHAM		
	Suburban Area (PPS6 Out of Centre)		
	Commercial Zone		
	Total Gross floor area:	300 sqm	
	Survey date:	WEDNESDAY 17/06/09	Survey Type: MANUAL
15	WM-02-C-03	INDUSTRIAL GLASS	WEST MIDLANDS
	DOWNING STREET		
	SMETHWICK		
	Edge of Town		
	Industrial Zone		
	Total Gross floor area:	5070 sqm	
	Survey date:	TUESDAY 06/11/12	Survey Type: MANUAL

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

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
CS-02-C-01	not B1c
DC-02-C-07	not B1c
HD-02-C-02	not b1c
WM-02-C-01	not b1c

TRIP RATE for Land Use 02 - EMPLOYMENT/C - INDUSTRIAL UNIT  
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 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00	1	2350	0.298	1	2350	0.043	1	2350	0.341
07:00 - 08:00	15	2751	0.356	15	2751	0.136	15	2751	0.492
08:00 - 09:00	15	2751	0.380	15	2751	0.179	15	2751	0.559
09:00 - 10:00	15	2751	0.327	15	2751	0.196	15	2751	0.523
10:00 - 11:00	15	2751	0.223	15	2751	0.230	15	2751	0.453
11:00 - 12:00	15	2751	0.240	15	2751	0.213	15	2751	0.453
12:00 - 13:00	15	2751	0.259	15	2751	0.337	15	2751	0.596
13:00 - 14:00	15	2751	0.264	15	2751	0.264	15	2751	0.528
14:00 - 15:00	15	2751	0.233	15	2751	0.218	15	2751	0.451
15:00 - 16:00	15	2751	0.150	15	2751	0.262	15	2751	0.412
16:00 - 17:00	15	2751	0.128	15	2751	0.313	15	2751	0.441
17:00 - 18:00	15	2751	0.080	15	2751	0.349	15	2751	0.429
18:00 - 19:00	14	2780	0.044	15	2751	0.187	14	2780	0.231
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
<b>Total Rates:</b>			<b>2.982</b>			<b>2.927</b>			<b>5.909</b>

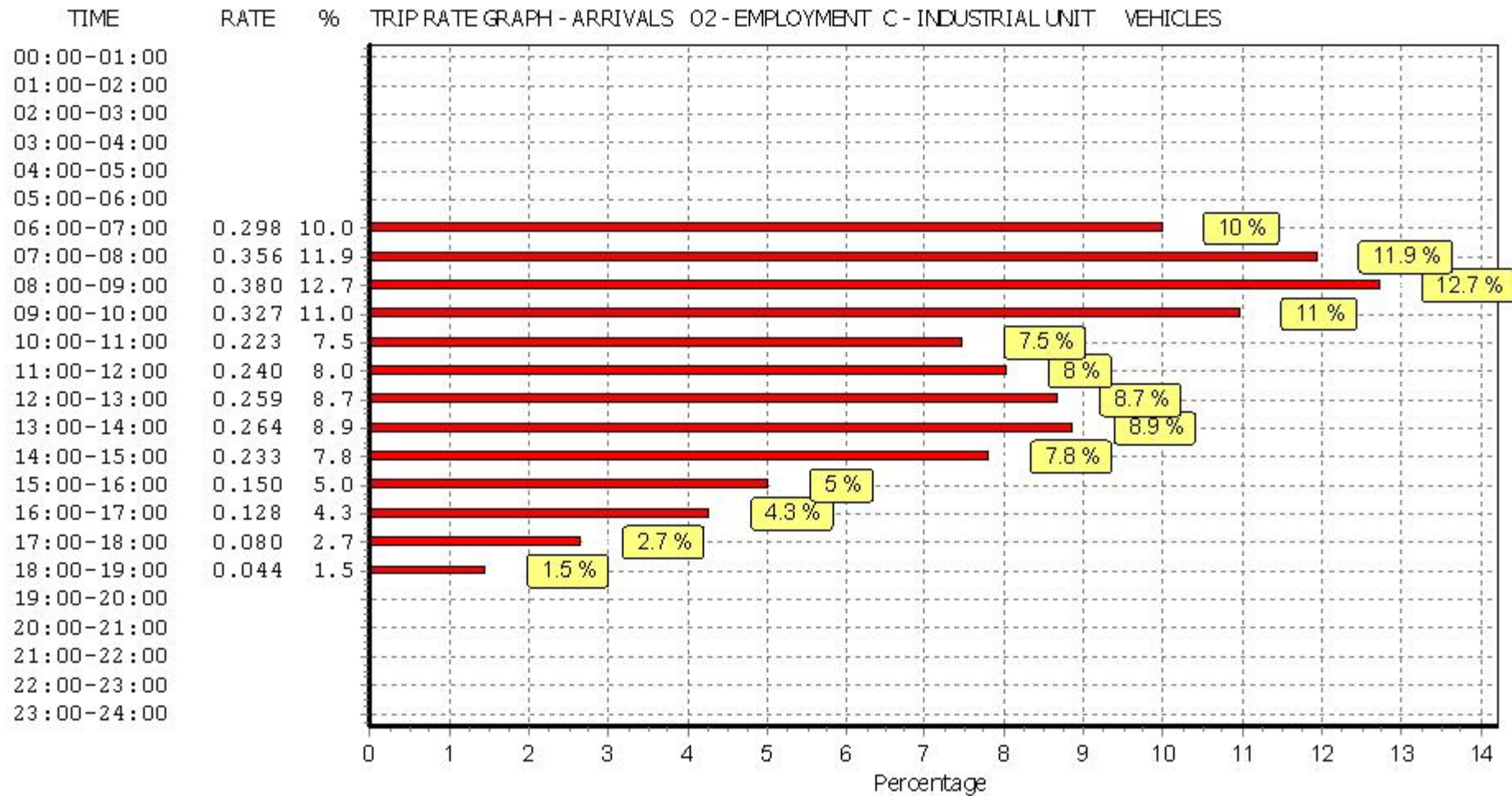
This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are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

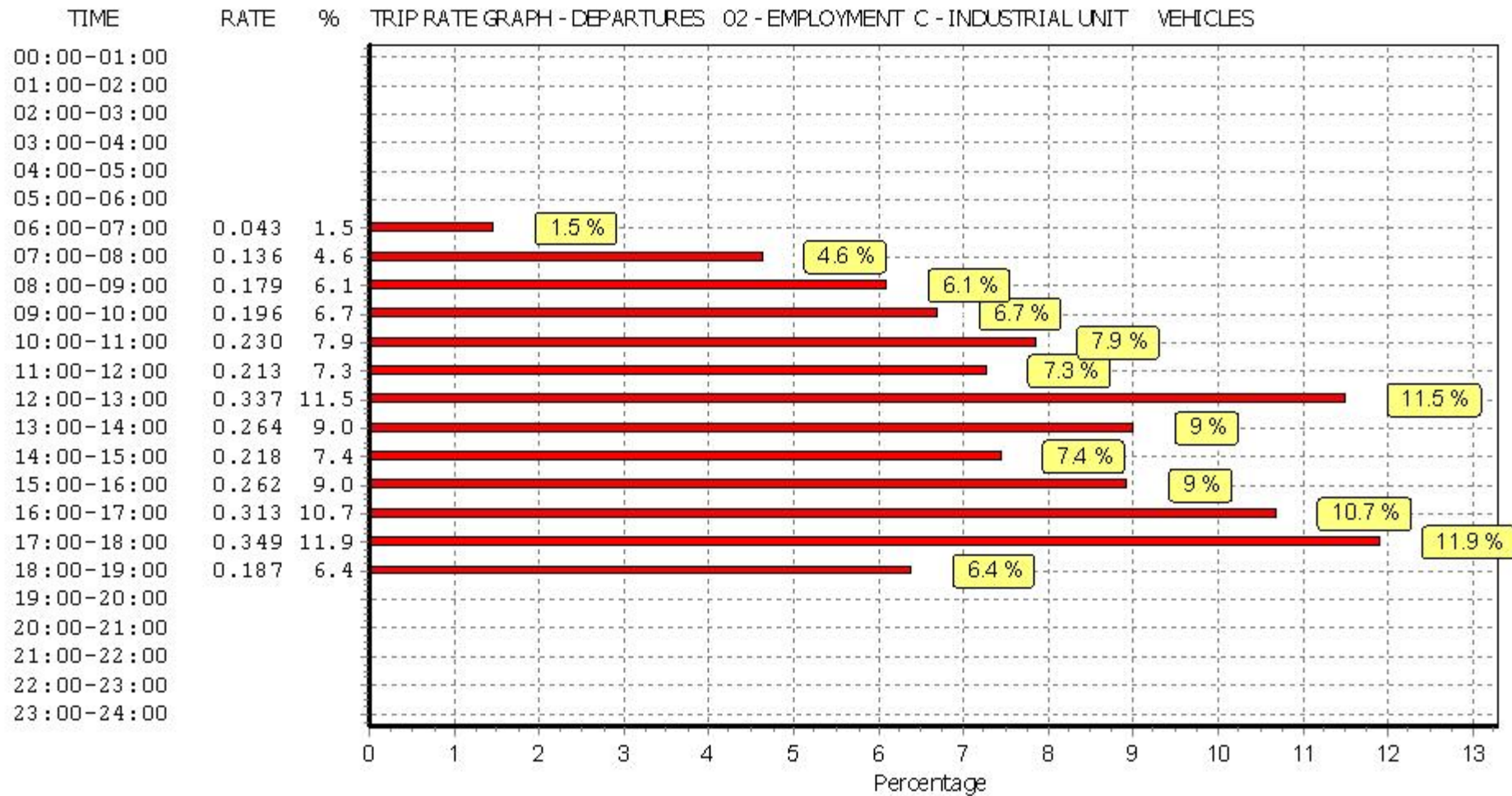
#### Parameter summary

Trip rate parameter range selected: 300 - 8100 (units: sqm)  
 Survey date date range: 01/01/08 - 19/10/15  
 Number of weekdays (Monday-Friday): 15  
 Number of Saturdays: 0  
 Number of Sundays: 0  
 Surveys automatically removed from selection: 0  
 Surveys manually removed from selection: 4

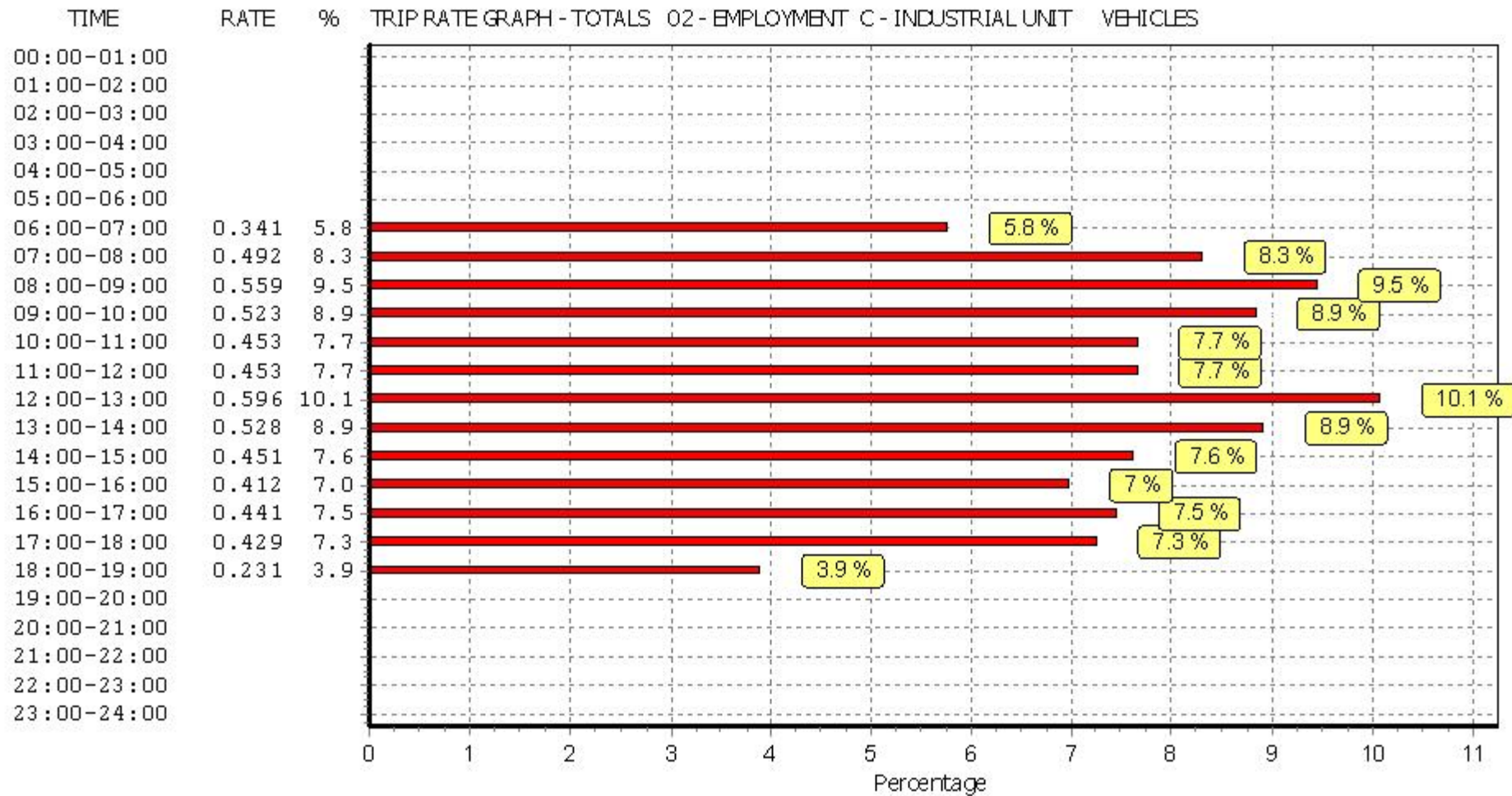
This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected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