Formby
Formby Development Site Forecasting Report
Sefton Council

16 October 2015
Notice

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This document has 40 pages including the cover.

Document history

<table>
<thead>
<tr>
<th>Revision</th>
<th>Purpose description</th>
<th>Originated</th>
<th>Checked</th>
<th>Reviewed</th>
<th>Authorised</th>
<th>Date</th>
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<td>Rev 1.0</td>
<td>Development Forecasting Report</td>
<td>PM</td>
<td>RK</td>
<td>RK</td>
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<td>19/10/15</td>
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</table>
# Table of contents

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>Introduction</strong></td>
<td>4</td>
</tr>
<tr>
<td>2. <strong>Methodology</strong></td>
<td>6</td>
</tr>
<tr>
<td>2.1. Development Scenarios</td>
<td>6</td>
</tr>
<tr>
<td>2.2. Forecast Year Development Trips.</td>
<td>8</td>
</tr>
<tr>
<td>3. <strong>Forecast Analysis</strong></td>
<td>14</td>
</tr>
<tr>
<td>3.1. Network Analysis</td>
<td>14</td>
</tr>
<tr>
<td>4. <strong>Summary</strong></td>
<td>21</td>
</tr>
</tbody>
</table>

## Appendices

**Appendix A. TRICS Output**

A.1. Residential Sites TRICS Data
A.2. Employment Land Sites TRICS Data

**Tables**

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-1</td>
<td>Development Quantum and Land Use Types</td>
<td>6</td>
</tr>
<tr>
<td>2-2</td>
<td>Development Trip Rates</td>
<td>8</td>
</tr>
<tr>
<td>2-3</td>
<td>2030 Development Site Trip Generation.</td>
<td>9</td>
</tr>
</tbody>
</table>

**Figures**

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1</td>
<td>Study Area</td>
<td>5</td>
</tr>
<tr>
<td>2-1</td>
<td>2030 Development Site Locations.</td>
<td>7</td>
</tr>
<tr>
<td>2-2</td>
<td>AM Peak Residential Site Departures.</td>
<td>10</td>
</tr>
<tr>
<td>2-3</td>
<td>PM Peak Residential Site Arrivals</td>
<td>11</td>
</tr>
<tr>
<td>2-4</td>
<td>AM Peak Employment Site Arrivals.</td>
<td>12</td>
</tr>
<tr>
<td>2-5</td>
<td>PM Peak Employment Site Departures.</td>
<td>13</td>
</tr>
<tr>
<td>3-1</td>
<td>AM Peak Base against Do-Something Difference Plot.</td>
<td>14</td>
</tr>
<tr>
<td>3-3</td>
<td>PM Peak Base against Do-Something Difference Plot.</td>
<td>15</td>
</tr>
<tr>
<td>3-4</td>
<td>AM Peak. Base - Do-Something Junction Delay Stress Plots</td>
<td>16</td>
</tr>
<tr>
<td>3-5</td>
<td>AM Peak. Base - Do-Something Junction V/C Stress Plots</td>
<td>18</td>
</tr>
<tr>
<td>3-6</td>
<td>PM Peak. Base - Do-Something Junction Delay Stress Plots</td>
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<td>3-7</td>
<td>PM Peak. Base - Do-Something Junction V/C Stress Plots</td>
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</table>
Sefton Council (SC) has commissioned Atkins to use the Formby update traffic model which was produced in February 2013 to analyse the transport impacts of two proposed employment land use developments on land to the east of the A565 Formby Bypass adjacent to the existing employment site at the B5195 Altcar Road. In addition to the employment developments, the impacts of three proposed residential development sites around the Formby area have also been included in this assessment. Details of the Formby update model are reported in the Formby SATURN Traffic Model Update Local Model Validation report.

This report documents the impact of, and assumptions made in developing the forecast scenario for the development sites around the Formby area of Sefton.

The two employment development sites are located to the east of the Formby Bypass, the northern site is adjacent, and to the north of the existing industrial estate at the B5195 Altcar Road and takes its access via a signalised junction with the A565 Formby Bypass, the southern site is to the south of the existing industrial site, the access to this site is via a signalised junction with the A565 Formby Bypass, as well as a priority junction with the B5195 Altcar Road.

The three housing sites are located at Liverpool Road, land to the south of Andrews Close and land north of Brackenway, the site on land to the North of Brackenway also has a new signalised junction with the A565 Formby Bypass.

Figure 1-1 shows the general location of the study area.
Figure 1-1  Study Area
2. **Methodology**

Sefton Council requested that a forecast horizon year of 2030 should be tested to ascertain the effects of the development sites on the local road network.

2.1. **Development Scenarios**

Only one development Do-Something scenario has been assessed as part of this analysis, which is a 2030 forecast horizon year, with the full 2030 housing build out based on housing allocation data provided by Sefton Council.

The Do-Something scenario tested contains the following development sites:

- MN2.12 Land North of Brackenway (Housing);
- MN2.16 Land at Liverpool Road (Housing);
- MN2.19 Land at Andrews Close (Housing);
- MN2.48 Land North of Formby Industrial Estate. (Employment); and,
- MN2.49 Land South of Formby Industrial Estate (Employment).

Table 2-1 details the land use and quantum of development at each site, as well as the zone in the SATURN traffic model which represents the development site.

**Table 2-1 Development Quantum and Land Use Types**

<table>
<thead>
<tr>
<th>Land Use Type</th>
<th>MN2.12 (Zone 185) Land at North of Brackenway. (Dwellings)</th>
<th>MN2.16 (Zone 184) Land at Liverpool Road. (Dwellings)</th>
<th>MN2.19 (Zone 126) Land at Andrews Close. (Dwellings)</th>
<th>MN2.48 (Zone 186) Land North of Formby Industrial Estate. (GFA m2)</th>
<th>MN2.49 (Zone 187) Land North of Formby Industrial Estate. (GFA m2)</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>Housing</td>
<td>286</td>
<td>319</td>
<td>87</td>
<td>N/A</td>
<td>N/A</td>
<td>676</td>
</tr>
<tr>
<td>B1a</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>8,175</td>
<td>0</td>
<td>1441</td>
</tr>
<tr>
<td>B1c</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>3,252</td>
<td>6,825</td>
<td>1728</td>
</tr>
<tr>
<td>B2</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>13,331</td>
<td>6,825</td>
<td>20,156</td>
</tr>
<tr>
<td>B8</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>14,074</td>
<td>13,650</td>
<td>27,724</td>
</tr>
<tr>
<td>Total</td>
<td>286</td>
<td>319</td>
<td>87</td>
<td>38,832</td>
<td>27,300</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Figure 2-1 shows the location of each development site graphically.
Figure 2-1  2030 Development Site Locations.
2.2. Forecast Year Development Trips.

After discussions with council officers and interrogation of the TEMPRO 6.2 data sets, it was agreed that no underlying growth would be added to the Formby Update SATURN model base matrices, as growth in the Formby and wider Sefton areas of Merseyside is predicted to be neutral and possibly slightly negative for the forecast year developed for this analysis. As this study is primarily focussed on the impacts of development sites on the A565 Formby Bypass, five smaller housing sites around the Formby area which have less than 50 dwellings on each site have not been modelled, it was considered prudent not to model these sites as this would offset the negative TEMPRO growth in the Formby area and due to the sparsity of the modelled network in the area of the developments, the impact of the sites on the A565 Formby Bypass itself would be negligible.

2.2.1. Trip Rates

Following further discussion with Sefton council officers and to provide continuity with previous work undertaken for Sefton Council, it was agreed that the trip rates from the ‘Land East of Maghull’ development scenarios would be used for both the residential and employment elements of the developments. Additional trip rates were calculated for B1c land use which is employment starter units. Trip rates have been calculated using the TRICS data base.

Appendix A of this report details the Housing and Employment TRICS assessments.

The trip rates used in the assessment are tabulated in Table 2-2.

### Table 2-2 Development Trip Rates

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Average Trip Rates (per Dwelling / 100 sqm)</th>
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<td></td>
<td>Morning (0800-0900)</td>
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<tr>
<td></td>
<td>Arrivals</td>
</tr>
<tr>
<td>Housing</td>
<td>0.165</td>
</tr>
<tr>
<td>B1 (Employment/A - Office)</td>
<td>1.597</td>
</tr>
<tr>
<td>B1(Employment/C - Starter Units)</td>
<td>0.419</td>
</tr>
<tr>
<td>B2 (Employment/B - Industrial)</td>
<td>0.450</td>
</tr>
<tr>
<td>B8 (Employment/F - Warehousing)</td>
<td>0.200</td>
</tr>
</tbody>
</table>

2.2.2. Trip Generation

Based on the trip rates and the quantum of development described above, a trip generation has been calculated. The trip generation for each of the development sites is tabulated in Table 2-3.
Table 2-3  2030 Development Site Trip Generation.

<table>
<thead>
<tr>
<th>Site Reference</th>
<th>Development Trips</th>
<th>Morning (0800-0900)</th>
<th>Evening (1700-1800)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Arrivals</td>
<td>Departures</td>
<td>Total</td>
</tr>
<tr>
<td>MN2.12 Land at North of Brackenway (Model Zone 185)</td>
<td>47</td>
<td>124</td>
<td>172</td>
</tr>
<tr>
<td>MN2.16 Land at Liverpool Road. (Model Zone 184)</td>
<td>53</td>
<td>139</td>
<td>191</td>
</tr>
<tr>
<td>MN2.19 Land at Andrews Close. (Model Zone 126)</td>
<td>14</td>
<td>38</td>
<td>52</td>
</tr>
<tr>
<td>MN2.48 Land North of Formby Industrial Estate. (Model Zone 186)</td>
<td>232</td>
<td>68</td>
<td>300</td>
</tr>
<tr>
<td>MN2.49 Land South of Formby Industrial Estate. (Model Zone 187)</td>
<td>87</td>
<td>38</td>
<td>125</td>
</tr>
<tr>
<td>Total</td>
<td>433</td>
<td>407</td>
<td>840</td>
</tr>
</tbody>
</table>

2.2.1. Trip Distribution

Trip distributions for the Formby development sites have been taken from suitable adjacent donor zones. The residential development sites have used local residential zones, for the employment sites, the existing industrial area to the east of the Formby bypass at the B5195 Altcar Road has been used as the donor zone.

Figures 2-2 and 2-3 show the distribution patterns for the AM peak departures and PM peak arrivals for the residential development sites.
Figure 2-2  AM Peak Residential Site Departures.
Figures 2-4 and 2-5 shows the AM arrivals and PM departure trip distributions for the employment development sites.
Figure 2-4  AM Peak Employment Site Arrivals.
Figure 2-5  PM Peak Employment Site Departures.
3. Forecast Analysis

The following sections of the report detail the effects of the development scenario on the local road network in and around the Formby area.

3.1. Network Analysis

3.1.1. Flow Difference

Analysis has been undertaken to compare the change in flows between the base assignments and the Do-Something scenarios. This analysis has been undertaken using SATURN difference plots for the AM and PM peak periods. Green bands denote an increase in flow in the Do-Something scenario and blue bands denote a decrease in flow in the Do-Something scenario, the width of the band indicates the magnitude of the flow changes.

The difference plots are reproduced in Figures 3-1 and 3-2 below.

Figure 3-1 AM Peak Base against Do-Something Difference Plot.
Analysis comparing the Do-Something scenario with the Base scenario shows that during the AM peak period the most significant traffic flow difference observed is an increase in traffic flows on Watchyard Lane.

During the PM peak a decrease in traffic is observed on the A565 Formby Bypass to the south of the B5195 Altcar Road, traffic flows also decrease on the B5195 Altcar Road eastbound as traffic turns right at the new southern industrial area junction to access the existing industrial area at the B5195 Altcar Road.

There is also a small amount of re-routing from the residential developments away from the B5424 onto the B5195 Altcar Rd and Liverpool Road.

### 3.1.2. Junction Stress

Junction stress analysis has been undertaken for all of the junctions in the vicinity of the development site.

Both Volume to Ratio capacity (V/C) and Delay indicators have been assessed as part of the analysis.

Colour coded thematically mapped plots have been used to compare the Base against the Do-Something scenario at each junction, these colour codes are listed below:
Volume to Capacity Ratio

- Green – Less than 85%
- Amber – 85% to 100%
- Red – 100% and above

Delay.

- Green – Less than 15 seconds;
- Amber – 15 to 60 seconds;
- Red – 60 to 120 seconds; and,
- Black – 120 seconds and over

The junction stress plots are represented in Figures 3-4 to 3-7 below.

Figure 3-3    AM Peak. Base - Do-Something Junction Delay Stress Plots
Figure 3-4  AM Peak. Base - Do-Something Junction V/C Stress Plots
Figure 3-5  PM Peak. Base - Do-Something Junction Delay Stress Plots
Figure 3-6  PM Peak. Base - Do-Something Junction V/C Stress Plots
The junction stress plots indicate that in general there are no junctions that show an increase in stress for either V/C or Delay in the Do-Something scenario, except for the junction between the B5195 Altcar Road / Watchyard Lane / Cross Green which is predicted to experience increased delays and V/C during the PM peak period.

4. Summary

The assessment of the development scenario for the residential and employment sites in and around the Formby area has been undertaken for a forecast horizon year of 2030.

Three residential housing sites from the Sefton housing allocation have been incorporated into the Formby update SATURN traffic model, which forms the basis of this assessment. Two employment sites including B1a, B1c, B2 and B8 land use types have also been modelled.

These developments form the background growth for the analysis, as TEMPRO data predicts that there will be no traffic growth for the forecast years across most of the Merseyside region.

Trip distributions from suitable adjacent residential and employment land zones in the SATURN model have been used to model the travel patterns to and from the development sites.

The impacts of the proposed development on the existing local Formby road infrastructure has been assessed by comparing the Base model levels of traffic delay and congestion, against the 2030 AM and PM peak scenarios with the proposed developments in place.

Flow difference plots comparing the Base and Do-Something scenario indicate that there will be localised flow increases around the area to the west of the Formby bypass in both the AM and PM peak periods.

During the AM peak the main re-routing of traffic flow is predicted to be an increase of traffic on Watchyard Lane. During the PM peak, traffic flow is predicted to decrease northbound on Formby bypass on the approach to the B5195 Altcar Road, as traffic accesses the existing industrial area further south from the new signalised junction at the Formby south employment area.

The traffic model results indicate that there will be very little increase in junction stress when V/C and Delay are analysed for the 2030 development scenarios, with the exception of the B5195 Altcar Road / Watchyard Lane / Cross Green junction.
Appendices
Appendix A. TRICS Output

A.1. Residential Sites TRICS Data

TRICS 2013(b)v6.12.2  281113  B16.07  (C) 2013 JMP Consultants Ltd on behalf of the TRICS Consortium  
Wednesday 18/12/13
Maghull Trip Rates Page 1
Atkins Faulkner Street Manchester Licence No: 803408

TRIP RATE CALCULATION SELECTION PARAMETERS:
Land Use: 03 - RESIDENTIAL
Category: A - HOUSES PRIVATELY OWNED

VEHICLES
Selected regions and areas:

02 SOUTH EAST  
EX ESSEX 1 days

03 SOUTH WEST  
WL WILTSHIRE 1 days

04 EAST ANGLIA  
SF SUFFOLK 2 days

05 EAST MIDLANDS  
LN LINCOLNSHIRE 1 days
NT NOTTINGHAMSHIRE 1 days

06 WEST MIDLANDS  
WM WEST MIDLANDS 1 days

07 YORKSHIRE & NORTH LINCOLNSHIRE  
NY NORTH YORKSHIRE 1 days

08 NORTH WEST  
CH CHESHIRE 1 days

09 NORTH  
CB CUMBRIA 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: Number of dwellings
Actual Range: 71 to 237 (units: )
Range Selected by User: 50 to 4334 (units: )
Public Transport Provision:
Selection by: Include all surveys
Date Range: 01/01/05 to 22/10/12
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 4 days
Tuesday 3 days
Wednesday 1 days
Thursday 1 days
Friday 1 days
This data displays the number of selected surveys by day of the week.
Selected survey types:
Manual count 10 days
Directional ATC Count 0 days
This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding
up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys
are
undertaking using machines.
Selected Locations:
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:
Residential Zone 7
Out of Town 1

TRICS 2013(b)v6.12.2 281113 B16.07 (C) 2013 JMP Consultants Ltd on behalf of the TRICS Consortium Wednesday 18/12/13

Maghull Trip Rates Page 2
Atkins Faulkner Street Manchester Licence No: 803408
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:
C 3 10 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:
5,001 to 10,000 4 days
10,001 to 15,000 1 days
15,001 to 20,000 3 days
20,001 to 25,000 2 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 2 days
50,001 to 75,000 1 days
100,001 to 125,000 3 days
125,001 to 250,000 3 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 4 days
1.1 to 1.5 6 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 10 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.

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Maghull Trip Rates Page 3
Atkins Faulkner Street Manchester Licence No: 803408

LIST OF SITES relevant to selection parameters
1 CB-03-A-04 SEMI DETACHED CUMBRIA
MOORCLOSE ROAD
SALTERBACK
WORKINGTON
Edge of Town
No Sub Category
Total Number of dwellings: 8 2
Survey date: FRIDAY 24/04/09 Survey Type: MANUAL

2 CH-03-A-02 HOUSES/FLATS CHESHIRE
SYDNEY ROAD
CREWE
Edge of Town
Residential Zone
Total Number of dwellings: 1 7 4
Survey date: TUESDAY 14/10/08 Survey Type: MANUAL

3 EX-03-A-01 SEMI-DET. ESSEX
MILTON ROAD
CORRINGHAM
STANFORD-LE-HOPE
Edge of Town
<table>
<thead>
<tr>
<th>Site Reference</th>
<th>Location</th>
<th>Survey Date</th>
<th>dwelling Count</th>
<th>Survey Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>LN-03-A-01</td>
<td>Brant Road, Lincoln, Edge of Town</td>
<td>TUESDAY 13/05/08</td>
<td>237</td>
<td>MANUAL</td>
</tr>
<tr>
<td>NT-03-A-03</td>
<td>Brant Road, Lincoln, Edge of Town</td>
<td>TUESDAY 15/05/07</td>
<td>150</td>
<td>MANUAL</td>
</tr>
<tr>
<td>NY-03-A-05</td>
<td>Boroughbridge Road, Ripon, Edge of Town</td>
<td>WEDNESDAY 28/06/06</td>
<td>166</td>
<td>MANUAL</td>
</tr>
<tr>
<td>SF-03-A-02</td>
<td>Stoke Park Drive, Maidenhall, Ipswich, Edge of Town</td>
<td>THURSDAY 24/05/07</td>
<td>230</td>
<td>MANUAL</td>
</tr>
<tr>
<td>SF-03-A-03</td>
<td>Barton Hill, Fornham St Martin, Bury St Edmunds, Edge of Town</td>
<td>MONDAY 15/05/06</td>
<td>101</td>
<td>MANUAL</td>
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<tr>
<td>WL-03-A-01</td>
<td>Maple Drive, Wootton Bassett, Edge of Town, Residential Zone</td>
<td>MONDAY 02/10/06</td>
<td>99</td>
<td>MANUAL</td>
</tr>
<tr>
<td>WM-03-A-03</td>
<td>Baseley Way, Rowleys Green, Coventry, Residential Zone</td>
<td>MONDAY 24/09/07</td>
<td>84</td>
<td>MANUAL</td>
</tr>
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</table>
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
--- | ---
CH-03-A-06 | Train station within 1km
CW-03-A-02 | Train station within 1km
DC-03-A-01 | Suburban Area
LC-03-A-22 | High frequency bus services
LN-03-A-02 | Suburban Area
MS-03-A-01 | Neighbourhood Centre
NF-03-A-02 | High frequency bus services
NY-03-A-01 | Train station within 1km
NY-03-A-06 | Suburban Area
SF-03-A-01 | Suburban Area
SH-03-A-04 | Train station within 1km
TV-03-A-01 | Suburban Area
WM-03-A-01 | High frequency bus services
WO-03-A-03 | Suburban Area
WO-03-A-06 | Train station within 1km

TRICS 2013(b)v6.12.2
281113 B16.07 (C) 2013 JMP Consultants Ltd on behalf of the TRICS Consortium

Wednesday
18/12/13

Maghull Trip Rates Page 5
Atkins Faulkner Street Manchester Licence No: 803408
TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

VEHICLES

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

ARRIVALS DEPARTURES TOTALS

<table>
<thead>
<tr>
<th>Time Range</th>
<th>Days DWELLS</th>
<th>Rate</th>
<th>Days DWELLS</th>
<th>Rate</th>
<th>Days DWELLS</th>
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<td>0.223</td>
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</tr>
</tbody>
</table>

Total Rates: 2.754 2.823 5.577

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: 71 - 237 (units: )
Survey date date range: 01/01/05 - 22/10/12
Number of weekdays (Monday-Friday): 10
Number of Saturdays: 0
Number of Sundays: 0
Surveys manually removed from selection: 15
## A.2. Employment Land Sites TRICS Data

TRICS 7.2.3
Trip Rate: Gross floor
Parameter: area

TRIP RATE for Land Use 02 - EMPLOYMENT/C - INDUSTRIAL UNIT
Calculation Factor: 100 sqm
Count Type: VEHICLES

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<thead>
<tr>
<th>Time Range</th>
<th>ARRIVALS</th>
<th>DEPARTURES</th>
<th>TOTALS</th>
</tr>
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<td>18:00-19:00</td>
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</tbody>
</table>

Daily Trip Rates: 2.138 2.168 4.306
TRICS 7.2.1 040515 B17.13 (C) 2015 TRICS Consortium Ltd Thursday 14/05/15

Page 1

CBO Transport Ltd Fountain Street Manchester Licence No: 751701
Calculation Reference: AUDIT-751701-150514-0528

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : B - BUSINESS PARK

VEHI CLES
Selected regions and areas:
02 SOUTH EAST
BU BUCKINGHAMSHIRE 1 days
HF HERTFORDSHIRE 1 days
OX OXFORDSHIRE 1 days
06 WEST MIDLANDS
HE HEREFORDSHIRE 1 days
SH SHROPSHIRE 1 days
WM WEST MIDLANDS 1 days
10 WALES
CF CARDIFF 1 days
11 SCOTLAND
FA FALKIRK 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: 12000 to 33105 (units: sqm)
Range Selected by User: 10000 to 40000 (units: sqm)
Public Transport Provision:
Selection by: Include all surveys
Date Range: 01/01/03 to 24/10/13

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 1 days
Tuesday 4 days
Wednesday 1 days
Thursday 1 days
Friday 2 days

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

Selected survey types:
Manual count 9 days
Directional ATC Count 0 days

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

Selected Locations:
Suburban Area (PPS6 Out of Centre) 1
Edge of Town 7
Neighbourhood Centre (PPS6 Local Centre) 1

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

Selected Location Sub Categories:
Industrial Zone 2
Commercial Zone 5
Village 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
B 1 8 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:
1,001 to 5,000 2 days
5,001 to 10,000 1 days
10,001 to 15,000 4 days
25,001 to 50,000 2 days

This data displays the number of selected surveys within stated 1-mile radii of population.
Population within 5 miles:
5,001 to 25,000 1 days
50,001 to 75,000 1 days
75,001 to 100,000 2 days
100,001 to 125,000 1 days
125,001 to 250,000 2 days
250,001 to 500,000 1 days
500,001 or More 1 days

This data displays the number of selected surveys within stated 5-mile radii of population.
Car ownership within 5 miles:
0.5 or Less 1 days
0.6 to 1.0 5 days
1.1 to 1.5 3 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 9 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.

TRICS 7.2.1 040515 B17.13 (C) 2015 TRICS Consortium Ltd Thursday 14/05/15

Page 3
CBO Transport Ltd Fountain Street Manchester Licence No: 751701

LIST OF SITES relevant to selection parameters

1 BU-02-B-01 BUSINESS PARK BUCKINGHAMSHIRE
LONDON ROAD
HIGH WYCOMBE
Edge of Town
No Sub Category
Total Gross floor area: 1 3 3 0 0 sqm
Survey date: THURSDAY 08/07/04 Survey Type: MANUAL

2 CF-02-B-01 BUSINESS PARK CARDIFF
FORTRAN ROAD
ST MELLONS
CARDIFF
Edge of Town
Industrial Zone
Total Gross floor area: 1 2 0 0 0 sqm
Survey date: WEDNESDAY 18/10/06 Survey Type: MANUAL

3 CP-02-B-01 BUSINESS PARK CAERPHILLY
VAN ROAD
CAERPHILLY
Edge of Town
Commercial Zone
Total Gross floor area: 1 4 5 0 0 sqm
Survey date: TUESDAY 17/07/12 Survey Type: MANUAL

4 FA-02-B-02 BUSINESS PARK FALKIRK
CALLENDAR BOULEVARD
CALLENDAR PARK
FALKIRK
Edge of Town
Commercial Zone
Total Gross floor area: 1 6 0 0 0 sqm
Survey date: FRIDAY 31/05/13 Survey Type: MANUAL

5 HE-02-B-01 BUSINESS PARK HEREFORDSHIRE
A4103
WHITESTONE
NEAR HEREFORD
Neighbourhood Centre (PPS6 Local Centre)
Village
Total Gross floor area: 1 8 8 0 8 sqm
Survey date: TUESDAY 13/09/11 Survey Type: MANUAL

6 HF-02-B-01 BUSINESS PARK HERTFORDSHIRE
ST ALBANS ROAD WEST
HATFIELD
Edge of Town
Commercial Zone
Total Gross floor area: 2 6 0 0 0 sqm
Survey date: MONDAY 07/07/08 Survey Type: MANUAL

7 OX-02-B-01 BUSINESS PARK OXFORDSHIRE
GARSINGTON ROAD
COWLEY
OXFORD
Edge of Town
Commercial Zone
Total Gross floor area: 3 3 1 0 5 sqm
Survey date: TUESDAY 21/10/03 Survey Type: MANUAL

TRICS 7.2.1
040515 B17.13 (C) 2015 TRICS Consortium Ltd Thursday 14/05/15

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
TW-02-B-02 B8 Component
TW-02-B-04 B8 Component

TRICS 7.2.1
040515 B17.13 (C) 2015 TRICS Consortium Ltd Thursday 14/05/15

VEHICLEs
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period
ARRIVALS DEPARTURES TOTALS
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<th>Time Range</th>
<th>Days</th>
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<th>Days</th>
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<td>02:00</td>
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<td>08:00</td>
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<tr>
<td>06:00 - 06:30</td>
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<tr>
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<tr>
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<tr>
<td>20:30 - 21:00</td>
<td>22:30</td>
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<td>23:00</td>
<td>0.151</td>
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<td>0.112</td>
</tr>
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<td>21:00 - 21:30</td>
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<td>23:30</td>
<td>0.151</td>
<td>24:00</td>
<td>0.112</td>
</tr>
</tbody>
</table>
| 21:30 - 22:00 | 23:30 | 0.112 | 24:00 | 0.151 | Total Rates: 5.756
5.815
1.571
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: 12000 - 33105 (units: sqm)
Survey date date range: 01/01/03 - 24/10/13
Number of weekdays (Monday-Friday): 9
Number of Saturdays: 0
Number of Sundays: 0
Surveys manually removed from selection: 2
TRIPS 7.2.1 040515 B17.13 (C) 2015 TRICS Consortium Ltd Thursday 14/05/15

Page 1
CBO Transport Ltd Fountain Street Manchester Licence No: 751701
Calculation Reference: AUDIT-751701-150514-0540

TRIP RATE CALCULATION SELECTION PARAMETERS:
Land Use: 02 - EMPLOYMENT
Category: F - WAREHOUSING (COMMERCIAL)

VEHICLE CLE:
Selected regions and areas:
02 SOUTH EAST
HC HAMPSHIRE 1 days
SC SURREY 1 days
03 SOUTH WEST
CW CORNWALL 1 days
10 WALES
BG BRIDGEND 1 days
NW NEWPORT 1 days
WR WREXHAM 1 days
17 ULSTER (NORTHERN IRELAND)
AN ANTRIM 2 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: 3050 to 16275 (units: sqm)
Range Selected by User: 3000 to 30000 (units: sqm)
Public Transport Provision:
Selection by: Include all surveys
Date Range: 01/01/03 to 13/10/14
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 1 days
Tuesday 3 days
Wednesday 1 days
Thursday 2 days
Friday 1 days
This data displays the number of selected surveys by day of the week.
Selected survey types:
Manual count 8 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) 1
Edge of Town 6
Free Standing (PPS6 Out of Town) 1
This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.
Selected Location Sub Categories:
Industrial Zone 4
Commercial Zone 1
No Sub Category 3
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:** B 8 8 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:**
  
  - 1,000 or Less 2 days
  - 1,001 to 5,000 3 days
  - 10,001 to 15,000 1 days
  - 25,001 to 50,000 1 days
  - 50,001 to 100,000 1 days
  
  This data displays the number of selected surveys within stated 1-mile radii of population.

- **Population within 5 miles:**
  
  - 50,001 to 75,000 2 days
  - 75,001 to 100,000 1 days
  - 100,001 to 125,000 1 days
  - 125,001 to 250,000 1 days
  - 250,001 to 500,000 3 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 4 days
  - 1.1 to 1.5 4 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:**
  
  - Yes 1 days
  - No 7 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.

**TRICS 7.2.1 040515 B17.13 (C) 2015 TRICS Consortium Ltd Thursday 14/05/15**

**Page 3**

CBO Transport Ltd Fountain Street Manchester Licence No: 751701

**LIST OF SITES relevant to selection parameters**

1. **AN-02-F-01 SUPERSTORE DISTRIBUT. ANTRIM**
   - BOUCHER ROAD
   - WINDSOR
   - BELFAST
   - Edge of Town
   - Commercial Zone
   - Total Gross floor area: 1 5 7 0 0 sqm
   - Survey date: THURSDAY 06/03/03 Survey Type: MANUAL

2. **AN-02-F-02 DISTRIBUTION CENTRE ANTRIM**
   - APOLLO ROAD
   - BELFAST
   - Suburban Area (PPS6 Out of Centre)
   - Industrial Zone
   - Total Gross floor area: 1 0 8 3 2 sqm
   - Survey date: THURSDAY 29/07/10 Survey Type: MANUAL

3. **BG-02-F-01 LOGISTICS COMPANY BRIDGEND**
   - PARC CRESCENT
   - WATERTON IND. EST.
   - BRIDGEND
   - Edge of Town
   - Industrial Zone
   - Total Gross floor area: 3 0 5 0 sqm
   - Survey date: MONDAY 13/10/14 Survey Type: MANUAL

4. **CW-02-F-01 WAREHOUSING CORNWALL**
   - A390
   - THREEMILESTONE
   - NEAR TRURO
   - Edge of Town
No Sub Category
Total Gross floor area: 5 1 5 0 sqm
Survey date: TUESDAY 18/09/07 Survey Type: MANUAL
5 HC-02-F-01 WAREHOUSING HAMPSHIRE
MAURETANIA ROAD
NURSING INDUSTRIAL ESTATE
SOUTHAMPTON
Edge of Town
Industrial Zone
Total Gross floor area: 4 0 0 0 sqm
Survey date: WEDNESDAY 21/11/07 Survey Type: MANUAL
6 NW-02-F-01 LOGISTICS CENTRE NEWPORT
TREDEGAR TERRACE
CROSSKEYS
NEWPORT
Edge of Town
No Sub Category
Total Gross floor area: 1 6 2 7 5 sqm
Survey date: FRIDAY 12/10/07 Survey Type: MANUAL
7 SC-02-F-04 WAREHOUSING SURREY
PRETORIA ROAD
CHERTSEY
Edge of Town
No Sub Category
Total Gross floor area: 4 4 6 0 sqm
Survey date: TUESDAY 27/11/07 Survey Type: MANUAL
8 WR-02-F-01 WAREHOUSE WREXHAM
UNIT 1-2 PACIFIC PARK
WREXHAM IND. ESTATE
NEAR WREXHAM
Free Standing (PPS6 Out of Town)
Industrial Zone
Total Gross floor area: 9 0 0 0 sqm
Survey date: TUESDAY 18/10/11 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.

TRICS 7.2.1 040515 B17.13 (C) 2015 TRICS Consortium Ltd Thursday 14/05/15

Page 4

CBO Transport Ltd Fountain Street Manchester Licence No: 751701
MANUALLY DESELECTED SITES
Site Ref Reason for Deselection
SF-02-F-02 over 20,000

TRICS 7.2.1 040515 B17.13 (C) 2015 TRICS Consortium Ltd Thursday 14/05/15

Page 5

CBO Transport Ltd Fountain Street Manchester Licence No: 751701
TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)

VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

ARRIVALS DEPARTURES TOTALS

No. Ave. Trip No. Ave. Trip No. Ave. Trip

Time Range Days GFA Rate Days GFA Rate Days GFA 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
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<thead>
<tr>
<th>Time Period</th>
<th>Arrivals</th>
<th>Departures</th>
<th>Total (Arrivals + Departures)</th>
</tr>
</thead>
<tbody>
<tr>
<td>04:30 - 05:00</td>
<td>8 8558</td>
<td>0.070 8</td>
<td>8 8558 0.082 8 8558 0.152</td>
</tr>
<tr>
<td>05:00 - 05:30</td>
<td>8 8558</td>
<td>0.115 8</td>
<td>8 8558 0.053 8 8558 0.168</td>
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<tr>
<td>06:00 - 06:30</td>
<td>8 8558</td>
<td>0.080 8</td>
<td>8 8558 0.044 8 8558 0.124</td>
</tr>
<tr>
<td>06:30 - 07:00</td>
<td>8 8558</td>
<td>0.120 8</td>
<td>8 8558 0.057 8 8558 0.105</td>
</tr>
<tr>
<td>07:00 - 07:30</td>
<td>8 8558</td>
<td>0.053 8</td>
<td>8 8558 0.029 8 8558 0.082</td>
</tr>
<tr>
<td>07:30 - 08:00</td>
<td>8 8558</td>
<td>0.115 8</td>
<td>8 8558 0.056 8 8558 0.116</td>
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<tr>
<td>08:00 - 08:30</td>
<td>8 8558</td>
<td>0.080 8</td>
<td>8 8558 0.054 8 8558 0.123</td>
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<tr>
<td>08:30 - 09:00</td>
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<td>8 8558 0.085 8 8558 0.170</td>
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<tr>
<td>09:00 - 09:30</td>
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<td>0.101 8</td>
<td>8 8558 0.101 8 8558 0.202</td>
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<tr>
<td>09:30 - 10:00</td>
<td>8 8558</td>
<td>0.051 8</td>
<td>8 8558 0.056 8 8558 0.138</td>
</tr>
<tr>
<td>10:00 - 10:30</td>
<td>8 8558</td>
<td>0.064 8</td>
<td>8 8558 0.044 8 8558 0.108</td>
</tr>
<tr>
<td>10:30 - 11:00</td>
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<td>0.060 8</td>
<td>8 8558 0.056 8 8558 0.116</td>
</tr>
<tr>
<td>11:00 - 11:30</td>
<td>8 8558</td>
<td>0.072 8</td>
<td>8 8558 0.051 8 8558 0.123</td>
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<tr>
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<tr>
<td>12:00 - 12:30</td>
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<td>0.058 8</td>
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<tr>
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<td>8 8558 0.044 8 8558 0.108</td>
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<tr>
<td>13:00 - 13:30</td>
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<td>8 8558 0.039 8 8558 0.065</td>
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<td>0.026 8</td>
<td>8 8558 0.039 8 8558 0.065</td>
</tr>
</tbody>
</table>

Total Rates: 1.513 1.520 3.033

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.

TRICS 7.2.1 040515 B17.13 (C) 2015 TRICS Consortium Ltd Thursday 14/05/15

Page 6
CBO Transport Ltd Fountain Street Manchester Licence No: 751701

Parameter summary
Trip rate parameter range selected: 3050 - 16275 (units: sqm)
Survey date date range: 01/01/03 - 13/10/14
Number of weekdays (Monday-Friday): 8
Number of Saturdays: 0
Number of Sundays: 0
Surveys manually removed from selection: 1

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.

**TRICS 7.2.1 040515 B17.13 (C) 2015 TRICS Consortium Ltd Thursday 14/05/15**

**Page 7**

CBO Transport Ltd Fountain Street Manchester Licence No: 751701

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

**OGVS**

**Calculation factor: 100 sqm**

**BOLD print indicates peak (busiest) period**

<table>
<thead>
<tr>
<th>ARRIVALS</th>
<th>DEPARTURES</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>
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TRICS 7.2.1 040515 B17.13 (C) 2015 TRICS Consortium Ltd Thursday 14/05/15

Parameter summary
Trip rate parameter range selected: 3050 - 16275 (units: sqm)
Survey date date range: 01/01/03 - 13/10/14
Number of weekdays (Monday-Friday): 8
Number of Saturdays: 0
Number of Sundays: 0
Surveys manually removed from selection: 1

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.
Contact name Paul Melia
Atkins Transportation
2nd Floor The Exchange, 3 New York Street, Manchester, M1 4HN

Email paul.melia@atkinsglobal.com
Telephone 0161 0245 3400
Direct telephone 0161 245 3457
Fax 0161 245 3500