

TECHNICAL NOTE

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Author Ally Weir (Hyder Consulting)
Checker/Approver Tony Kivistik (Hyder Consulting)
To Cammo Residents Association
Subject Technical Note regarding Trip Generation – Proposed Cammo LDP Site (HSG20 within March 2013 Document)

1 Introduction

This Technical Note has been prepared to outline the potential development related trip generation for the proposed LDP site at Cammo.

2 Person Trip Rates

Person trip rates have been calculated using the TRICS database.

Table 1 is a summary table stating the type, scale and associated trip rates during the AM and PM weekday peak hour periods.

Table 1: AM and PM Peak Hour Person Trip Rates

Scale	Weekday AM & PM Peak Hour Person Trip Rates*			
	AM Arrival Trip Rate	AM Departure Trip Rate	PM Arrival Trip Rate	PM Departure Trip Rate
500 units	0.303	0.93	0.793	0.437

The trip rate output raw data from the TRICS database (including criteria used to determine the trip rates) is attached in **Appendix A**

The trip rates presented in **Table 1** are 'Person' trips therefore Mode Split and a Car Occupancy figure are required to establish 'Vehicle' trip rates.

3 Mode Split

The Modal Split has been derived from the TRICS database and the Car Occupancy figure has been based on the 2009/2010 Scottish Household Survey Travel Diary Results for commuting. The information has been presented in **Table 2**.

Table 2: Modal Split and Car Occupancy

Development Type	Private Car	Vehicle Occupancy*
Houses Privately Owned	77.9%	1.17

*Based on 2009/2010 Scottish Household Survey Travel Diary Results

Mode split graphical output from the TRICS database is attached as **Appendix B**.

4 Vehicle Trip Rates and Trips

By applying the factors detailed in **Table 2** the corresponding vehicle trip rates and trips have been calculated and are stated in **Tables 3** and **4**.

Table 3 – AM and PM Peak Hour Vehicle Trip Rates

Development Type	Scale	Weekday AM Peak Hour Vehicle Trip Rates		Weekday PM Peak Hour Vehicle Trip Rates	
		Arriving	Departing	Arriving	Departing
Houses privately owned	500	0.202	0.619	0.528	0.291

Table 4 – AM and PM Peak Hour Vehicle Trips

Development Type	Scale	Weekday AM Peak Hour Vehicle Trip Rates		Weekday PM Peak Hour Vehicle Trip Rates	
		Arriving	Departing	Arriving	Departing
Houses privately owned	500	101	310	264	145

Appendix A – TRICS Data

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
 Category : A - HOUSES PRIVATELY OWNED
 MULTI-MODAL TOTAL PEOPLE

Selected regions and areas:

02	SOUTH EAST	
	EX ESSEX	1 days
04	EAST ANGLIA	
	SF SUFFOLK	1 days
05	EAST MIDLANDS	
	LE LEICESTERSHIRE	1 days
	LN LINCOLNSHIRE	1 days
	NT NOTTINGHAMSHIRE	1 days
08	NORTH WEST	
	LC LANCASHIRE	1 days
09	NORTH	
	CB CUMBRIA	1 days
10	WALES	
	CF CARDIFF	1 days
11	SCOTLAND	
	EA EAST AYRSHIRE	1 days
	FI FIFE	1 days
	HI HIGHLAND	1 days
14	LEINSTER	
	KK KILKENNY	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: 11 to 237 (units:)
 Range Selected by User: 4 to 1000 (units:)

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/05 to 18/12/12

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	2 days
Tuesday	4 days
Wednesday	2 days
Thursday	3 days
Friday	1 days

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

Selected survey types:

Manual count	12 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:

Edge of Town	12
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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.

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:

C3 12 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:

10,001 to 15,000 4 days
 15,001 to 20,000 7 days
 20,001 to 25,000 1 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
 75,001 to 100,000 4 days
 100,001 to 125,000 1 days
 125,001 to 250,000 5 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 7 days
 1.1 to 1.5 5 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 12 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	CB-03-A-03 SEMI DETACHED HAWKSHEAD AVENUE		CUMBRIA
	WORKINGTON Edge of Town Residential Zone Total Number of dwellings: 40 Survey date: THURSDAY 20/11/08		Survey Type: MANUAL
2	CF-03-A-02 MIXED HOUSES DROPE ROAD		CARDIFF
	CARDIFF Edge of Town Residential Zone Total Number of dwellings: 196 Survey date: FRIDAY 05/10/07		Survey Type: MANUAL
3	EA-03-A-01 DETACHED TALISKER AVENUE		EAST AYRSHIRE
	KILMARNOCK Edge of Town Residential Zone Total Number of dwellings: 39 Survey date: THURSDAY 05/06/08		Survey Type: MANUAL
4	EX-03-A-01 SEMI -DET. MILTON ROAD CORRINGHAM STANFORD-LE-HOPE		ESSEX
	Edge of Town Residential Zone Total Number of dwellings: 237 Survey date: TUESDAY 13/05/08		Survey Type: MANUAL
5	FI-03-A-03 MIXED HOUSES WOODMILL ROAD		FIFE
	DUNFERMLINE Edge of Town Residential Zone Total Number of dwellings: 155 Survey date: MONDAY 30/04/07		Survey Type: MANUAL
6	HI-03-A-11 BUNGALOWS STEVENSON ROAD INSHES INVERNESS		HIGHLAND
	Edge of Town Residential Zone Total Number of dwellings: 85 Survey date: MONDAY 05/06/06		Survey Type: MANUAL
7	KK-03-A-03 MIXED HOUSING FRESHFORD ROAD FRIARSINCH KILKENNY		KILKENNY
	Edge of Town Residential Zone Total Number of dwellings: 70 Survey date: WEDNESDAY 26/11/08		Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

8	LC-03-A-22 CLIFTON DRIVE NORTH	BUNGALOWS	LANCASHIRE
	BLACKPOOL Edge of Town Residential Zone		
	Total Number of dwellings:	98	
	Survey date: TUESDAY	18/10/05	Survey Type: MANUAL
9	LE-03-A-01 REDWOOD AVENUE	DETACHED	LEICESTERSHIRE
	MELTON MOWBRAY Edge of Town Residential Zone		
	Total Number of dwellings:	11	
	Survey date: TUESDAY	03/05/05	Survey Type: MANUAL
10	LN-03-A-01 BRANT ROAD BRACEBRIDGE LINCOLN	MIXED HOUSES	LINCOLNSHIRE
	Edge of Town Residential Zone		
	Total Number of dwellings:	150	
	Survey date: TUESDAY	15/05/07	Survey Type: MANUAL
11	NT-03-A-03 B6018 SUTTON ROAD	SEMI DETACHED	NOTTINGHAMSHIRE
	KIRKBY-IN-ASHFIELD Edge of Town Residential Zone		
	Total Number of dwellings:	166	
	Survey date: WEDNESDAY	28/06/06	Survey Type: MANUAL
12	SF-03-A-02 STOKE PARK DRIVE MAIDENHALL IPSWICH	SEMI DET./TERRACED	SUFFOLK
	Edge of Town Residential Zone		
	Total Number of dwellings:	230	
	Survey date: THURSDAY	24/05/07	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 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
 MULTI-MODAL TOTAL PEOPLE
 Calculation factor: 1 DWELLS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	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									
07:00 - 08:00	12	123	0.148	12	123	0.462	12	123	0.610
08:00 - 09:00	12	123	0.303	12	123	0.930	12	123	1.233
09:00 - 10:00	12	123	0.301	12	123	0.382	12	123	0.683
10:00 - 11:00	12	123	0.246	12	123	0.335	12	123	0.581
11:00 - 12:00	12	123	0.280	12	123	0.293	12	123	0.573
12:00 - 13:00	12	123	0.303	12	123	0.305	12	123	0.608
13:00 - 14:00	12	123	0.316	12	123	0.297	12	123	0.613
14:00 - 15:00	12	123	0.347	12	123	0.306	12	123	0.653
15:00 - 16:00	12	123	0.793	12	123	0.437	12	123	1.230
16:00 - 17:00	12	123	0.631	12	123	0.406	12	123	1.037
17:00 - 18:00	12	123	0.678	12	123	0.422	12	123	1.100
18:00 - 19:00	12	123	0.480	12	123	0.411	12	123	0.891
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			4.826			4.986			9.812

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.

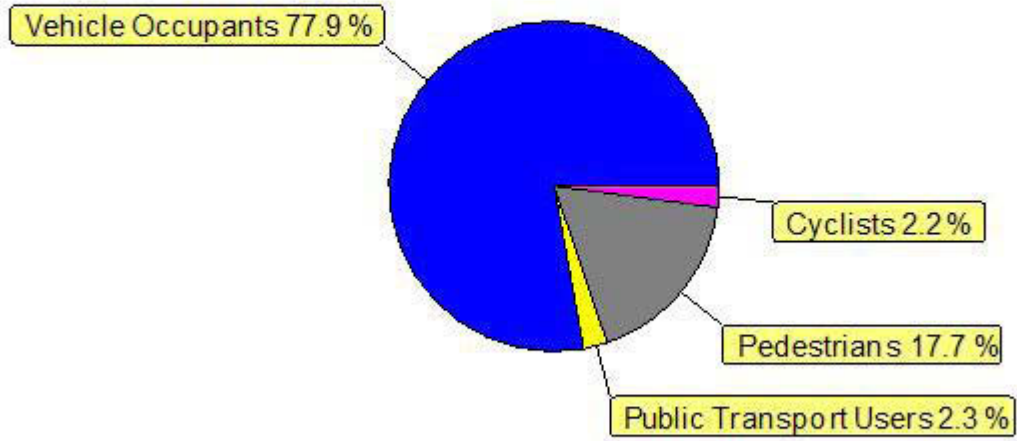
Parameter summary

Trip rate parameter range selected: 11 - 237 (units:)
 Survey date date range: 01/01/05 - 18/12/12
 Number of weekdays (Monday-Friday): 12
 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 shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Appendix B – Mode Split

Modal Split Percentages



Time Range/Peak Period Selection
Direction: Totals / Use All Times