Proposed Residential Development At Moneyduff, Oranmore, Co. Galway For Arlum Ltd.

Traffic and Transportation Statement Planning Stage

Rev D

March 2019







Traffic and Transportation Statement

PROJECT: Proposed Residential Development at Moneyduff, Oranmore, Co. Galway

CLIENT: Arlum Ltd.

COMPANY: TOBIN Consulting Engineers

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Galway

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DOCUMENT AMENDMENT RECORD

Client: Arlum Ltd.

Project: Proposed Residential Development at Moneyduff, Oranmore, Co. Galway

Title: Traffic and Transportation Statement

PROJECT	PROJECT NUMBER: 10402					DOCUMENT REF: 10402-TR01				
D	Updated Photos	FG	19.03.19	BR	19.03.19	вн	19.03.19			
С	Issue for Planning	RD	13/06/18	BR	13/06/18	ВН	13/06/18			
В	Issue	RD	08/06/18	BR	08/06/18	ВН	08/06/18			
Α	Issue	ML	27/02/18	BR	27/02/18	ВН	28/02/18			
Revision	Description & Rationale	Originated	Date	Checked	Date	Authorised	Date			
	TOBIN Consulting Engineers									





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1 INTRODUCTION

TOBIN Consulting Engineers were appointed by Arlum Ltd. to provide design consultancy services for a new Residential Development at Moneyduff, Oranmore Co. Galway in December 2017. As part of these services, TOBIN were tasked with the liaising with Galway County Council on the requirements relating to Traffic and Transport in support of this Strategic Housing Development application.

1.1 PROPOSED DEVELOPMENT

The proposed development will consist of the following:

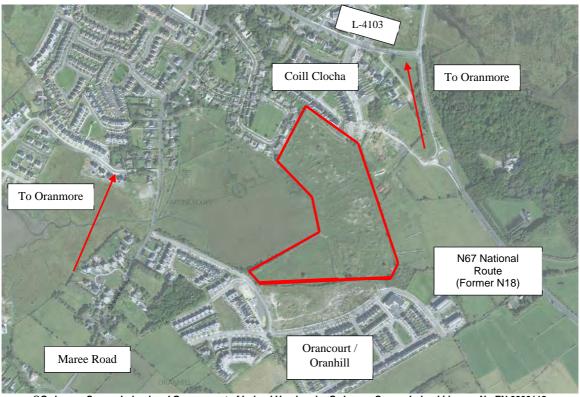
- 1. Construction of 212 no. residential units comprising:
 - 34 no. House Type A (four-bed semi-detached unit)
 - 54 no. House Type B (three-bed semi-detached unit)
 - 16 no. House Type C (four-bed detached)
 - 16 no. House Type D (three-bed terraced unit)
 - 24 no. House Type E (three-bed semi-detached unit with attic conversion)
 - 50 no. House Type G (25 no. two-bed ground floor duplexes and 25 no. two-bed plus study first/second floor duplexes)
 - 6 no. House Type H (two-bed duplex apartments)
 - 12 no. house Type J (two-bed terrace)
- 2. Development of a crèche facility (374 sqm) and associated outdoor play areas and car parking.
- Provision of a new vehicular and pedestrian site access from the North-South Oranmore
 Distributor Road (the route of which was permitted under An Bord Pleanála Reference PL
 07.237219, which was extended under Pl Ref 15/1334.)
- 4. Provision of shared communal and private open space, site landscaping, site services and all associated site development works.

2 Road Network Infrastructure

2.1 EXISTING ROAD NETWORK INFRASTRUCTURE

The development site is a greenfield site located in Moneyduff, Oranmore in Co. Galway. The site is bounded to the East and West by existing greenfield sites, as detailed in Figure 2-1 below. The site is also bounded by existing residential housing estates, Coill Clocha to the North and Orancourt/Oranhill to the South.

To the east of the site is the N67 National Route (formerly the N18). An existing roundabout junction, known as the Rocklands junction, has previously been constructed to facilitate access to zoned lands. To the west, the Maree Road (local Road) serves access to the Orancourt/ Oranhill housing development. To the north, the L-4103 (Local Road) serves access from the N67 National Route, to Oranmore town centre and the Coill Clocha Housing Estate.



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Figure 2-1 Site Location

2.2 PROPOSED ROAD NETWORK INFRASTRUCTURE

Access to the proposed development is to be facilitated via the road infrastructure proposed as part of an adjoining committed development, as already permitted. The development, including the road network infrastructure, has previously been granted planning permission under Galway County Council (GCC) Planning Reference 09/1925 and as extended under GCC PR 15/1334.

The proposed road infrastructure of the adjacent development will comprise the construction of a New Link Road, from the existing road network infrastructure of the Coill Clocha Housing in the North, to the Orancourt / Oranhill Housing Estate in the South. In addition, a link road from the N67 Rocklands Roundabout Junction to the East is proposed across the adjacent greenfield site, to the applicant site, linking with the proposed North South Link Road as detailed in Figure 2-2 below.



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Figure 2-2 Proposed Road Network Infrastructure – GCC PR 09/1925 & 15/1334

Under Planning Reference 09/1925 and extended under PI Ref 15/1334, the proposed road network infrastructure was conditioned to include the upgrading of the proposals for the inclusion of dedicated Pedestrian and Cycle Facilities. This detail has been incorporated into the designs, with the detail submitted to Galway County Council as part of pre-development conditions under PI Ref 09/1925 and 15/1334 and confirmation of compliance received (GCC letter dated 21.06.2018).

3 Galway County Council Scoping

A meeting was held with Galway County Councils Roads Department on Friday 20th of January 2018 in relation to the requirements for:

- A Traffic and Transportation Report;
- A Road Safety Audit Report; and
- Mobility management Statement.

During the meeting it was advised that as the road infrastructure proposed under GCC PR 09/1925 (and extended under 15/1334) was designed to facilitate access to the development proposed under 09/1925, and to operate as a link road to serve traffic from the N67 National Route to the Maree Road (and future Development), that a requirement for a Traffic and Transportation Assessment would not be required. In lieu of a Traffic and Transportation Assessment, a statement with respect to the Traffic Volumes envisaged by the proposed Development should be included in the application.

GCC also advised that a Workplace Travel Plan Report would not be required for the proposed development. In Lieu of a Workplace travel Plan Report, a mobility management statement has been provided as outlined in section 8 of this report. A Road Safety Audit would be required for the proposed site layout, in accordance with the requirements of the Department of Transport, Tourism and Sports, Design Manual for Urban Roads and Streets. GCC advised that a Road Safety Audit of the road infrastructure proposed under GCC PR 09/1925 & 15/1334 would not be required in support of this SHD application.

Details of the proposed road infrastructure, including copies of the Road Safety Audit and the Traffic and Transportation Assessment undertaken in support of PR 09/1925 and 15/1334 are available from the Galway County Councils Planning Website.

4 Traffic Generation

TOBIN Consulting Engineers have procured TRICS data for similar sized residential developments in order to inform the trip rate associated with such a development. Details of the TRICS data utilised are included in Appendix A of this report.

Table 4-1 below details the applicable Trip Rate, and the associated generated traffic for the AM and PM peak hours.

	TRAFFIC GENERATION										
	AM Peak (08:00 - 09:00)				PM Peak	(17:00 - 18:00))				
Arrivals Trip Rate Per Dwelling in AM Peak	rrivals Total Departures ip Rate No. Trip Rate Per Arrivals Per welling in AM Dwelling in in AM Peak AM Peak		Total No. Departures in AM Peak	Arrivals Trip Rate Per Dwelling in PM Peak	Total No. Arrivals in PM Peak	Departures Trip Rate Per Dwelling in PM Peak Total No. Departures in PM Peal					
0.145	28	0.413	80	0.437	84	0.242	47				
			•								

Table 4-1 Traffic Generation

The above table demonstrates that a total of 108 trip movements in the AM peak and a total of 131 trip movements in the PM peak are expected to result from the proposed development.

The strategic traffic counter (ref TMU N18 020.0 N) located on the N67 (formally N18) between Kilcolgan and Clarinbridge, Co. Galway has previously shown AADT's of 19,450 for the year 2016. Since the new road M18 motorway opened in the September 2017, AADT's for the N18 has reduced by some 46% to 10,583 for 2018. Comparison data has been taken for the full calendar years of 2016 and 2018 which enables an accurate analysis to be carried out over the course of the year without the M18 Motorway (2016) and with the M18 Motorway (2018). Data for the year 2017 has not been included in the above calculation as the M18 Motorway opened in September 2017 thus not providing an accurate insight into the benefit of the Motorway for a full calendar year.

It should be noted that the access to the adjacent development as permitted under 09/1925 and 15/1334 were granted under the conditions of the N67 at the time and prior to the opening of the M18 motorway. Therefore, due to the substantial reduction of traffic on the N67, the additional volumes of traffic proposed for the N67 generated from the proposed development will have a minimal effect on the traffic volumes.

5 Design Guidelines

The development is being developed in a manner which employs best practice in urban design and having regard to the following policy documents:

- Best Practice Guidelines for Delivering Homes Sustaining Communities 2007.
- Sustainable Residential Development in Urban Areas 2009.
- Sustainable Urban Housing: Design Standards for New Apartments 2015.
- · Quality Housing for Sustainable Communities.
- Design Manual for Urban Roads and Streets.

As part of the road layout the design includes landscaping planters, increasing density, and ensuring greater contact with the surrounding areas can help create variety and improve the developments identity as an appropriate density homezone environment.

The use of narrow road profiles, paving stones, landscaping, etc. call for low vehicle speeds, benefiting the vulnerable user (*i.e.* roads should be there to serve a community - not to dominate it). The provision of good permeability for pedestrians, cyclists & public transport are all key objectives of the proposed site layout.

The objectives of the design are:

- To keep vehicle speeds low
- To minimise the intrusion of vehicle traffic
- To ensure ease of access for emergency services
- To encourage walking and cycling
- To create a safe, secure and pleasant environment for residents / users

Traffic calming measures included in design are:

- smaller corner radii
- horizontal alignment constraints to restrict speed
- Landscaping features
- Appropriate speed limits

6 Car & Bicycle Parking Provision

The parking provisions at the proposed development have been derived in accordance with the Galway County Development Plan 2015 – 2021. The development plan requires 1.5 no. parking spaces per 1-3 bedroom houses. This relates to 2 no. spaces per houses when provided on curtilage. The development plan requires 1 no. parking space per 4 no. children for the proposed crèche. The proposed crèche will allow for a capacity of 25 no. children and 5 no. staff.

The minimum number of parking spaces required for the proposed development, in line with the County Development Plan 2015 – 2021, is 393 while the actual number of parking spaced being provided throughout the proposed development is 409.

Secure cycle parking facilities are proposed throughout the proposed development to encourage non-motorised transport to and from the site. In accordance with section 5.7.7 of the National Cycle Manual, 2 no. spaces are to be provided per terrace and duplex units. Bicycle parking provisions for detached and semi-detached shall be in their individual private open spaces.

The minimum number of bicycle parking spaces required for the proposed development, in line with the national Cycle Manual, is 146 and the actual number of parking spaced being provided throughout the proposed development is 146.

7 Road Safety

A road safety audit has been carried out by RSM independently from the design team on the proposed development. Several iterations of the site layout have been carried out by the design team on the back of continued liaison and outcomes of the road safety audit. As a result, the final site layout provides a roads network throughout the development which incorporates measures (such as curved alignments, surface materials to differentiate pedestrian and vehicle routes etc.) that ultimately provide a high level of safety for both the pedestrian and the driver without comprising the overall quality of the development.

Please refer to the RSM Road Safety Audit included as part of this submission for further details.

8 Mobility Management Statement

8.1 Introduction

TOBIN Consulting Engineers were appointed by Arlum Ltd. to provide design consultancy services for a new Residential Development at Moneyduff, Oranmore Co. Galway in December 2017. As part of these services, TOBIN were required to provide a Mobility Management Statement for the proposed residential development at Moneyduff, Oranmore.

The purpose of the Mobility Management Statement is to promote sustainable transport for places of work and to encourage a shift in workers using private cars to other modes of transport.

Once the proposed development is completed and the dwellings are occupied, the mobility statement will provide the platform for investigating the commuting patterns of the residents. It is envisaged that the occupants of the development will benefit from healthier commutes to works, reduced congestion within the site, a reduction in demand for parking spaces an more informed travel options for the for the residents and visitors. Figure 8.1 below illustrates the local amenities and transport connections in the Oranmore vicinity.

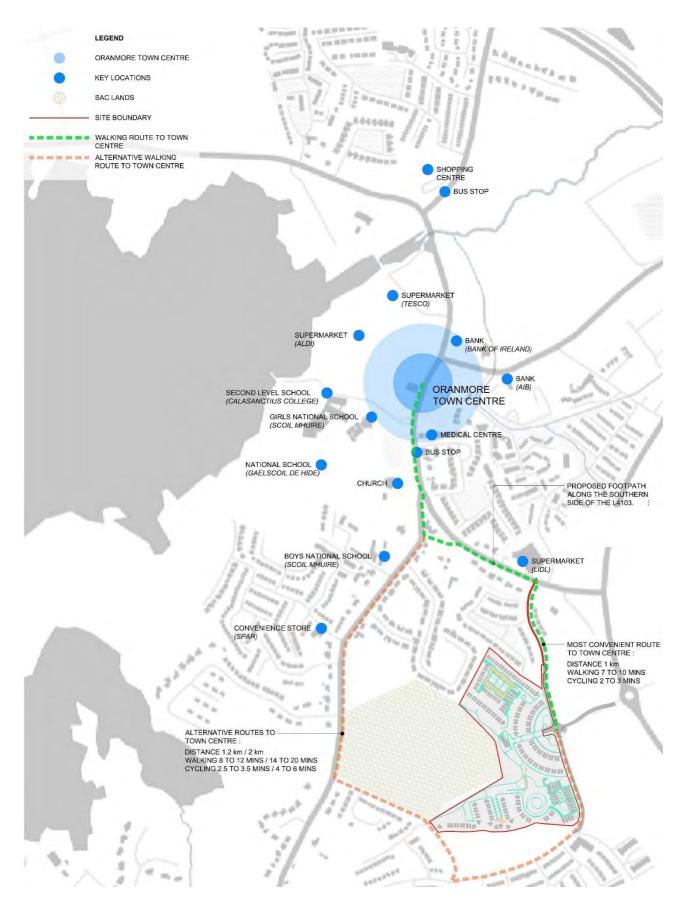


Fig 8.1 – local Amenities and Connection Routes

8.2 Walking

A network of footpaths throughout the proposed development will provide a high rate of accessibility to the local facilities with the town of Oranmore. The inclusion of these attractive, well designed walking routes will encourage pedestrians to access the local facilities on foot as opposed to taking their personal vehicles.

Oranmore village is located to the north of the proposed development. Pedestrian access to the village centre shall be via the network of proposed footways within the proposed development, the link road adjoining the proposed development and the Coill Clocha development and the existing footways on the approach to Oranmore village itself.

Pedestrian routes from the proposed development to the Oranmore town centre will be 1.00km in length and will take the average pedestrian 10 min to walk. Amenities in and around the town centre include local primary and secondary schools, shops, restaurants (refer to Fig 8.1).

The development is within 10min walk to the nearest bus stop which is located opposite the Oran town centre. The bus route 404 operated by Bus Eireann serves this location and provides a route into Galway City every 60 mins. The duration of the trip to Galway city centre is approx 30 mins with the bus availing of several bus lanes along the route.

It is proposed to provide a network of footpaths that will permeate through the residential area and provide a high degree of accessibility to the local facilities including bus and rail transport.

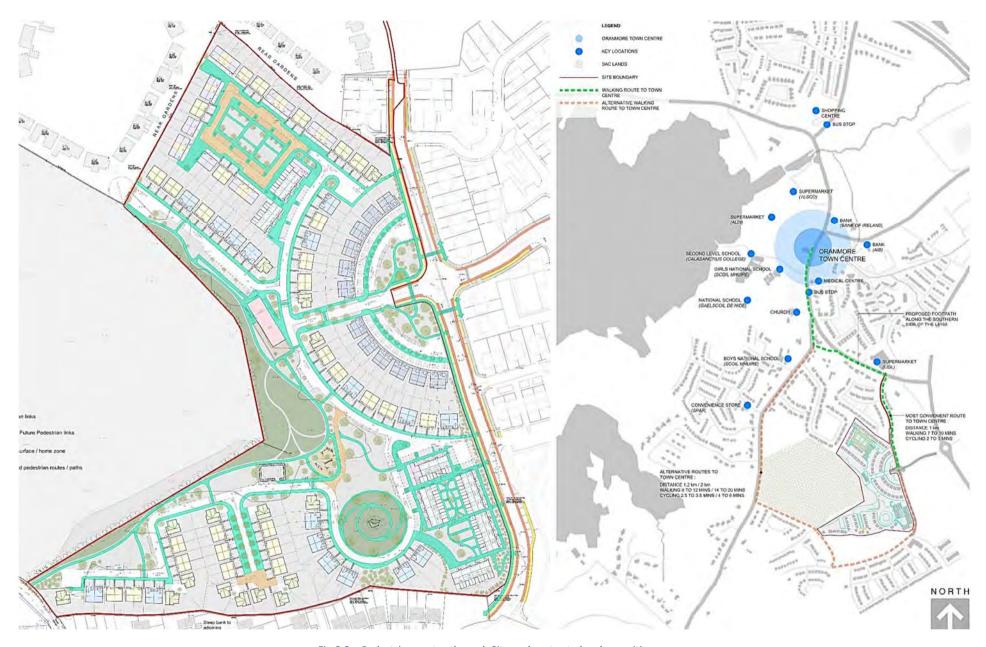


Fig 8.2 – Pedestrian routes through Site and routes to local amenities

8.3 Cycling

A shared cycle and vehicle surface shall be provided within the proposed development in line with DMURS 2013 guidelines. For commuter journeys, cycling can be considered as a feasible means of transport for those working within 8 km of the development. The Oranmore Business Park and Deerpark Industrial Estates are located approximately 3.1 km to the north. This represents a 10 to 15 min cycle time for the average cyclist from the proposed estate.

Additionally, the Oranmore rail station is approximately 3.0km to the North West. It is likely that a number of commuters to Galway City will use a combination of rail and cycling as a means of travelling. Cycling enthusiasts and regular cyclists will likely cycle further distance such a Galway City centre and Parkmore and Briar hill Industrial estates.

The Bike to Work scheme currently being promoted by the Government allows employers to purchase bicycles for up to the value of €1,000.00. Employees can use a salary sacrifice to pay for the bike allowing them to save up to 52% on the retail price of the bike. It is likely that this attractive option will be availed of by homeowners in the proposed development as the site is located in close proximity to several areas of where a high number of employers are located.

8.4 Public transport

The proposed residential development in Moneyduff is well connected to a number of means of public transport. The Oranmore rail station is located 3.0km to the north. The station is located on the main Galway to Athenry/Dublin line. A new carpark is located adjacent to the rail station. Currently there is no bus stop located at the rail station, however, it is possible that a stop on the 404 bus route may include a new stop at this location.

The development is within 12min and 19min walk to the nearest bus stop which is located opposite the Oran town centre. The bus route 404 operated by Bus Eireann serves this location and provides a route into Galway City every 60 mins. The duration of the trip to Galway city centre is approx 30 mins with the bus availing of several bus lanes along the route.



Fig 8.2 - Location of Rail and Bus stops

9 Conclusion

As population grows throughout Ireland and in particular, in popular commuting hub towns like Oranmore, a continued increase in traffic volumes is not sustainable. As a result, an ever-increasing approach by designers and planners to providing sustainable commuting alternatives is required. The use of public transport and promotion of walking and cycling will ultimately increase the overall quality of life for the people living in these fast paced, busy towns and villages located within commuter belts.

The proposed development has integrated a number of measures in line with the relevant standards and guidelines, such as DMURS 2013 and the National cycle Manual, which promotes the use of sustainable travel to and from the site. The Road safety audit carried out for the site allowed the design team to address any concerns initially flagged in the road safety audit. A continued and collaborative approach with the road safety auditors meant that a desirable and safe site layout could be achieved without negatively impacting the overall quality of the development.

The use of the private car will still be maintained as a primary mode of transport for a number the residents in the development. Trip generations to and from the proposed development are 108 in

the morning peak and 131 in the evening peak as noted in section 4 of this report. The internal roads on the development and the permitted link roads to be constructed adjoining the N67 and the development have been suitable designed in accordance with the DMURS manual. Progressive and regular liaison with Galway County Council Roads Department in relation to the internal roads and the permitted link roads layouts contributed to the final road design for the development.

The proposed development is suitably located close to a number of amenities located in the town of Oranmore including, schools, shops, sports facilities etc. The majority of these amenities are within a 10 min walk of the proposed development. The area of Oranmore also offers an excellent variety of public transport option with the nearest bus stop 10 min walk and has connections to Galway city. Additionally, the Oranmore rail station is approximately 7 min drive or 33 min walk from the proposed Development. The rail line is an attractive option for commuters to Galway City due to its strict departing schedule and the extremely low risk of delays when compared with road users who often suffer delays due traffic congestion.

It should be noted that due to the significant reduction in traffic volumes on the N67 since September 2017, as a result of the opening of the new M18 motorway, any increase in volumes on the N67 as a result of the proposed development will not have a significant impact.

APPENDIX A

TRICS Data

Monday 26/02/18 TRICS 7.4.4 290118 B18.18 Database right of TRICS Consortium Limited, 2018. All rights reserved TOBI NConsultingEngineers180226HousesPrivatelyOwned Page 1

Bureau Service TRICS Consortium Limited Bureau Service Licence No: 700101

Filtering Summary

03/A RESIDENTIAL/HOUSES PRIVATELY OWNED Land Use

1

Selected Trip Rate Calculation Parameter Range 150-300 DWELLS

Actual Trip Rate Calculation Parameter Range 151-280 DWELLS

Date Range Minimum: 01/01/06 Maximum: 12/10/16

Days of the week selected Monday 1 Tuesday 4 Wednesday 1 Thursday 1 Suburban Area (PPS6 Out of Centre) 2 Main Location Types selected Edge of Town 5 1,001 to 5,000 2 Population <1 Mile ranges selected 10,001 to 15,000 3 15,001 to 20,000 1 20,001 to 25,000 1

Population <5 Mile ranges selected 5,001 to 25,000 1 50,001 to 75,000 3 75,001 to 100,000 3

2 Car Ownership <5 Mile ranges selected 0.6 to 1.0 1.1 to 1.5 4 1.6 to 2.0

7 PTAL Rating No PTAL Present

TOBI NConsultingEngineers180226HousesPrivatelyOwned

Licence No: 700101 Bureau Service TRICS Consortium Limited Bureau Service

Calculation Reference: AUDIT-700101-180226-0208

Monday 26/02/18

Page 2

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL

Category A - HOUSES PRIVATELY OWNED

VEHI CLES

Selected regions and areas:

02 SOUTH EAST WEST SUSSEX WS 1 days

SCOTLAND 11 FΙ FIFE 1 days

12 CONNAUGHT

> **GALWAY** GA 1 days

MUNSTER 13

WATERFORD WA 1 days

ULSTER (NORTHERN I RELAND)

ANTRIM AN 2 days AR **ARMAGH** 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.

Number of dwellings Parameter: 151 to 280 (units:) Actual Range: Range Selected by User: 150 to 300 (units:)

Public Transport Provision:

Selection by: Monday-Friday 0700-1900

Include days where PT not known: Yes 9 to 250 Range:

Date Range: 01/01/06 to 12/10/16

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

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

Selected survey types:

Manual count 7 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:

2 Suburban Area (PPS6 Out of Centre) Edge of Town 5

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 6 No Sub Category

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.

TRICS 7.4.4 290118 B18.18 Database right of TRICS Consortium Limited, 2018. All rights reserved Monday 26/02/18 TOBI NConsulting Engineers 180226 Houses Privately Owned Page 3

Bureau Service TRICS Consortium Limited Bureau Service

Secondary Filtering selection:

Use Class:

C3 7 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®.

Licence No: 700101

Population within 1 mile:

1,001 to 5,000	2 days
10,001 to 15,000	3 days
15,001 to 20,000	1 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:

5,001	to 25,000	1 days
50,001	to 75,000	3 days
75,001	to 100,000	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	2 days
1.1 to 1.5	4 days
1.6 to 2.0	1 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 6 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.

PTAL Rating:

No PTAL Present 7 days

This data displays the number of selected surveys with PTAL Ratings.

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Bureau Service TRICS Consortium Limited Bureau Service Licence No: 700101

LIST OF SITES relevant to selection parameters

n/a

PTAL:

AN-03-A-08 Site area: 8.68 hect HOUSES & FLATS Number of dwellings: Development Name: 204 Location: LISBURN Housing density: 26 BT28 2WP Total Bedrooms: 598 Postcode: Survey Date: Main Location Type: Suburban Area (PPS6 Out of Centre) 29/10/13 Sub-Location Type: Residential Zone Survey Day: Tuesday PTAL: n/a Parking Spaces: 430

Site(2): AN-03-A-09 Site area: 9.48 hect Development Name: DETACHED & SEMI-DETACHED Number of dwellings: 151 Location: **CARRICKFERGUS** Housing density: 18 Total Bedrooms: Postcode BT38 8FW 459

Survey Date: Main Location Type: Edge of Town 12/10/16 Sub-Location Type: No Sub Category Survey Day: Wednesday Parking Spaces: PTAL: 457

4.04 hect Site(3): AR-03-A-01 Site area: Development Name: MIXED HOUSES Number of dwellings: 153 Location: LURGAN Housing density: 38 Postcode: BT66 7SY Total Bedrooms: 482 Survey Date: 15/06/10 Main Location Type: Edge of Town Residential Zone Survey Day:

Sub-Location Type: Tuesday Parking Spaces: PTAL: 311 Site(4): FI-03-A-03 7.50 hect Site area:

MIXED HOUSES Number of dwellings: Development Name: 155 Location: **DUNFERMLINE** Housing density: 25 Total Bedrooms: Postcode: 447 Survey Date: 30/04/07 Main Location Type: Edge of Town Survey Day: Sub-Location Type: Residential Zone Monday

PTAL: Parking Spaces: 440 Site(5): GA-03-A-02 Site area: 7.00 hect

Number of dwellings: Development Name: **TERRACED** 185 Location: **GALWAY** Housing density: 31 Total Bedrooms: 393 Postcode:

Main Location Type: Suburban Area (PPS6 Out of Centre) Survey Date: 19/09/06 Sub-Location Type: Residential Zone Survey Day: Tuesday Parking Spaces:

Site(6): WA-03-A-04 28.59 hect Site area:

Number of dwellings: Development Name: **DETACHED** 280 Location: WATERFORD Housing density: 12 Total Bedrooms: 1130 Postcode: Main Location Type: Edge of Town Survey Date: 24/06/14

Residential Zone Sub-Location Type: Survey Day: Tuesday Parking Spaces: PTAL: n/a 982

Site(7): WS-03-A-04 5.45 hect Site area: Development Name: MIXED HOUSES Number of dwellings: 151 Location: **HORSHAM** Housing density: 46 RH12 1EP Total Bedrooms: 465 Postcode: Main Location Type: Edge of Town Survey Date: 11/12/14 Sub-Location Type: Residential Zone Survey Day: Thursday

PTAL: Parking Spaces: 345 Bureau Service TRICS Consortium Limited Bureau Service

Licence No: 700101

ı	Trip Rates for I	Key Periods	Trips per 1 dwells DWELLS			
	Period Inbound		Outbound	Total		
	0800-0900	0.145	0.413	0.558		
	1700-1800	0.437	0.242	0.679		

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			
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Range	Days	DWELLS	Rate	Days	DWELLS	Rate	Days	DWELLS	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	7	183	0.048	7	183	0.248	7	183	0.296
08:00 - 09:00	7	183	0.145	7	183	0.413	7	183	0.558
09:00 - 10:00	7	183	0.169	7	183	0.228	7	183	0.397
10:00 - 11:00	7	183	0.142	7	183	0.174	7	183	0.316
11:00 - 12:00	7	183	0.140	7	183	0.167	7	183	0.307
12:00 - 13:00	7	183	0.215	7	183	0.176	7	183	0.391
13:00 - 14:00	7	183	0.210	7	183	0.230	7	183	0.440
14:00 - 15:00	7	183	0.231	7	183	0.232	7	183	0.463
15:00 - 16:00	7	183	0.272	7	183	0.201	7	183	0.473
16:00 - 17:00	7	183	0.314	7	183	0.196	7	183	0.510
17:00 - 18:00	7	183	0.437	7	183	0.242	7	183	0.679
18:00 - 19:00	7	183	0.307	7	183	0.250	7	183	0.557
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.630			2.757			5.387

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.

Monday 26/02/18 Page 6 Licence No: 700101

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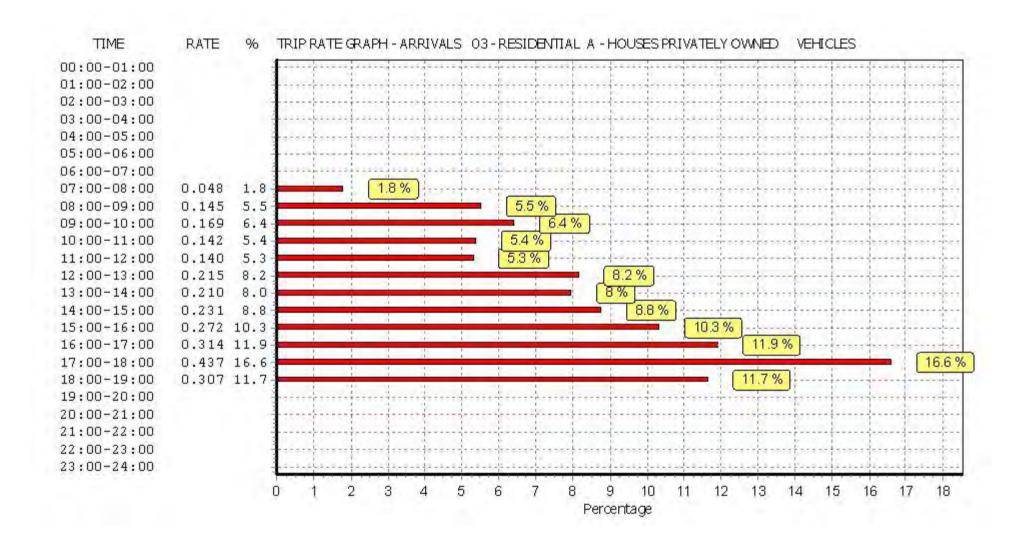
Parameter summary

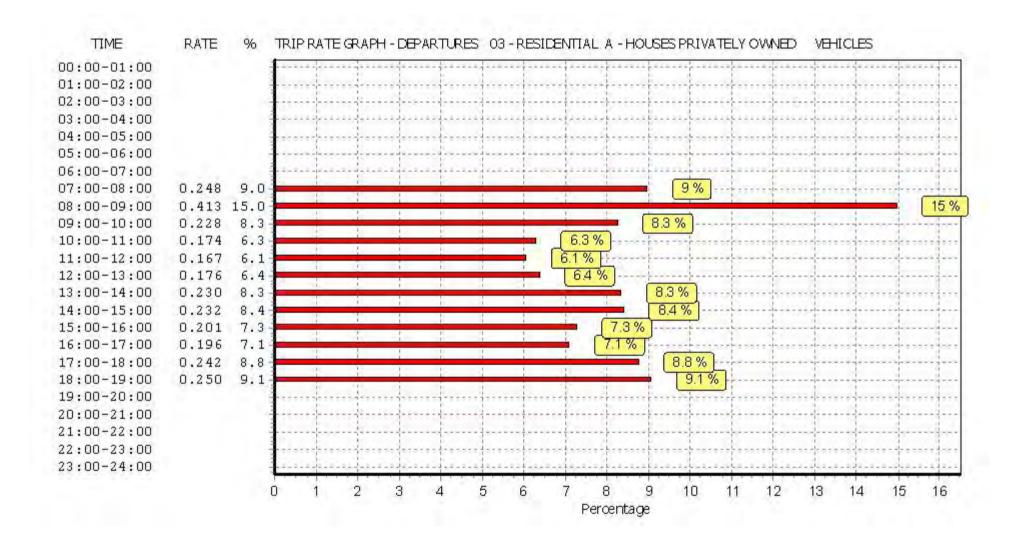
Bureau Service

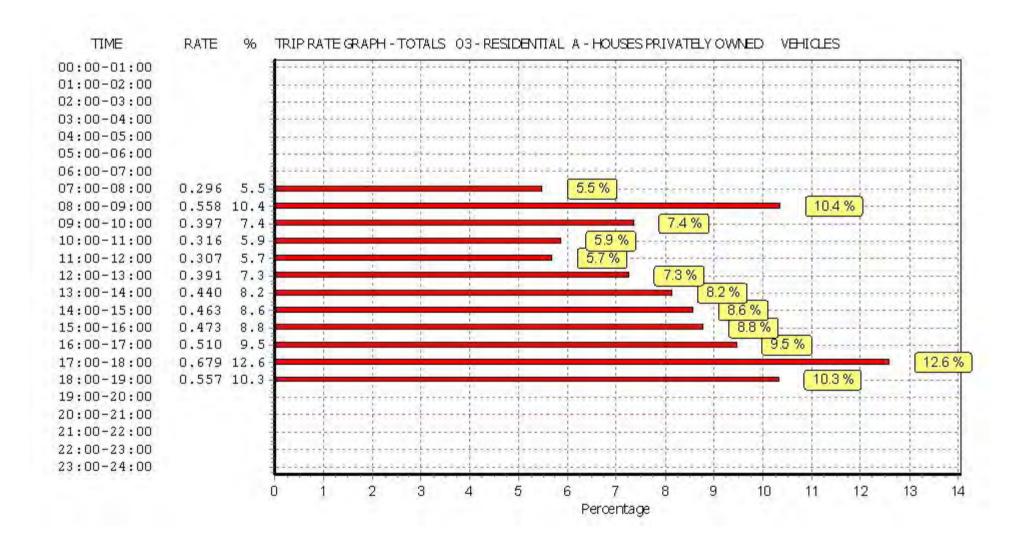
Trip rate parameter range selected: 151 - 280 (units:) Survey date date range: 01/01/06 - 12/10/16

Number of weekdays (Monday-Friday): Number of Saturdays: 0 Number of Sundays: 0 Surveys automatically removed from selection: 1 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.







Bureau Service TRICS Consortium Limited Bureau Service

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED TAXIS

Calculation factor: 1 DWELLS BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES	5	TOTALS			
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Range	Days	DWELLS	Rate	Days	DWELLS	Rate	Days	DWELLS	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	7	183	0.004	7	183	0.004	7	183	0.008
08:00 - 09:00	7	183	0.005	7	183	0.006	7	183	0.011
09:00 - 10:00	7	183	0.002	7	183	0.002	7	183	0.004
10:00 - 11:00	7	183	0.001	7	183	0.001	7	183	0.002
11:00 - 12:00	7	183	0.005	7	183	0.004	7	183	0.009
12:00 - 13:00	7	183	0.002	7	183	0.002	7	183	0.004
13:00 - 14:00	7	183	0.005	7	183	0.004	7	183	0.009
14:00 - 15:00	7	183	0.006	7	183	0.007	7	183	0.013
15:00 - 16:00	7	183	0.009	7	183	0.007	7	183	0.016
16:00 - 17:00	7	183	0.004	7	183	0.007	7	183	0.011
17:00 - 18:00	7	183	0.004	7	183	0.003	7	183	0.007
18:00 - 19:00	7	183	0.004	7	183	0.005	7	183	0.009
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									·
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.051			0.052			0.103

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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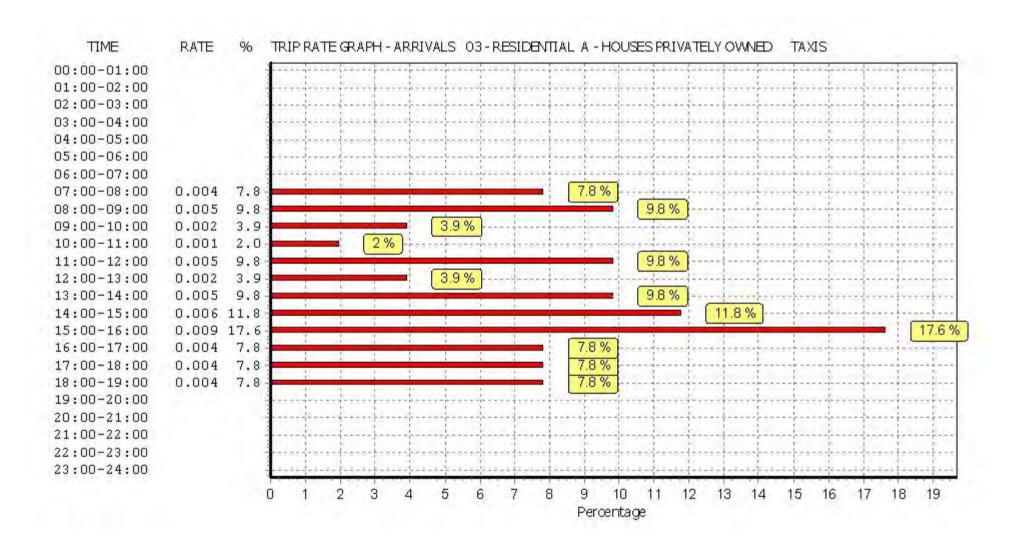
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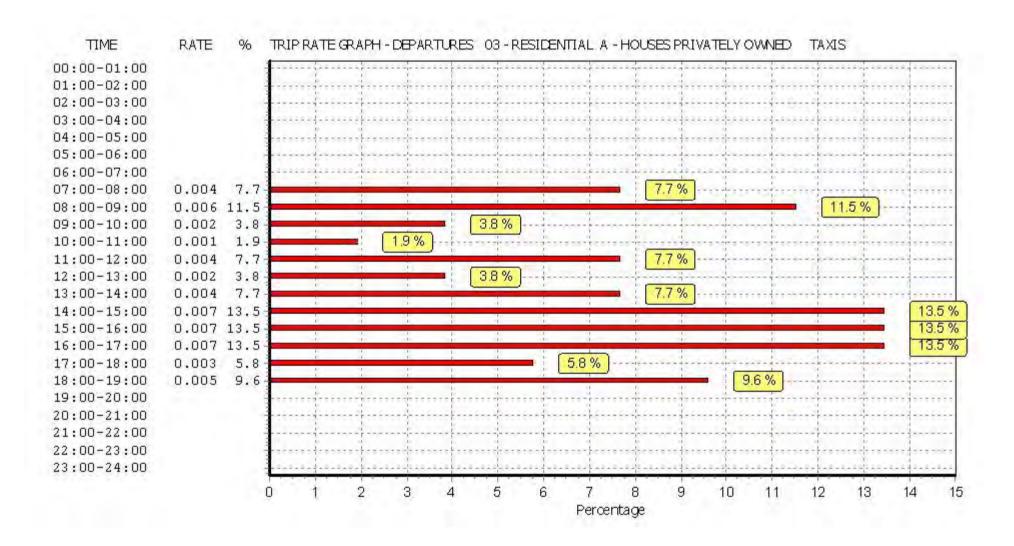
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Parameter summary

151 - 280 (units:) Trip rate parameter range selected: Survey date date range: 01/01/06 - 12/10/16 Number of weekdays (Monday-Friday): Number of Saturdays: 0 Number of Sundays: 0 Surveys automatically removed from selection: 1 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.







Bureau Service TRICS Consortium Limited Bureau Service

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED OGVS

Calculation factor: 1 DWELLS BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES	5	TOTALS			
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Range	Days	DWELLS	Rate	Days	DWELLS	Rate	Days	DWELLS	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	7	183	0.000	7	183	0.001	7	183	0.001
08:00 - 09:00	7	183	0.004	7	183	0.002	7	183	0.006
09:00 - 10:00	7	183	0.005	7	183	0.003	7	183	0.008
10:00 - 11:00	7	183	0.003	7	183	0.004	7	183	0.007
11:00 - 12:00	7	183	0.004	7	183	0.003	7	183	0.007
12:00 - 13:00	7	183	0.002	7	183	0.004	7	183	0.006
13:00 - 14:00	7	183	0.001	7	183	0.001	7	183	0.002
14:00 - 15:00	7	183	0.002	7	183	0.002	7	183	0.004
15:00 - 16:00	7	183	0.002	7	183	0.002	7	183	0.004
16:00 - 17:00	7	183	0.000	7	183	0.000	7	183	0.000
17:00 - 18:00	7	183	0.000	7	183	0.000	7	183	0.000
18:00 - 19:00	7	183	0.002	7	183	0.002	7	183	0.004
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.025			0.024			0.049

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.

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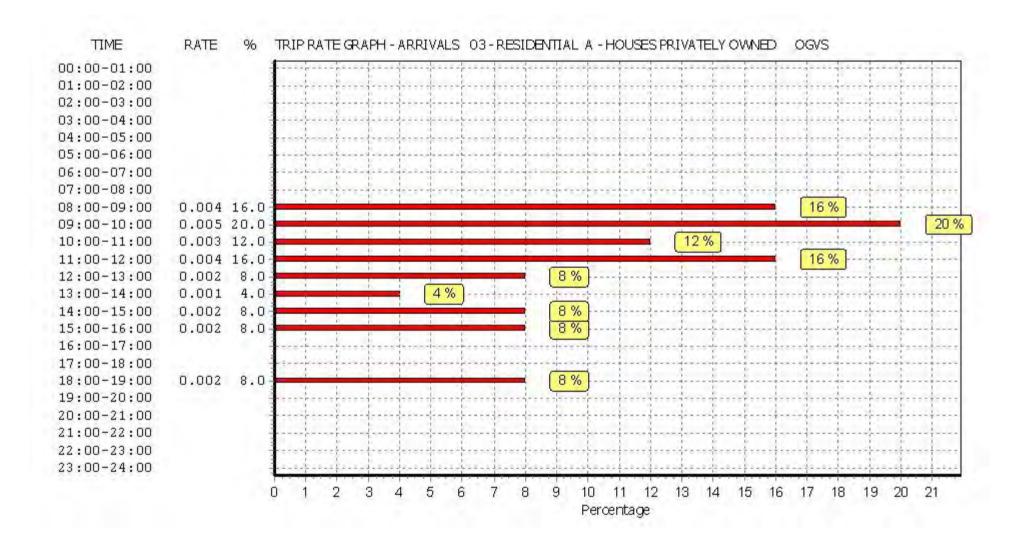
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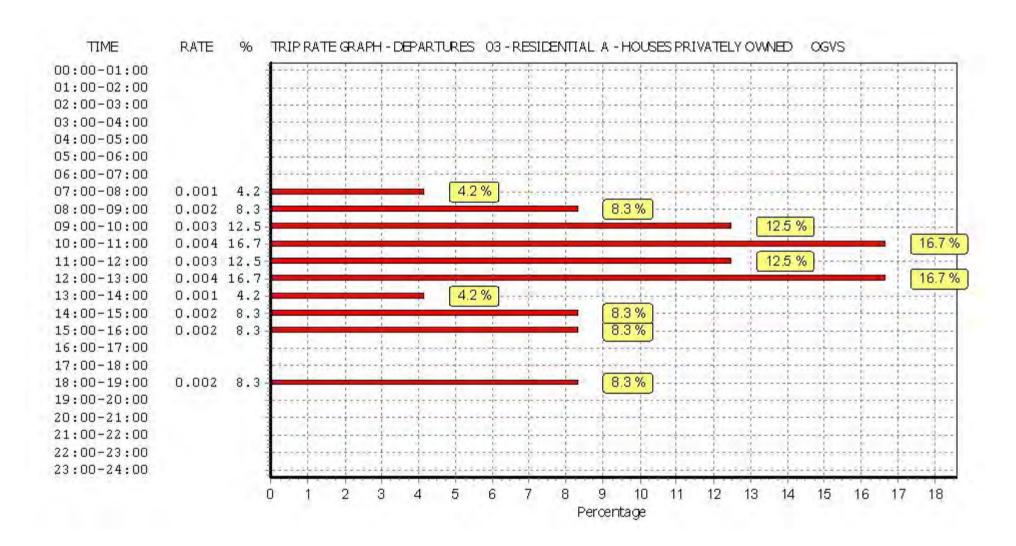
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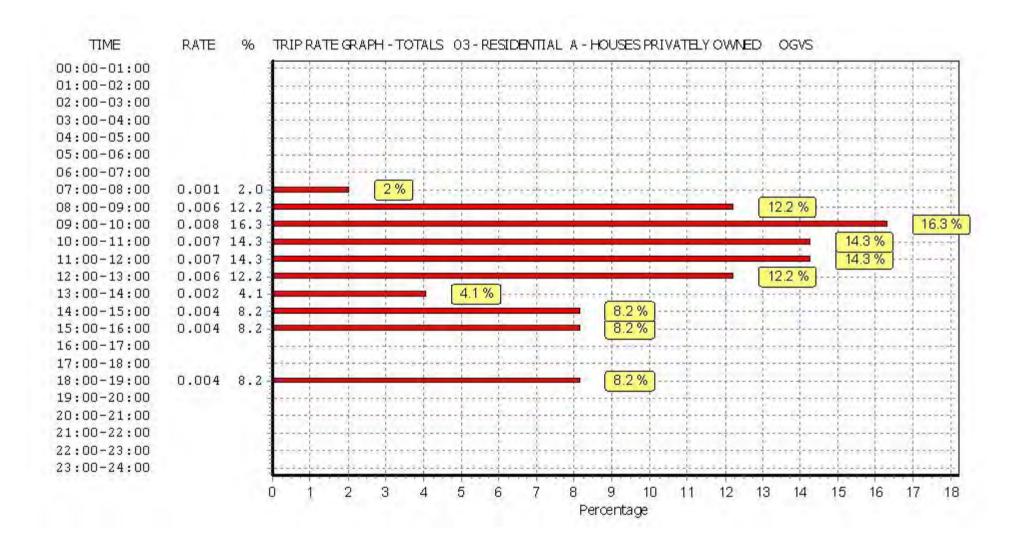
Parameter summary

151 - 280 (units:) Trip rate parameter range selected: Survey date date range: 01/01/06 - 12/10/16 Number of weekdays (Monday-Friday): Number of Saturdays: 0 Number of Sundays: 0 Surveys automatically removed from selection: 1 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.







Bureau Service TRICS Consortium Limited Bureau Service

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED PSVS

Calculation factor: 1 DWELLS BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Range	Days	DWELLS	Rate	Days	DWELLS	Rate	Days	DWELLS	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	7	183	0.000	7	183	0.000	7	183	0.000
08:00 - 09:00	7	183	0.005	7	183	0.005	7	183	0.010
09:00 - 10:00	7	183	0.000	7	183	0.001	7	183	0.001
10:00 - 11:00	7	183	0.000	7	183	0.000	7	183	0.000
11:00 - 12:00	7	183	0.000	7	183	0.000	7	183	0.000
12:00 - 13:00	7	183	0.000	7	183	0.000	7	183	0.000
13:00 - 14:00	7	183	0.000	7	183	0.000	7	183	0.000
14:00 - 15:00	7	183	0.002	7	183	0.001	7	183	0.003
15:00 - 16:00	7	183	0.002	7	183	0.002	7	183	0.004
16:00 - 17:00	7	183	0.000	7	183	0.001	7	183	0.001
17:00 - 18:00	7	183	0.001	7	183	0.000	7	183	0.001
18:00 - 19:00	7	183	0.001	7	183	0.001	7	183	0.002
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.011			0.011			0.022

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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Surveys manually removed from selection:

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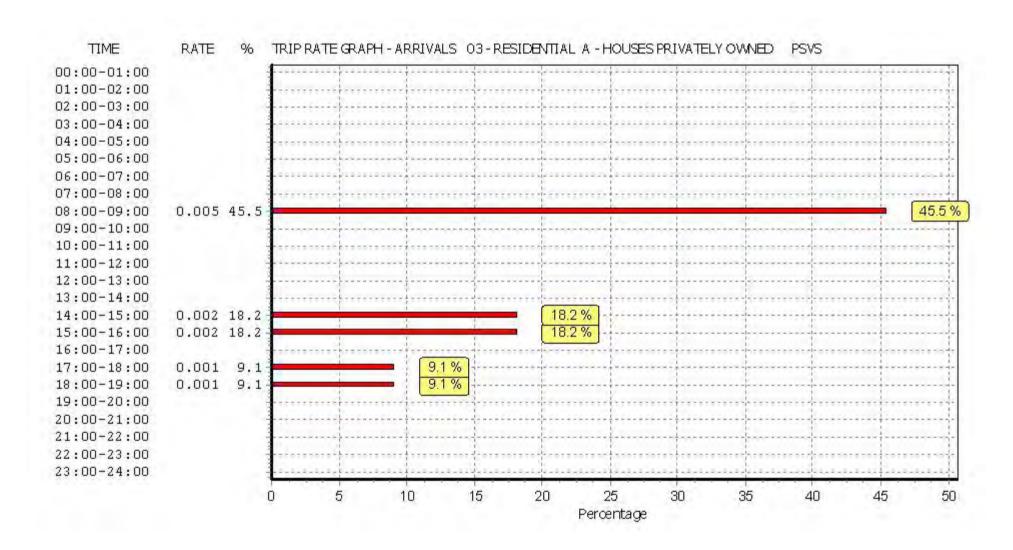
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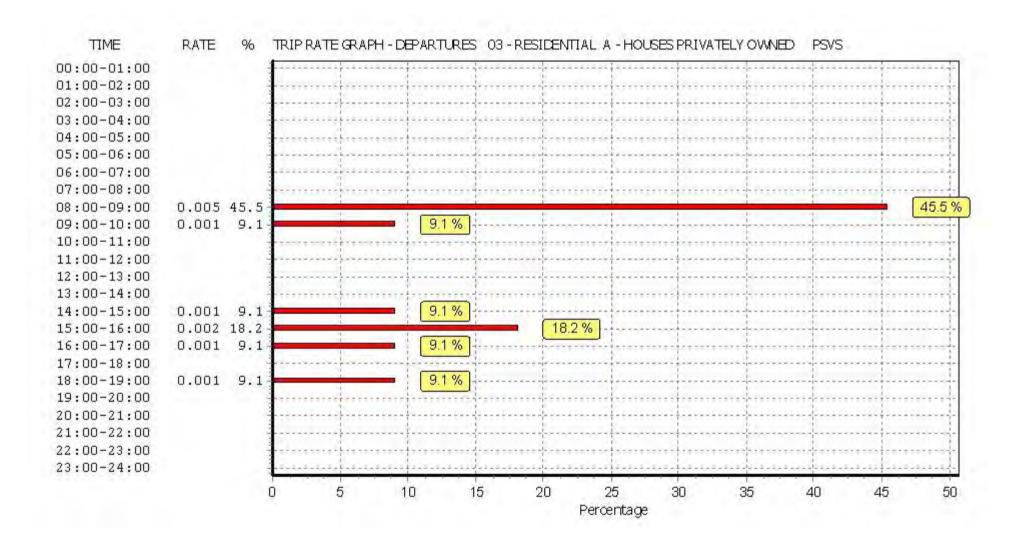
Parameter summary

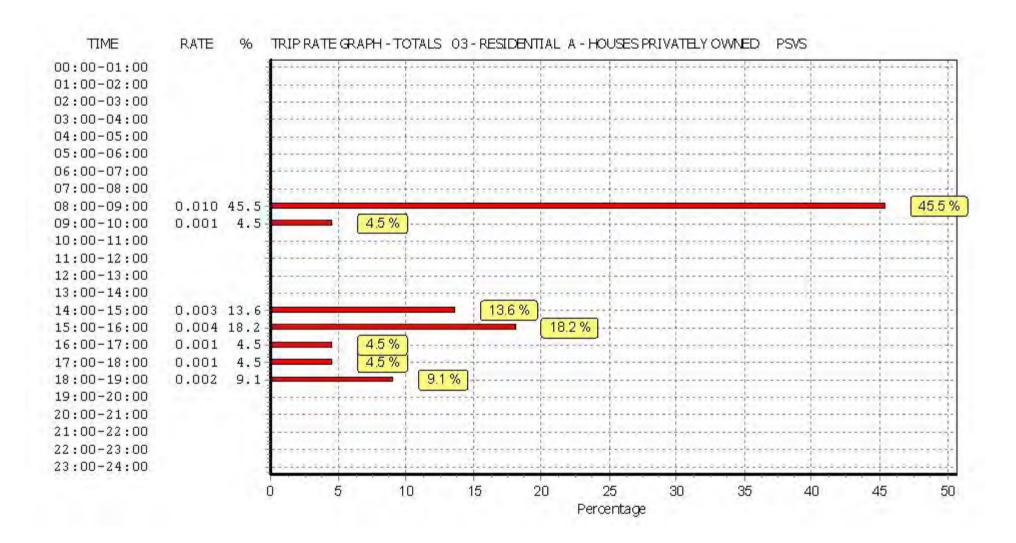
151 - 280 (units:) Trip rate parameter range selected: Survey date date range: 01/01/06 - 12/10/16 Number of weekdays (Monday-Friday): Number of Saturdays: 0 Number of Sundays: 0 Surveys automatically removed from selection: 1

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.

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Bureau Service TRICS Consortium Limited Bureau Service

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED CYCLISTS

Calculation factor: 1 DWELLS BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Range	Days	DWELLS	Rate	Days	DWELLS	Rate	Days	DWELLS	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	7	183	0.002	7	183	0.004	7	183	0.006
08:00 - 09:00	7	183	0.002	7	183	0.013	7	183	0.015
09:00 - 10:00	7	183	0.005	7	183	0.006	7	183	0.011
10:00 - 11:00	7	183	0.004	7	183	0.008	7	183	0.012
11:00 - 12:00	7	183	0.005	7	183	0.002	7	183	0.007
12:00 - 13:00	7	183	0.008	7	183	0.005	7	183	0.013
13:00 - 14:00	7	183	0.004	7	183	0.006	7	183	0.010
14:00 - 15:00	7	183	0.003	7	183	0.004	7	183	0.007
15:00 - 16:00	7	183	0.013	7	183	0.005	7	183	0.018
16:00 - 17:00	7	183	0.007	7	183	0.009	7	183	0.016
17:00 - 18:00	7	183	0.009	7	183	0.009	7	183	0.018
18:00 - 19:00	7	183	0.005	7	183	0.004	7	183	0.009
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:	otal Rates: 0.067					0.075			0.142

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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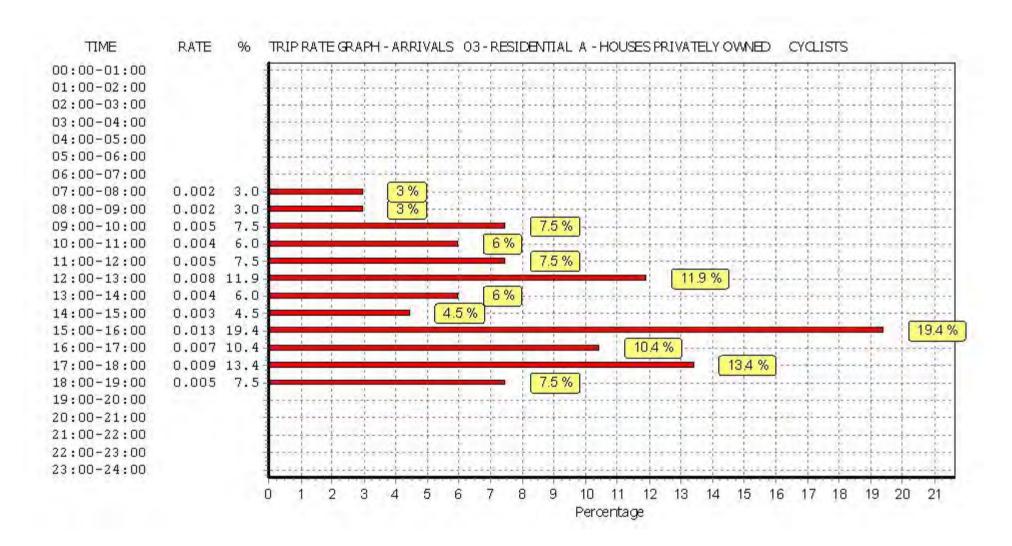
Parameter summary

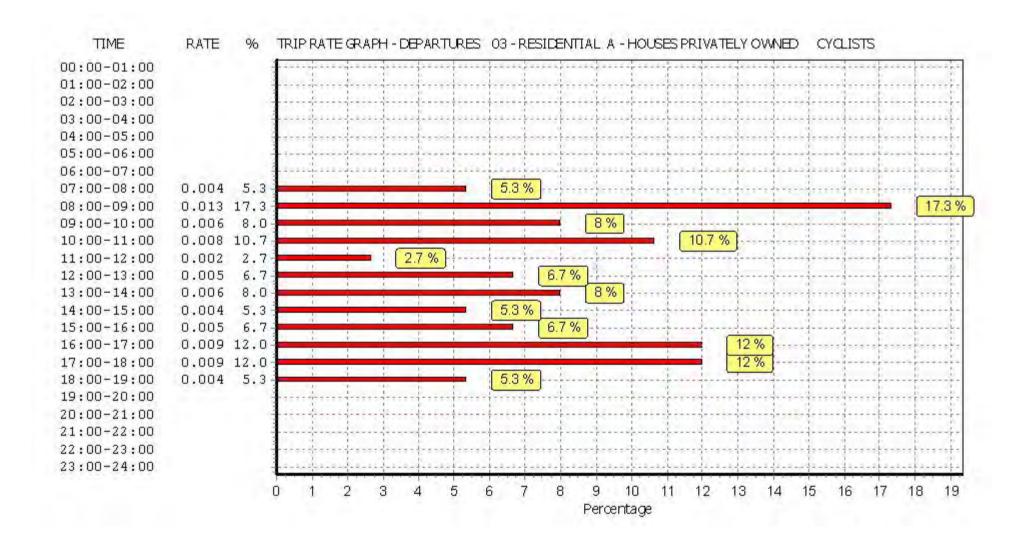
Surveys manually removed from selection:

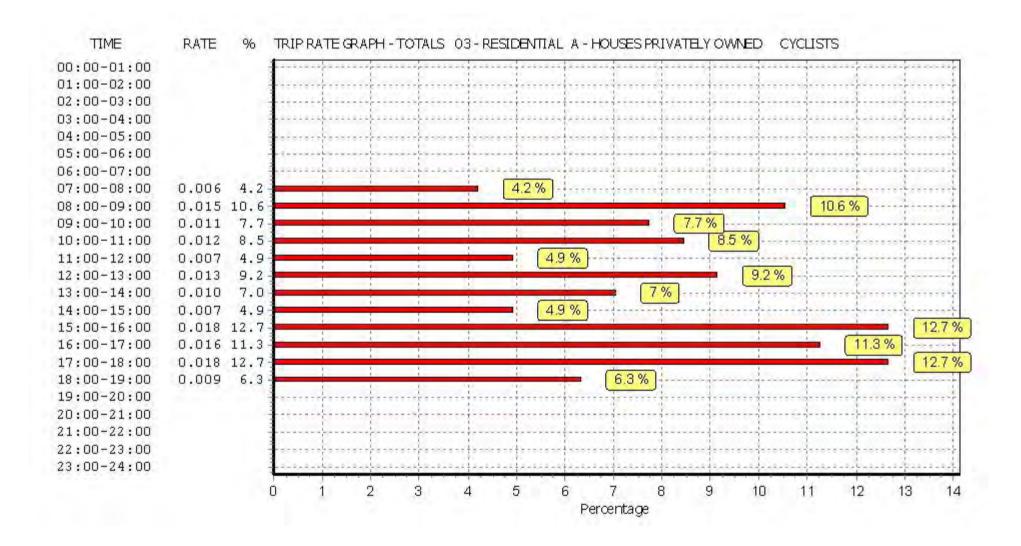
151 - 280 (units:) Trip rate parameter range selected: Survey date date range: 01/01/06 - 12/10/16 Number of weekdays (Monday-Friday): Number of Saturdays: 0 Number of Sundays: 0 Surveys automatically removed from selection: 1

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.

0









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