Proposed Residential Development Harras Moor, Whitehaven



# Appendices

A090070-410 www.wyg.com Proposed Residential Development Harras Moor, Whitehaven



# **Appendix A – Scoping Correspondence**



## Technical Note 1: Trip Rates and Trip Distribution - Proposed Residential Development at Harras Moor, Whitehaven

Project Number: A090070 - 410 Date: 17<sup>th</sup> January 2018

### 1. Introduction

- 1.1 This Technical Note (TN1) has been prepared to provide information to the local highway authority (LHA), Cumbria County Council (CCC), and Highways England (HE), on the potential trip generation and distribution of a proposed residential development at Harras Moor, Whitehaven.
- 1.2 Based on the derived trip generation and distribution, the aim of this note is to agree with the LHA and HE the extent of junction assessments required for the future Transport Assessment (TA) which will be prepared to accompany the application.

### 2. Site Location and Proposed Development

- 2.1 The location of the proposed development site is shown in **Figure 1** below. At this stage, the masterplan for the site is still being developed, however it is envisaged that a maximum of 450 dwellings could be provided on the site although the eventual number is likely to be lower.
- 2.2 In terms of vehicular access, discussions have previously been undertaken with the LHA and as a result of these it is likely that vehicular access into the site will be provided from two points. Via an extension into the site from the existing Caldbeck Road and via a new junction provided into the site from Harras Road. The potential access points are indicated in **Figure 1**.



### Figure 1: Site Location and Proposed Access Points



### 3. Vehicular Trip Rates and Trip Generation

- 3.1 The TRICS database (2018 V7.4.4) has been interrogated to establish average trip rates for the proposed development. For the purpose of this exercise, it has been assumed that there will be 450 dwellings (although this is likely to be eventually lower) and all dwellings will be privately-owned houses so as to ensure robust assessments.
- 3.2 The trip rates have been derived in line with the best practice guidelines from the TRICS Good Practice Guide 2016 (GPG). The methodology used to derive appropriate trip rates for the proposed development were as follows:
  - The proposed land use category (C3 houses privately owned) was selected from the main menu. Multi-modal trip rates were selected for the proposed land use.
  - In 'region selection', Greater London, Republic of Ireland and Northern Ireland were excluded.
  - Number of dwellings was set to more than 200 dwellings.
  - Survey Date was set back to year 2000 to include more survey sites.
  - Any surveys which took place on a Saturday or Sunday were excluded.
  - In location type 'Suburban Area', 'Edge of Town' and 'Neighbourhood Centre' were selected based on the site location.
  - In Car Ownership < 5miles, `1.1 to 1.5' was selected due to the car ownership of the area, which is 1.30 cars per household.
- 3.3 The resulting trip rates and trip generation of the proposed development in the weekday AM and PM peak periods are presented in **Table 1** and **Table 2** respectively. The full TRICS outputs are presented in **Appendix A**.

Table 1: Vehicular Trip Rates of the Proposed Residential Development (450 dwellings)

Dranged Land Lice	AM Peak Hour (0800-0900)			PM Peak Hour (1700-1800)		
Floposeu Lanu Ose	Arr.	Dep.	2-Way	Arr.	Dep.	2-Way
C3 Houses Privately Owned (Per Dwelling)	0.156	0.437	0.593	0.381	0.198	0.579

<b>Table 2: Vehicular Trip Generati</b>	on of the Proposed Re	sidential Development
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Drepood Lond Llos	11	AM Peak Hour (0800-0900)			<b>PM Peak Hour</b> (1700-1800)		
Proposed Land Use	Unit	Arr.	Dep.	2-Way	Arr.	Dep.	2-Way
C3 Houses Privately Owned	450 dwellings	70	197	267	172	89	261



3.4 As shown in **Table 2**, the proposed residential development is estimated to generate circa 267 two-way trips during the weekday morning peak hour and 261 two-way trips in the evening peak hour.

### 4. Trip Distribution based on 2011 Census Data

- 4.1 A trip distribution has been derived based on the 2011 Census 'journey to work'. This dataset contains information on the location of employment and the method of travel. It contains origin-destination data at the Middle Super Output Area (MSOA) level.
- 4.2 A filter was applied to only include data from residents of the 'Copeland 003' MSOA, which is where the site is located (as shown in **Extract 1**).



### Extract 3.1: 2011 Census Super Output Areas – Mid Layer Area (MSOA)

- 4.3 The dataset was further filtered to only include residents who commute to work by driving. The full data output from the 2011 Census is contained in **Appendix B**.
- 4.4 The most likely route (or routes) between the development site and employment areas has been identified using Google Map routing. The full analysis is contained in **Appendix B**. The resultant trip distribution is illustrated on the 'Distribution Plan' contained in **Appendix B**.

### 5. Resultant Trip Assignment

5.1 Based on the traffic distribution derived and shown in **Appendix B**, the traffic estimated to be generated by the proposed development during the weekday AM and PM peak periods has been assigned to the key junctions identified during previous discussions with the LHA and HE. The



volume of traffic assigned through each junction is summarised in **Table 3** below. The location of the key junctions is shown in the 'Distribution Plan' contained within **Appendix B.** 

Jun. Ref.	Jun. Description	Estimated Development Traffic Generation		
			РМ	
J1	Harras Road Site Access Junction	171	167	
J2	Harras Road / Red Lonning	133	130	
J3	Red Lonning / Caldbeck Road	90	88	
]4	Red Lonning / Moresby Road	72	71	
J5	Moreby Road / Cleator Moor Road / Main Street	158	154	
J6	Main Street / Thornton Road	153	150	
]7	A595 / B5295 Ribton Moorside	9	9	
J8	A595 / Highlands	1	1	
39	A595 / B5295 Egremont Road / Homewood Road	136	133	
J10	A595 / Rosehill `T' Junction	58	57	
J11	A595 / Victoria Road (Sunny Hill Pub) 'T' Junction	19	19	

Table 3: Volume of traffic generated by the Proposed Development assigned through Key Junctions

- 5.2 **Table 3** shows that the volume of traffic estimated to be generated by the proposed development at junctions 7, 8, and 11, is negligible being only 9 PCUs (two-way), 1 PCU (two-way) and 11 PCUs (two-way) in both AM and PM peak hours respectively. Furthermore, the table also shows that the volume of traffic estimated to be generated by the proposed development through junction 10 is only one additional vehicle every minute, which again is unlikely to be significant and sever in NPPF terms.
- 5.3 Therefore, based on the increase in traffic flows at the junctions set out in Table 3, it is only proposed to collect traffic data and undertake junction capacity assessments at junctions 1, 2, 3, 4, 5, 6, and junction 9 as part of the future TA.

### 6. Saturday Assessments

6.1 Traffic data has been obtained from the 'Webtris' HE website for a traffic counter on the A595 just to the north of the site. This shows that the highest hourly traffic flows on a Saturday and Sunday are much lower than those occurring during a weekday peak period. The data showing this is attached in **Appendix C**.



6.2 It is therefore evident that the weekday peak periods will represent a 'worst case' and therefore no traffic counts are intended to be collected on a weekend nor any junction assessments for a weekend undertaken.



# Appendix A

# **TRICS Outputs**

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Calculation Reference: AUDIT-705118-180111-0154

#### TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selec	cted regions and areas:	
02	SOUTH EAST	
	ES EAST SUSSEX	1 days
	WS WEST SUSSEX	1 days
04	EAST ANGLIA	
	SF SUFFOLK	1 days
06	WEST MIDLANDS	
	ST STAFFORDSHIRE	1 days
80	NORTH WEST	
	MS MERSEYSIDE	1 days

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

#### Secondary Filtering selection:

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

Parameter:	Number of dwellings
Actual Range:	224 to 805 (units: )
Range Selected by User:	200 to 805 (units: )

Public Transport Provision: Selection by:

Calastad survey days

Include all surveys

Date Range: 01/01/00 to 02/03/17

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.

<u>Selected sulvey days:</u>	
Tuesday	1 days
Thursday	4 days

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

<u>Selected survey types:</u>	
Manual count	5 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.

<u>Selected Locations:</u>	
Edge of Town	4
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:	
Residential Zone	
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.

4 1

Secondary Filtering selection:

*Use Class:* C3

5 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®.

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Secondary Filtering selection (Cont.):

Population within 1 mile:	
5,001 to 10,000	1 days
10,001 to 15,000	1 days
15,001 to 20,000	1 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	1 days
75,001 to 100,000	2 days
125,001 to 250,000	2 days

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

Cal	r ownership	<u>within 5 miles:</u>
1.1	to 1.5	

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.

5 days

2 days
1 days
2 days

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

PTAL Rating: No PTAL Present

5 days

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

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LIST OF SITES relevant to selection parameters

1	ES-03-A-01 OLD MALLING WAY SOUTH MALLING LEWES Edge of Town Residential Zone Total Number of dwe	MIXED HOUSES/FLAT	491	EAST SUSSEX
2	Survey date: MS-03-A-01 PALACE FIELDS AVEI	<i>THURSDAY</i> TERRACED NUE	29/03/01	<i>Survey Type: MANUAL</i> MERSEYSIDE
	RUNCORN Neighbourhood Centr Residential Zone Total Number of dwe	re (PPS6 Local Centre) Ilings: THURSDAY	372 <i>06/10/05</i>	Survey Type: MANUAU
3	SF-03-A-02 STOKE PARK DRIVE MAIDENHALL IPSWICH Edge of Town Residential Zone Total Number of dwe	SEMI DET./TERRACED	230	SUFFOLK
4	<i>Survey date:</i> ST-03-A-03 QUEENSVILLE	<i>THURSDAY</i> MIXED HOUSES	24/05/07	<i>Survey Type: MANUAL</i> STAFFORDSHIRE
5	STAFFORD Edge of Town No Sub Category Total Number of dwe <i>Survey date:</i> WS-03-A-06	llings: <i>TUESDAY</i> MIXED HOUSES	224 <i>04/07/00</i>	<i>Survey Type: MANUAL</i> WEST SUSSEX
	ELLIS ROAD S BROADBRIDGE HE. WEST HORSHAM Edge of Town Residential Zone Total Number of dwe	ATH Illings:	805	
	Survey date:	THURSDAY	02/03/17	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.

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#### WYG Group Quay West Salford Quays

#### TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED MULTI-MODAL VEHICLES 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	5	424	0.082	5	424	0.305	5	424	0.387
08:00 - 09:00	5	424	0.156	5	424	0.437	5	424	0.593
09:00 - 10:00	5	424	0.179	5	424	0.199	5	424	0.378
10:00 - 11:00	5	424	0.132	5	424	0.165	5	424	0.297
11:00 - 12:00	5	424	0.163	5	424	0.177	5	424	0.340
12:00 - 13:00	5	424	0.166	5	424	0.166	5	424	0.332
13:00 - 14:00	5	424	0.158	5	424	0.167	5	424	0.325
14:00 - 15:00	5	424	0.161	5	424	0.181	5	424	0.342
15:00 - 16:00	5	424	0.268	5	424	0.187	5	424	0.455
16:00 - 17:00	5	424	0.270	5	424	0.172	5	424	0.442
17:00 - 18:00	5	424	0.381	5	424	0.198	5	424	0.579
18:00 - 19:00	5	424	0.345	5	424	0.224	5	424	0.569
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.461			2.578			5.039

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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Parameter summary

Trip rate parameter range selected:224 - 805 (units: )Survey date date range:01/01/00 - 02/03/17Number of weekdays (Monday-Friday):5Number of Saturdays:0Number of Sundays:0Surveys automatically removed from selection:0Surveys 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.

#### TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED MULTI - MODAL OGVS 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	5	424	0.002	5	424	0.002	5	424	0.004	
08:00 - 09:00	5	424	0.002	5	424	0.001	5	424	0.003	
09:00 - 10:00	5	424	0.006	5	424	0.007	5	424	0.013	
10:00 - 11:00	5	424	0.002	5	424	0.001	5	424	0.003	
11:00 - 12:00	5	424	0.003	5	424	0.005	5	424	0.008	
12:00 - 13:00	5	424	0.002	5	424	0.000	5	424	0.002	
13:00 - 14:00	5	424	0.003	5	424	0.004	5	424	0.007	
14:00 - 15:00	5	424	0.001	5	424	0.002	5	424	0.003	
15:00 - 16:00	5	424	0.004	5	424	0.004	5	424	0.008	
16:00 - 17:00	5	424	0.002	5	424	0.001	5	424	0.003	
17:00 - 18:00	5	424	0.000	5	424	0.000	5	424	0.000	
18:00 - 19:00	5	424	0.000	5	424	0.001	5	424	0.001	
19:00 - 20:00										
20:00 - 21:00										
21:00 - 22:00										
22:00 - 23:00										
23:00 - 24:00										
Total Rates:			0.027			0.028			0.055	

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

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Parameter summary

Trip rate parameter range selected:224 - 805 (units: )Survey date date range:01/01/00 - 02/03/17Number of weekdays (Monday-Friday):5Number of Saturdays:0Number of Sundays:0Surveys automatically removed from selection:0Surveys manually removed from selection:0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

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#### WYG Group Quay West Salford Quays

#### TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED MULTI - MODAL 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	5	424	0.002	5	424	0.001	5	424	0.003
08:00 - 09:00	5	424	0.004	5	424	0.004	5	424	0.008
09:00 - 10:00	5	424	0.003	5	424	0.003	5	424	0.006
10:00 - 11:00	5	424	0.002	5	424	0.002	5	424	0.004
11:00 - 12:00	5	424	0.002	5	424	0.002	5	424	0.004
12:00 - 13:00	5	424	0.002	5	424	0.003	5	424	0.005
13:00 - 14:00	5	424	0.002	5	424	0.002	5	424	0.004
14:00 - 15:00	5	424	0.002	5	424	0.002	5	424	0.004
15:00 - 16:00	5	424	0.004	5	424	0.004	5	424	0.008
16:00 - 17:00	5	424	0.002	5	424	0.002	5	424	0.004
17:00 - 18:00	5	424	0.003	5	424	0.003	5	424	0.006
18:00 - 19:00	5	424	0.002	5	424	0.002	5	424	0.004
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.030			0.030			0.060

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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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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#### WYG Group Quay West Salford Quays

#### TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED MULTI-MODAL CYCLISTS 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	5	424	0.005	5	424	0.007	5	424	0.012
08:00 - 09:00	5	424	0.004	5	424	0.008	5	424	0.012
09:00 - 10:00	5	424	0.001	5	424	0.001	5	424	0.002
10:00 - 11:00	5	424	0.001	5	424	0.000	5	424	0.001
11:00 - 12:00	5	424	0.003	5	424	0.005	5	424	0.008
12:00 - 13:00	5	424	0.003	5	424	0.003	5	424	0.006
13:00 - 14:00	5	424	0.003	5	424	0.005	5	424	0.008
14:00 - 15:00	5	424	0.001	5	424	0.000	5	424	0.001
15:00 - 16:00	5	424	0.011	5	424	0.008	5	424	0.019
16:00 - 17:00	5	424	0.012	5	424	0.012	5	424	0.024
17:00 - 18:00	5	424	0.011	5	424	0.011	5	424	0.022
18:00 - 19:00	5	424	0.009	5	424	0.008	5	424	0.017
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.064			0.068			0.132

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

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Parameter summary

Trip rate parameter range selected:224 - 805 (units: )Survey date date range:01/01/00 - 02/03/17Number of weekdays (Monday-Friday):5Number of Saturdays:0Number of Sundays:0Surveys automatically removed from selection:0Surveys 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.

Licence No: 705118

#### WYG Group Quay West Salford Quays

#### TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED MULTI-MODAL VEHICLE OCCUPANTS 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	5	424	0.099	5	424	0.381	5	424	0.480
08:00 - 09:00	5	424	0.182	5	424	0.782	5	424	0.964
09:00 - 10:00	5	424	0.205	5	424	0.257	5	424	0.462
10:00 - 11:00	5	424	0.151	5	424	0.213	5	424	0.364
11:00 - 12:00	5	424	0.202	5	424	0.218	5	424	0.420
12:00 - 13:00	5	424	0.198	5	424	0.210	5	424	0.408
13:00 - 14:00	5	424	0.214	5	424	0.217	5	424	0.431
14:00 - 15:00	5	424	0.203	5	424	0.224	5	424	0.427
15:00 - 16:00	5	424	0.472	5	424	0.226	5	424	0.698
16:00 - 17:00	5	424	0.369	5	424	0.244	5	424	0.613
17:00 - 18:00	5	424	0.501	5	424	0.294	5	424	0.795
18:00 - 19:00	5	424	0.447	5	424	0.328	5	424	0.775
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			3.243			3.594			6.837

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

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Parameter summary

Trip rate parameter range selected:224 - 805 (units: )Survey date date range:01/01/00 - 02/03/17Number of weekdays (Monday-Friday):5Number of Saturdays:0Number of Sundays:0Surveys automatically removed from selection:0Surveys manually removed from selection:0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

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#### WYG Group Quay West Salford Quays

#### TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED MULTI-MODAL PEDESTRIANS 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	5	424	0.017	5	424	0.036	5	424	0.053
08:00 - 09:00	5	424	0.026	5	424	0.175	5	424	0.201
09:00 - 10:00	5	424	0.044	5	424	0.054	5	424	0.098
10:00 - 11:00	5	424	0.031	5	424	0.028	5	424	0.059
11:00 - 12:00	5	424	0.030	5	424	0.031	5	424	0.061
12:00 - 13:00	5	424	0.041	5	424	0.033	5	424	0.074
13:00 - 14:00	5	424	0.027	5	424	0.022	5	424	0.049
14:00 - 15:00	5	424	0.032	5	424	0.035	5	424	0.067
15:00 - 16:00	5	424	0.176	5	424	0.057	5	424	0.233
16:00 - 17:00	5	424	0.067	5	424	0.037	5	424	0.104
17:00 - 18:00	5	424	0.066	5	424	0.048	5	424	0.114
18:00 - 19:00	5	424	0.033	5	424	0.031	5	424	0.064
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.590			0.587			1.177

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

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Parameter summary

Trip rate parameter range selected:224 - 805 (units: )Survey date date range:01/01/00 - 02/03/17Number of weekdays (Monday-Friday):5Number of Saturdays:0Number of Sundays:0Surveys automatically removed from selection:0Surveys 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.

#### TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED MULTI - MODAL PUBLIC TRANSPORT USERS 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	5	424	0.001	5	424	0.016	5	424	0.017
08:00 - 09:00	5	424	0.004	5	424	0.042	5	424	0.046
09:00 - 10:00	5	424	0.008	5	424	0.012	5	424	0.020
10:00 - 11:00	5	424	0.008	5	424	0.009	5	424	0.017
11:00 - 12:00	5	424	0.003	5	424	0.012	5	424	0.015
12:00 - 13:00	5	424	0.008	5	424	0.003	5	424	0.011
13:00 - 14:00	5	424	0.012	5	424	0.004	5	424	0.016
14:00 - 15:00	5	424	0.007	5	424	0.003	5	424	0.010
15:00 - 16:00	5	424	0.050	5	424	0.005	5	424	0.055
16:00 - 17:00	5	424	0.019	5	424	0.004	5	424	0.023
17:00 - 18:00	5	424	0.022	5	424	0.008	5	424	0.030
18:00 - 19:00	5	424	0.005	5	424	0.003	5	424	0.008
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.147			0.121			0.268

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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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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#### WYG Group Quay West Salford Quays

#### 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

	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	5	424	0.122	5	424	0.440	5	424	0.562	
08:00 - 09:00	5	424	0.217	5	424	1.007	5	424	1.224	
09:00 - 10:00	5	424	0.257	5	424	0.325	5	424	0.582	
10:00 - 11:00	5	424	0.191	5	424	0.251	5	424	0.442	
11:00 - 12:00	5	424	0.238	5	424	0.265	5	424	0.503	
12:00 - 13:00	5	424	0.250	5	424	0.249	5	424	0.499	
13:00 - 14:00	5	424	0.256	5	424	0.248	5	424	0.504	
14:00 - 15:00	5	424	0.243	5	424	0.262	5	424	0.505	
15:00 - 16:00	5	424	0.710	5	424	0.297	5	424	1.007	
16:00 - 17:00	5	424	0.467	5	424	0.297	5	424	0.764	
17:00 - 18:00	5	424	0.599	5	424	0.361	5	424	0.960	
18:00 - 19:00	5	424	0.495	5	424	0.369	5	424	0.864	
19:00 - 20:00										
20:00 - 21:00										
21:00 - 22:00										
22:00 - 23:00										
23:00 - 24:00										
Total Rates:			4.045			4.371			8.416	

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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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.



# **Appendix B**

# Trip Distribution (Based on 2011 Census Data)

# WU03EW - Location of usual residence and place of work by method of travel to work (MSOA level) ONS Crown Copyright Reserved [from Nomis on 11 January 2018]

population	All usual residents aged 16 and over in employment the week before the census
units	Persons
date	2011
method of travel to work	Driving a car or van

Place of Work : 2011 Census Merged Local Authority District	Place of Residence - E02004002 : Copeland 003	Route	%	Trips
Copeland	2,747			
Allerdale	538	А	100.0%	538
Carlisle	71	А	100.0%	71
Eden	35	А	100.0%	35
Barrow-in-Furness	12	B1	50.0%	6
		B2	50.0%	6
South Lakeland	12	A	50.0%	6
		R1	25.0%	3
		D1 D2	25.0%	2
Lapoactor	2	62	20.0%	3
Lillianden	3	A	100.0%	3
	3	A	100.0%	3
County Durham	2	A	100.0%	2
Northumberland	2	A	100.0%	2
Sunderland	2	A	100.0%	2
Manchester	2	A	100.0%	2
Stockport	2			
		A	100.0%	2
Coventry	2	A	100.0%	2
Chelmsford	2	A	100.0%	2
West Berkshire	2	А	100.0%	2
South Oxfordshire	2	А	100.0%	2
North Tyneside	1	А	100.0%	1
Warrington	1	А	100.0%	1
Cheshire East	1	А	100.0%	1
Cheshire West and Chester	1	А	100.0%	1
Fylde	1	А	100.0%	1
Ribble Valley	1	А	100.0%	1
South Ribble	1	А	100.0%	1
Wyre	1	А	100.0%	1
Wigan	1	А	100.0%	1
Sefton	1	А	100.0%	1
Richmondshire	1	А	100.0%	1
Sheffield	1	А	100.0%	1
Leeds	1	А	100.0%	1
Leicester	1	А	100.0%	1
Erewash	1	А	100.0%	1
Wellingborough	1	А	100.0%	1
Ashfield	1	A	100.0%	1
Rushcliffe	1	A	100.0%	1
Shropshire	1	A	100.0%	1
Ruaby	1	A	100.0%	1
Fenland	1	A	100.0%	1
Great Yarmouth	1	A	100.0%	1
Bromley	1	A	100.0%	1
Hammersmith and Fulbam	1	A	100.0%	1
I ambeth	1	Δ	100.0%	1
Cornwall leles of Soilly	1	Ā	100.0%	1
Wiltehiro	1	Δ	100.0%	1
Chaltanham	1	A A	100.0%	1
South Somorest	1	A	100.0%	1
Dombrokoshire	1	A	100.0%	1
Powys	1	A	100.0%	1
1 01193	1	А	100.0 /0	1
Total	3,470			

	Place of Work 2011 Super Output Area - Middle Layer	Place of Residence - E02004002 : Copeland 003	Route	%	trips
	E02004000 : Copeland 001	60	А	70.0%	42
			G	30.0%	18
	E02004001 : Copeland 002	527	F	20.0%	105
			Н	20.0%	105
			E	40.0%	211
			I.	20.0%	105
$\langle$	E02004002 : Copeland 003	371	C1	15.0%	56
1			C2	15.0%	56
			J	30.0%	111
			I	35.0%	130
			G	5.0%	19
	E02004003 : Copeland 004	81	B1	50.0%	41
			B2	50.0%	41
	E02004004 : Copeland 005	90	B1	20.0%	18
			B2	20.0%	18
			E	30.0%	27
			D	15.0%	14
			F	15.0%	14
	E02004005 : Copeland 006	270	B1	50.0%	135
			B2	50.0%	135
	E02004006 : Copeland 007	1,332	B1	50.0%	666
			B2	50.0%	666
	E02004007 : Copeland 008	16	B1	50.0%	8
			BZ	50.0%	8

Route	Trips LA Level	Trips MSOA Level	Trips Total	
А	705	42	747	
B1	9	868	877	
B2	9	868	877	
C1	0	56	56	
C2	0	56	56	
D	0	14	14	
E	0	238	238	
F	0	119	119	
G	0	37	37	
Н	0	105	105	
I	0	235	235	
J	0	111	111	
Total	723	2747	3470	

In order to protect against disclosure of personal information, records have been swapped between different geographic areas. Some counts will be affected, particularly small counts at the lowest geographies.

%
21.5%
25.3%
25.3%
1.6%
1.6%
0.4%
6.9%
3.4%
1.1%
3.0%
6.8%
3.2%
100%





# Appendix C

# Webtris Traffic Data

							Ho	ourly Tי	wo-Way	/ Flow	's (Sou	rce: htt	tp://wel	otris.hi	ghways	senglar	1d.co.u	k/)							
Report Date	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Total
Wed 01 Nov 2017	49	29	23	16	152	736	872	1228	1503	1053	866	983	1066	1044	1164	1306	1543	1524	1102	635	478	360	202	105	18039
Thu 02 Nov 2017	50	31	22	20	145	742	861	1237	1423	1086	954	994	1043	1091	1197	1329	1519	1505	953	648	377	310	187	99	17823
Fri 03 Nov 2017	74	27	19	23	159	673	832	1153	1306	1046	1005	1195	1313	1290	1400	1449	1589	1536	843	598	370	312	300	171	18683
Sat 04 Nov 2017	99	69	44	51	107	283	372	296	529	792	919	1110	1155	1154	1082	970	1043	974	676	472	324	361	244	173	13299
Sun 05 Nov 2017	94	79	50	52	115	250	304	191	304	526	820	997	1040	1044	960	1020	990	915	628	509	401	293	193	90	11865
Mon 06 Nov 2017	53	25	14	22	165	723	884	1159	1403	1021	912	911	1014	1033	1100	1293	1438	1457	1002	575	398	311	223	80	17216
Tue 07 Nov 2017	47	25	19	20	181	719	613	1072	1434	1026	958	899	991	977	1107	1281	1546	1476	1041	653	447	311	175	93	17111
Wed 08 Nov 2017	55	26	39	38	159	674	898	1269	1473	1085	961	973	1024	1062	1227	1349	1477	1498	1077	641	513	334	249	98	18199
Thu 09 Nov 2017	51	25	13	20	161	706	838	1168	1395	1111	975	1087	1116	1090	1227	1322	1562	1429	1049	637	462	341	247	102	18134
Fri 10 Nov 2017	62	52	22	25	152	707	823	1135	1377	988	977	1113	1318	1163	1389	1474	1514	1292	991	625	461	336	272	154	18422
Sat 11 Nov 2017	95	43	66	38	112	275	329	355	608	865	985	1025	1195	1254	1090	1000	1018	1068	782	543	323	282	254	158	13763
Sun 12 Nov 2017	108	76	86	57	113	278	266	247	335	524	815	969	1047	1095	968	993	979	877	616	465	318	275	176	79	11762
Mon 13 Nov 2017	52	28	23	27	165	759	858	1136	1437	985	857	957	953	1014	1071	1315	1508	1500	1003	604	407	295	197	76	17227
Tue 14 Nov 2017	36	32	15	24	150	712	866	1257	1421	1038	865	949	969	922	1156	1314	1450	1511	1058	600	447	312	213	86	17403
Wed 15 Nov 2017	36	19	22	19	179	751	887	1253	1487	998	911	1017	943	1037	1066	1403	1554	1505	1139	657	506	372	249	107	18117
Thu 16 Nov 2017	65	26	21	18	180	754	856	1182	1394	1022	977	1081	1019	1110	1221	1335	1545	1486	1083	748	493	390	255	111	18372
Fri 17 Nov 2017	53	40	29	26	154	699	818	765	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2584
Sat 18 Nov 2017	0	0	0	0	0	0	0	234	574	759	1047	1132	1144	1165	1073	1006	1038	1014	706	559	381	296	264	181	12573
Sun 19 Nov 2017	127	78	60	78	118	248	288	226	297	555	823	954	1083	1071	1054	1050	1018	877	669	463	324	233	164	78	11936
Tue 21 Nov 2017	38	25	13	16	165	713	864	1196	1461	968	881	936	1063	1001	1143	1331	1477	1444	1071	605	403	341	211	92	17458
Wed 22 Nov 2017	47	32	12	19	200	752	689	1070	1380	1089	830	980	1009	1120	1222	1395	1463	1363	887	629	375	337	209	96	17205
Thu 23 Nov 2017	66	39	27	25	184	725	846	1135	1458	1060	922	958	1117	1035	1282	1390	1547	1469	1093	675	456	353	260	131	18253
Sun 26 Nov 2017	143	72	76	71	135	251	300	201	255	542	785	920	1074	1027	997	895	988	766	638	436	372	235	175	79	11433
Mon 27 Nov 2017	47	22	22	19	167	738	867	1155	1392	1011	957	902	1041	991	1123	1313	1495	1505	944	615	458	279	218	93	17374
Tue 28 Nov 2017	38	19	12	22	146	798	908	1245	1445	1009	966	1030	998	1046	1204	1384	1510	1527	1041	652	465	313	278	77	18133
Wed 29 Nov 2017	60	22	21	26	191	753	672	1095	1472	1189	972	1054	1080	1102	1226	1404	1564	1566	1069	684	521	321	212	96	18372
Thu 30 Nov 2017	64	25	25	31	192	750	748	1206	1469	1062	1027	1023	1107	1038	1221	1402	1545	1436	1131	717	505	358	248	103	18433



Week Day Peak Flows

Weekend Peak Flows

							Ho	ourly Tv	vo-Way	/ Flow	s (Sou	rce: htt	p://wel	otris.hi	ghway	sengla	nd.co.u	ık/)							
Report Date	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	Total
Wed 01 Nov 2017	46	27	23	14	166	809	982	1334	1461	1103	1063	1196	1299	1243	1310	1408	1522	1534	1162	710	537	401	222	99	10043
Thu 02 Nov 2017	48	32	23	23	155	836	981	1329	1380	1202	1164	1214	1288	1290	1411	1421	1526	1519	1051	797	426	425	222	107	10161
Fri 03 Nov 2017	77	30	23	19	165	760	918	1239	1305	1170	1221	1457	1558	1405	1564	1519	1560	1281	953	667	484	364	338	199	10697
Sat 04 Nov 2017	158	123	85	35	120	303	403	354	565	887	1004	1196	1243	1272	1221	1051	1128	954	730	465	388	364	282	208	7711
Sun 05 Nov 2017	151	117	102	36	121	284	322	190	286	521	870	1010	1081	1103	1079	1033	965	816	560	523	416	290	213	91	6347
Mon 06 Nov 2017	56	35	12	20	169	808	937	1220	1351	1136	1112	1100	1224	1239	1254	1343	1471	1393	1044	690	457	356	219	76	9424
Tue 07 Nov 2017	46	23	20	23	186	792	644	1176	1377	1182	1082	1148	1184	1242	1330	1364	1563	1490	1100	747	505	372	198	96	9759
Wed 08 Nov 2017	43	26	36	59	162	747	950	1338	1384	1239	1150	1193	1244	1239	1357	1390	1483	1429	1137	706	508	407	239	110	9938
Thu 09 Nov 2017	53	23	13	24	161	794	936	1268	1387	1307	1166	1268	1333	1291	1372	1443	1520	1435	1079	715	492	417	230	115	10213
Fri 10 Nov 2017	58	51	20	23	165	786	870	1228	1360	1108	1186	1346	1529	1379	1510	1437	1548	1341	971	678	487	395	298	150	10487
Sat 11 Nov 2017	120	84	80	34	114	325	356	357	600	887	1033	1109	1186	1298	1203	1083	1080	1053	762	582	374	341	304	234	7643
Sun 12 Nov 2017	184	132	150	57	123	301	284	246	299	521	798	941	1059	1169	1081	1008	959	841	599	481	353	284	169	91	6274
Mon 13 Nov 2017	42	27	22	26	174	818	939	1204	1399	1133	1057	1107	1181	1173	1209	1416	1476	1486	1085	668	435	338	215	68	9530
Tue 14 Nov 2017	40	27	14	26	164	795	959	1321	1455	1189	1047	1139	1189	1150	1259	1425	1445	1511	1106	674	503	362	222	97	9728
Wed 15 Nov 2017	33	15	19	27	182	838	980	1357	1452	1111	1080	1155	1195	1140	1228	1438	1515	1488	1160	709	552	378	271	102	9898
Thu 16 Nov 2017	52	19	17	17	191	835	966	1261	1419	1201	1174	1264	1281	1338	1451	1446	1599	1478	1144	813	550	433	248	113	10463
Fri 17 Nov 2017	66	46	34	21	165	764	948	1198	687																1343
Sat 18 Nov 2017								271	626	801	1129	1130	1161	1248	1124	1027	1069	1030	764	606	426	341	289	242	7137
Sun 19 Nov 2017	171	135	108	67	126	291	306	221	280	519	874	998	1094	1090	1085	1063	993	877	658	491	379	275	180	92	6430
Tue 21 Nov 2017	37	27	15	19	182	813	966	1248	1447	1133	1020	1129	1249	1266	1295	1414	1511	1516	1102	631	460	367	207	103	9860
Wed 22 Nov 2017	47	37	12	20	218	856	732	1118	1375	1251	1024	1086	1236	1232	1351	1421	1511	1388	974	657	397	373	218	102	9717
Thu 23 Nov 2017	67	36	26	35	202	822	929	1258	1455	1248	1105	1181	1345	1222	1442	1501	1567	1473	1113	720	510	405	259	117	10305
Sun 26 Nov 2017	178	135	133	64	133	287	298	228	261	493	854	1016	1093	1115	1026	913	968	809	628	437	365	235	179	75	6179
Mon 27 Nov 2017	63	31	17	20	179	811	944	1236	1387	1126	1124	1201	1285	1220	1341	1425	1521	1574	967	664	467	352	243	77	9833
Tue 28 Nov 2017	35	25	15	22	153	870	997	1337	1432	1202	1148	1176	1271	1262	1397	1458	1541	1586	1119	745	519	319	262	67	10189
Wed 29 Nov 2017	54	26	18	26	206	848	688	1149	1387	1310	1169	1218	1333	1293	1380	1496	1505	1564	1136	728	530	356	187	99	10226
Thu 30 Nov 2017	55	21	22	44	194	838	815	1265	1398	1303	1215	1211	1361	1339	1427	1466	1564	1487	1151	706	557	381	252	106	10398



Week Day Peak Flows

Weekend Peak Flows



Your ref:Harras MoorOur ref:5150363.997

Lindsay Alder Assistant Asset Manager Highways England Piccadilly Gate Store Street Manchester M1 2WD

13 Feb 2018

Dear Lindsay

#### Harras Moor, Whitehaven

Further to recent correspondence with Mike Smith of WYG regarding development proposals for a site at Harras Moor, Whitehaven, I write to provide our formal comments on the Trip Rates and Trip Distribution Technical Note (dated 17<sup>th</sup> January 2018) provided by WYG. The Technical Note covers the proposed traffic generation and distribution assumptions for the site, and informs future traffic survey requirements and the extent of junction assessments to be included in a future Transport Assessment. We would welcome the opportunity to comment on wider aspects of the scope of a future Transport Assessment, in order to ensure that the assessment parameters are agreed in advance of any future planning application.

#### **Development and Access Proposals**

The Technical Note advises that proposals for the site envisage delivery of up to 450 new residential dwellings. The Technical Note outlines the proposed access strategy for the site. Although previous correspondence with Highways England sought comments in respect of a potential development access onto the A595 Loop Road South, the revised access strategy seeks to take access from the local highway network only, via Caldbeck Road and Harras Road. As a consequence, it is no longer proposed to create a new access junction onto the A595 which forms part of the Strategic Road Network (SRN).

#### **Traffic Generation**

WYG have reviewed the TRICS database to derive proposed vehicular trip rates for assessment purposes. The proposed vehicular trip rates are presented in **Table 1**. Atkins have reviewed the TRICS database and would conclude that the proposed trip rates are appropriate for use.

Table 1 –	Proposed	Vehicular	Trip	Rates
-----------	----------	-----------	------	-------

M	orning Peak Ho	ur	Evening Peak Hour						
Arrivals	Departures	Total	Arrivals	Departures	Total				
0.156	0.437	0.593	0.381	0.198	0.579				

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On the basis of the supplied trip rates, a development of 450 dwellings would generate 267 two-way vehicular trips in the morning peak hour, and 261 two-way vehicular trips in the evening peak hour.

#### **Traffic Distribution**

WYG have used 2011 Census Journey to Work data to estimate the distribution of traffic generated by the proposed development. A route planning website has then been used to provide an understanding of the likely assignment of trips to individual access routes. The approach to trip distribution and assignment is considered reasonable for use.

2011 Census Journey to Work data has been analysed for the Middle Super Output Area (MSOA) 'Copeland 003' which covers the proposed development site and surrounding housing. Journeys to work generated by the Census area have been assigned to a number of alternative access routes to the local highway network. Five of the assumed access routes would impact on junctions with the A595, with traffic making onwards journeys on the SRN:

- Route F via A595/ B5295 Ribbon Moorside (junction reference 7);
- Route D via A595/ Highlands (junction reference 8);
- Route B1 and B2 via A595/ B5295 Egremont Road/ Homewood Road (junction reference 9);
- Route A via A595/ Rosehill 'T' junction (reference 10); and
- Route I via A595/ Victoria Road (Sunny Hill pub) 'T' junction (reference 11)

The assumed share and volume of development traffic impacting on each route and associated SRN junction is reproduced in **Table 2**.

Reference	Junction Description	Percentage Share	Estimated Development Traffic Generation		
			Morning Peak Hour	<b>Evening Peak Hour</b>	
J7	A595/ B5295 Ribton Moorside	3.4%	9	9	
J8	A595/ Highlands	0.4%	1	1	
J9	A595/ B5295 Egremont Road/ Homewood Road	50.5%	136	133	
J10	A595/ Rosehill 'T' junction	21.5%	58	57	
J11	A595/ Victoria Road 'T' junction	6.8%	19	19	

Table 2 – Assumed Assignment of Development Traffic Routeing

Atkins have reviewed the Census data analysis and trip assignment process undertaken by WYG. Using the same Census MSOA as adopted by WYG, Atkins analysis has returned a similar distribution of development trips. Consequently, it is concluded that the proposed development traffic distribution presented by WYG (and summarised in **Table 2** in respect of the SRN), is reasonable for assessment purposes.

#### **Assessment Locations and Time Periods**

On the basis of the trip distribution analysis, WYG have proposed to undertake traffic surveys at a range of locations. The locations include the junction of the B5295 Egremont Road/ Homewood Road with the A595 (WYG junction reference J9). However, given the additional development traffic assumed to route via the Rosehill 'T' junction with the A595 (junction reference 10), Atkins have requested that this junction is also surveyed to allow future operational assessments. This junction should be included in future data collection.

WYG have indicated that traffic surveys are to be undertaken between 07:30-09:30 and 16:30-18:30, during the week commencing 19<sup>th</sup> February 2018. We understand that the proposed survey week has been confirmed with the Local Highway Authority. With reference to WebTRIS data analysis included in the WYG Technical Note, we would recommend that the surveys commence at



16:00 rather than 16:30, given that the 16:00-17:00 hour is consistently the busiest period for the A595. Surveys should be undertaken on a neutral weekday (ie, Tuesday, Wednesday or Thursday). Highways England are not aware of any roadworks planned on the A595 in the Whitehaven area during this week, but the Local Highway Authority should also be contacted to understand whether any planned roadworks could affect traffic patterns.

Analysis of WebTRIS data appended to the WYG Technical Note compares weekday traffic levels with weekend levels. Whilst traffic levels on the A595 around the Saturday lunch period are shown to be high, they are lower than traffic levels during the traditional weekday commuter periods, and the combination of weekday peak traffic levels and background traffic is anticipated to provide the worst case assessment basis. On this basis, it is accepted that junction capacity assessments are not required for the Saturday or Sunday.

#### **Key Findings**

On the basis of the information presented in the submitted WYG Technical Note, and subsequent email correspondence with Mike Smith of WYG, we would highlight the following:

- The development proposals would provide up to 450 new residential dwellings in the Harras Moor area of Whitehaven. Vehicular access would be taken from the local highway network only, and no access is proposed via new or amended junctions with the A595;
- The vehicular trip rates, trip generation, and trip distribution prepared by WYG are considered suitable for use, and should be carried forward into the subsequent Transport Assessment;
- WYG intend to undertake traffic surveys to support future assessment during the week commencing 19<sup>th</sup> February 2018. On the basis of the submitted traffic routeing, it is requested that traffic survey data is collected not only for the junction of the B5295 Egremont Road/ Homewood Road with the A595 (WYG junction reference 9), but also for the Rosehill 'T' junction with the A595 (WYG junction reference 10). It is also recommended that traffic surveys commence at 16:00 rather than 16:30 as proposed by WYG; and
- Highways England would welcome the opportunity to comment on wider aspects of the scope of a future Transport Assessment, in order to ensure that the assessment parameters are agreed in advance of any future planning application.

Yours sincerely, For and on behalf of ATKINS Limited

Andy Beel

### yujing.liu

Subject:

FW: Proposed residential Development, Harras Moor

From: <u>Barnard, Pieter GF</u> Sent: 24/01/2018 13:06 To: <u>mike.smith</u> Cc: <u>Murray, Gavin R</u> Subject: RE: Proposed residential Development, Harras Moor

Mike

Following on from the email below , I have received some additional comments from my modelling team -

The scoping report is generally good, with the TRICS and distribution methodology looking fine. We do have some queries regarding the methodology for trip assignment though. These mainly relate to the assignment not really considering the employment centres in the big MSOA zones:

- Trips to Copeland 002 (Whitehaven town centre) should have a higher proportion of trips travelling routes E and F, and less (or even none) on route I as there aren't really any trip attractors in Bransty
- Trips to Copeland 003 ignore the main trip attractors in the area, which is principally the West Cumberland hospital, but also Whitehaven Commercial Park in Moresby, and no trips should be assigned via route G (this only covers a few houses in Moresby Parks)
- Trips to Copeland 004 (Cleator Moor) should go via route C (and we would expect more trips to use the main route via the B5295)
- Trips to Copeland 005 (Kells/Mirehouse) should mostly use route D and F
- They might need to consider sensitivity tests for the split between accesses and routes if any junctions are close to capacity

The analysis should also be mindful of congestion issues around the secondary schools in Whitehaven.

For junctions, I would also expect them to consider the B5295/Main Street mini-roundabout in Hensingham (via route B/F). They should also consider the operation of the Solway View/Oakbank Road/Park View junction (route E), and the Moresby Parks Road/unnamed route (route C2) if traffic is expected to use this route.

Given the impact on the A595, I'd expect Highways England may have some comments on the trip assignment too, and I'm happy to try to align our views with any comments they might have where possible. Personally, I'd have expected a development of this size to consider the A595/Inkerman Terrace (no ref) and A595/Ribton Moor Side (J7) linked junctions, and the A595/Rosehill junction (J10 – the applicant claims 58 trips is not significant, which is not the case)

1

Regards

Environment & Regulatory Services | Cumbria County Council Parkhouse Building| Baron Way | Carlisle | CA6 4SJ Tel - 07768 272394 www.cumbria.gov.uk

From: Barnard, Pieter GF
Sent: 24 January 2018 11:43
To: 'mike.smith'
Cc: Murray, Gavin R
Subject: RE: Proposed residential Development, Harras Moor
Importance: High

Hello Mike

I think we mentioned in earlier emails that your study area seem too south orientated.

It is our strong preference that this should link to The Highlands. Development of this land was always envisaged to create a link between the highlands, Caldbeck road and Harras rd/Haul rd. Although some of them is still the subject of a sec 38 agreement, I am content that these should be seen as Highway, please find attached the current sec 38 for the site, showing highway to the boundary.

There is also potential for connection onto the adjacent hillside estate too.

I note that all of the junctions proposed for assessment are south of the site, none north of the site ? I think Harras road, Victoria road and rose hill will be impacted by the development. I think the residents on Harras moor will be very concerned about increased traffic movements, you might want to consider ways of mitigating this in the design.

If you connect through to the highlands, then there is potential for creation of a new commercial bus route.

On your distribution the following notes -

- The greatest proportion of the trips to Carlisle, Allerdale and Eden(and all the trips assigned to Route A) is expected to go on Route I.
- The southbound trips (routes B1 and B2) should not be equally distributed between the two accesses; a greater proportion is expected to egress from the southbound access.
- No trips were assigned to Moresby Park Road.
- No trips to Copland 003 should be assigned to Route G.
- Route C2 is a minor Road more trips are expected to be assigned on C1.

LSOA	Routes
Copland 001	A I G and additional route on Moresby
	Parks Road
Copland 004	C1 and C2

According to table 3 the volume of traffic estimated to be generated by the proposed development at J 11 should 19 vehicle (two-way) in both AM and PM peak hours respectively and not <u>11 PCU</u>. This junction should be modelled because, most of the trips assigned to route A should be assigned to route I instead, so the effect is not negligible.

### Further junctions to be modelled:

- B5295 / Main Street;
- A595/Inkerman Terrace/ Hensingham Road
- B5295/Dalzell Street
- Moresby Road / Unnamed road (in the figure below).
- Highlands / Loop Road S

### Pieter Barnard Lead Officer – Flood and Development Management

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From: mike.smith [mailto:mike.smith@wyg.com]
Sent: 24 January 2018 09:29
To: Barnard, Pieter GF
Cc: yujing.liu
Subject: RE: Proposed residential Development, Harras Moor

Morning Pieter

I hope you are well.

Further to my email last Wednesday (below), are you able to provide me with an indication of when you will be able to respond so that I can get the traffic count people lined up?

Many Thanks

Mike

#### Mike Smith Associate

#### WYG

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From: mike.smith
Sent: 17 January 2018 16:13
To: 'Barnard, Pieter GF' <<u>Pieter.Barnard@cumbria.gov.uk</u>>
Cc: yujing.liu <<u>yujing.liu@wyg.com</u>>
Subject: Proposed residential Development, Harras Moor [Filed 17 Jan 2018 16:13]

Afternoon Pieter,

I hope you are well.

Further to our recent correspondence in connection with the above proposed development we have prepared a technical note setting out the estimated trip generation and distribution to help agree the scope of the TA, and in particularly the extent of junction capacity assessments that will need to be undertaken.

To confirm recent correspondence, the proposed development will consist of a maximum of 450 dwellings with vehicular access/egress to the site proposed via Caldbeck Road and Harras Road.

We propose to prepare a Transport Assessment which will cover the following:

- 1. Review of the existing local highway network;
- 2. Review of related national and local policy;
- 3. Carry out accident analysis within the vicinity of the site using the Crashmap website (local highway authority to confirm);
- 4. Undertake a detailed assessment of the accessibility of the site by sustainable modes (i.e. on foot, by cycle and public transport);
- 5. Describe the development proposals and access arrangements;
- 6. Derive the proposed development's trip generation and distribution as per the attached technical note incorporating any comments you may have.
- 7. Determine the volume of traffic likely to be generated from committed developments in line with NPPG (i.e. that there is a reasonable degree of certainty that they will proceed within the next three years). I'd be grateful if you could confirm whether there are any committed developments that fulfil this criteria that we should include?
- 8. Apply future year traffic growth using TEMPRO growth factors for a future assessment year 5-years from the date of registration of the planning application, (assumed to be 2023);
- 9. Based on the results of the attached technical note, collect peak hour traffic data and undertake weekday AM and PM peak hour capacity assessments at the following junctions for the assessment year 2023.
  - i. Proposed new site access junction on Harras Road
  - ii. Harras Road / Red Lonning
  - iii. Red Lonning / Caldbeck Road

- iv. Red Lonning / Moresby Road
- v. Moreby Road / Cleator Moor Road / Main Street
- vi. Main Street / Thornton Road
- vii. A595 / B5295 Egremont Road / Homewood Road
- 10. Prepare a comprehensive TA on the above basis.
- 11. Prepare a Framework Travel Plan

I'd be grateful if you could confirm that the Scope set out above is sufficient to accompany the future planning application at your earliest convenience, particularly confirming the extent of traffic counts required as we would like to undertake these early February. Alternatively, I'd be grateful for any comments/clarifications you may have.

In the meantime, if you require any further information/clarification please do not hesitate to contact me.

I'll be sending the same technical note and Scope to Highways England.

Many Thanks

Mike

Mike Smith Associate

#### WYG

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# Appendix B – Illustrative Masterplan & Proposed Harras Moor Site Access drawing





- Indicative dwellings Indicative streets Indicative shared surface Open space Indicative back gardens Trees Atteuation areas
  - Local Equipped Area of Play

Harras Moor

# **Illustrative Layout**

# Dwg N°: A090070-410 004 Rev: A

Drawn:RK Checked:AC

Date: 27/04/18

Scale @ A2: 1:2500



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