APPENDIX L: TECHNICAL NOTE 28 (TRICS INITIAL TRIP RATES)

WEST MIDLANDS INTERCHANGE

Transport Technical Note 28 – Trip Rates for Phase 1 Assessment

Job Title	West Midlands Interchange	Project Number	70001979
Client	Four Ashes Limited		
TTN No.	28	Date of Issue	October 2017
Subject	Trip Rates for Phase 1 Assessment		
Author	Laura Bazley	Authorised	Neil Findlay / Ian Fielding
Distribution			

1 INTRODUCTION

1.1 The construction of WMI is anticipated to take up to 15 years to complete. Initially it is intended to construct a small volume of warehousing accessed either from the A5 or Vicarage Road or both prior to completion of the link road and rail terminal.

1.2 It is possible that these warehouses may initially operate differently without the intermodal terminal and therefore road based B8 trip rates should be agreed with both Highways England (HE) and Staffordshire County Council (SCC). This note sets out proposed trip rates and trip generation for the first phase of the development before the link road and rail terminal are open.

2 PHASE 1 TRIP RATES

2.1 The initial phase of WMI will consist of up to 185,000sqm (2 million sqft) of warehousing. This will be operational before the rail terminal and will therefore operate as standard commercial warehousing. There is unlikely to be any internal trips between the units at this stage therefore for these reasons, it is not felt that the specific DIRFT trip rates and data are appropriate for this assessment.

2.2 As a result the TRICs database has been consulted in order to find suitable trip rates. The TRICs database is a standard and nationally accepted methodology for obtaining trip rates for development purposes.

2.3 The Employment; Warehousing (commercial) category has been used and all regions, excluding Greater London, Ireland, Scotland and Wales, have been included. The warehousing on the WMI site is going to be large therefore all sites below 20,000sqm in the TRICs database have been excluded from the search in order to generate the most representable trip rates.

2.4 The search returned 3 sites and these have been used to generate the proposed trip rates. The TRICs output is included in Annex A and summarised in Table 1.

Table 1: Warehouse (Commercial) TRICs Trip Rates (Per 100sqm)

VEHICLE TYPE	AM PEAK			PM PEAK		
	IN	OUT	TWO WAY	IN	OUT	TWO WAY
Car / LGV	0.032	0.014	0.046	0.004	0.019	0.023
HGV	0.019	0.018	0.037	0.017	0.021	0.038

2.5 The resulting trip generation, assuming the maximum 185,000sqm, is set out in Table 2.

Table 2: Phase 1 Warehouse Trip Generation

VEHICLE TYPE	AM PEAK			PM PEAK		
	IN	OUT	TWO WAY	IN	OUT	TWO WAY
Car / LGV	59	26	85	7	35	43
HGV	35	33	68	31	39	70

2.6   It is intended to provide the trip generation presented in Table 2 to the VISSIM modellers in order to assess the impact of a proportion of development prior to the opening of the Link Road and rail terminal.

3   SUMMARY

3.1   This note has set out the proposed trip rates for the initial phase of development on the WMI site, prior to the opening of the Link Road or Rail terminal.

ANNEX A – TRICS OUTPUT

Calculation Reference: AUDIT-100301-171004-1052

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use   : 02 - EMPLOYMENT
Category   : F - WAREHOUSING (COMMERCIAL)
VEHICLES

Selected regions and areas:
04   EAST ANGLIA
      SF   SUFFOLK   1 days
05   EAST MIDLANDS
      LN   LINCOLNSHIRE   1 days
09   NORTH
      TW   TYNE & WEAR   1 days

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

Secondary Filtering selection:

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

Parameter: Gross floor area
Actual Range: 22270 to 31000 (units: sqm)
Range Selected by User: 20000 to 80066 (units: sqm)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/09 to 13/11/15

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:
Monday   1 days
Thursday   1 days
Friday   1 days

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

Selected survey types:
Manual count   3 days
Directional ATC Count   0 days

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

Selected Locations:
Suburban Area (PPS6 Out of Centre)   1
Edge of Town   2

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

Selected Location Sub Categories:
Industrial Zone   2
No Sub Category   1

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

Secondary Filtering selection:

Use Class:
  B8   3 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:
1,001 to 5,000   2 days
10,001 to 15,000   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
25,001 to 50,000   1 days
250,001 to 500,000   1 days

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

Car ownership within 5 miles:
0.6 to 1.0   1 days
1.1 to 1.5   2 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:
No   3 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   3 days

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

LIST OF SITES relevant to selection parameters

    1   LN-02-F-01   BOOK SERVICE   LINCOLNSHIRE

        TRENT ROAD

        GRANTHAM
        Edge of Town
        No Sub Category
        Total Gross floor area: 32300 sqm
           Survey date: MONDAY   29/11/10   Survey Type: MANUAL

    2   SF-02-F-02   WAREHOUSING   SUFFOLK

        WALTON ROAD

        FELIXSTOWE
        Suburban Area (PPS6 Out of Centre)
        Industrial Zone
        Total Gross floor area: 22270 sqm
           Survey date: THURSDAY   11/07/13   Survey Type: MANUAL

    3   TW-02-F-01   ASDA DISTRIBUTION CENTRE   TYNE & WEAR
        MANDARIN WAY
        PATTISON IND. ESTATE
        WASHINGTON
        Edge of Town
        Industrial Zone
        Total Gross floor area: 31000 sqm
           Survey date: FRIDAY   13/11/15   Survey Type: MANUAL

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

TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)
VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	1	22270	0.018	1	22270	0.040	1	22270	0.058
06:00 - 07:00	1	22270	0.058	1	22270	0.063	1	22270	0.121
07:00 - 08:00	3	27985	0.044	3	27985	0.014	3	27985	0.058
08:00 - 09:00	3	27985	0.051	3	27985	0.032	3	27985	0.083
09:00 - 10:00	3	27985	0.040	3	27985	0.027	3	27985	0.067
10:00 - 11:00	3	27985	0.037	3	27985	0.033	3	27985	0.070
11:00 - 12:00	3	27985	0.023	3	27985	0.025	3	27985	0.048
12:00 - 13:00	3	27985	0.030	3	27985	0.027	3	27985	0.057
13:00 - 14:00	3	27985	0.067	3	27985	0.027	3	27985	0.094
14:00 - 15:00	3	27985	0.023	3	27985	0.048	3	27985	0.071
15:00 - 16:00	3	27985	0.033	3	27985	0.036	3	27985	0.069
16:00 - 17:00	3	27985	0.018	3	27985	0.044	3	27985	0.062
17:00 - 18:00	3	27985	0.021	3	27985	0.040	3	27985	0.061
18:00 - 19:00	3	27985	0.017	3	27985	0.024	3	27985	0.041
19:00 - 20:00	1	22270	0.036	1	22270	0.031	1	22270	0.067
20:00 - 21:00	1	22270	0.013	1	22270	0.031	1	22270	0.044
21:00 - 22:00	1	22270	0.031	1	22270	0.018	1	22270	0.049
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.560			0.560			1.120

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

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

Parameter summary

Trip rate parameter range selected:	22270 - 31000 (units: sqm)
Survey date date range:	01/01/09 - 13/11/15
Number of weekdays (Monday-Friday):	3
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
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.

WSP Development and Transportation Ltd   Basing View   Basingstoke   Licence No: 100301

TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)
OGVS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	1	22270	0.013	1	22270	0.040	1	22270	0.053
06:00 - 07:00	1	22270	0.027	1	22270	0.063	1	22270	0.090
07:00 - 08:00	3	27985	0.020	3	27985	0.012	3	27985	0.032
08:00 - 09:00	3	27985	0.019	3	27985	0.018	3	27985	0.037
09:00 - 10:00	3	27985	0.026	3	27985	0.023	3	27985	0.049
10:00 - 11:00	3	27985	0.029	3	27985	0.026	3	27985	0.055
11:00 - 12:00	3	27985	0.011	3	27985	0.007	3	27985	0.018
12:00 - 13:00	3	27985	0.015	3	27985	0.017	3	27985	0.032
13:00 - 14:00	3	27985	0.024	3	27985	0.019	3	27985	0.043
14:00 - 15:00	3	27985	0.011	3	27985	0.012	3	27985	0.023
15:00 - 16:00	3	27985	0.025	3	27985	0.015	3	27985	0.040
16:00 - 17:00	3	27985	0.014	3	27985	0.017	3	27985	0.031
17:00 - 18:00	3	27985	0.017	3	27985	0.021	3	27985	0.038
18:00 - 19:00	3	27985	0.010	3	27985	0.010	3	27985	0.020
19:00 - 20:00	1	22270	0.018	1	22270	0.022	1	22270	0.040
20:00 - 21:00	1	22270	0.013	1	22270	0.027	1	22270	0.040
21:00 - 22:00	1	22270	0.027	1	22270	0.004	1	22270	0.031
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.319			0.353			0.672

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

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

Parameter summary

Trip rate parameter range selected:	22270 - 31000 (units: sqm)
Survey date date range:	01/01/09 - 13/11/15
Number of weekdays (Monday-Friday):	3
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
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.

TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)
PSVS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	1	22270	0.000	1	22270	0.000	1	22270	0.000
06:00 - 07:00	1	22270	0.000	1	22270	0.000	1	22270	0.000
07:00 - 08:00	3	27985	0.000	3	27985	0.000	3	27985	0.000
08:00 - 09:00	3	27985	0.000	3	27985	0.000	3	27985	0.000
09:00 - 10:00	3	27985	0.000	3	27985	0.000	3	27985	0.000
10:00 - 11:00	3	27985	0.000	3	27985	0.000	3	27985	0.000
11:00 - 12:00	3	27985	0.000	3	27985	0.000	3	27985	0.000
12:00 - 13:00	3	27985	0.000	3	27985	0.000	3	27985	0.000
13:00 - 14:00	3	27985	0.000	3	27985	0.000	3	27985	0.000
14:00 - 15:00	3	27985	0.000	3	27985	0.000	3	27985	0.000
15:00 - 16:00	3	27985	0.000	3	27985	0.000	3	27985	0.000
16:00 - 17:00	3	27985	0.000	3	27985	0.000	3	27985	0.000
17:00 - 18:00	3	27985	0.000	3	27985	0.000	3	27985	0.000
18:00 - 19:00	3	27985	0.000	3	27985	0.000	3	27985	0.000
19:00 - 20:00	1	22270	0.000	1	22270	0.000	1	22270	0.000
20:00 - 21:00	1	22270	0.000	1	22270	0.000	1	22270	0.000
21:00 - 22:00	1	22270	0.000	1	22270	0.000	1	22270	0.000
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.000			0.000			0.000

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

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

Parameter summary

Trip rate parameter range selected: 22270 - 31000 (units: sqm)
Survey date date range: 01/01/09 - 13/11/15
Number of weekdays (Monday-Friday):   3
Number of Saturdays: 0
Number of Sundays: 0
Surveys automatically removed from selection: 0
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.