

Land East of Maghull

Land East of Maghull Development Site
Forecasting Report

October 2015



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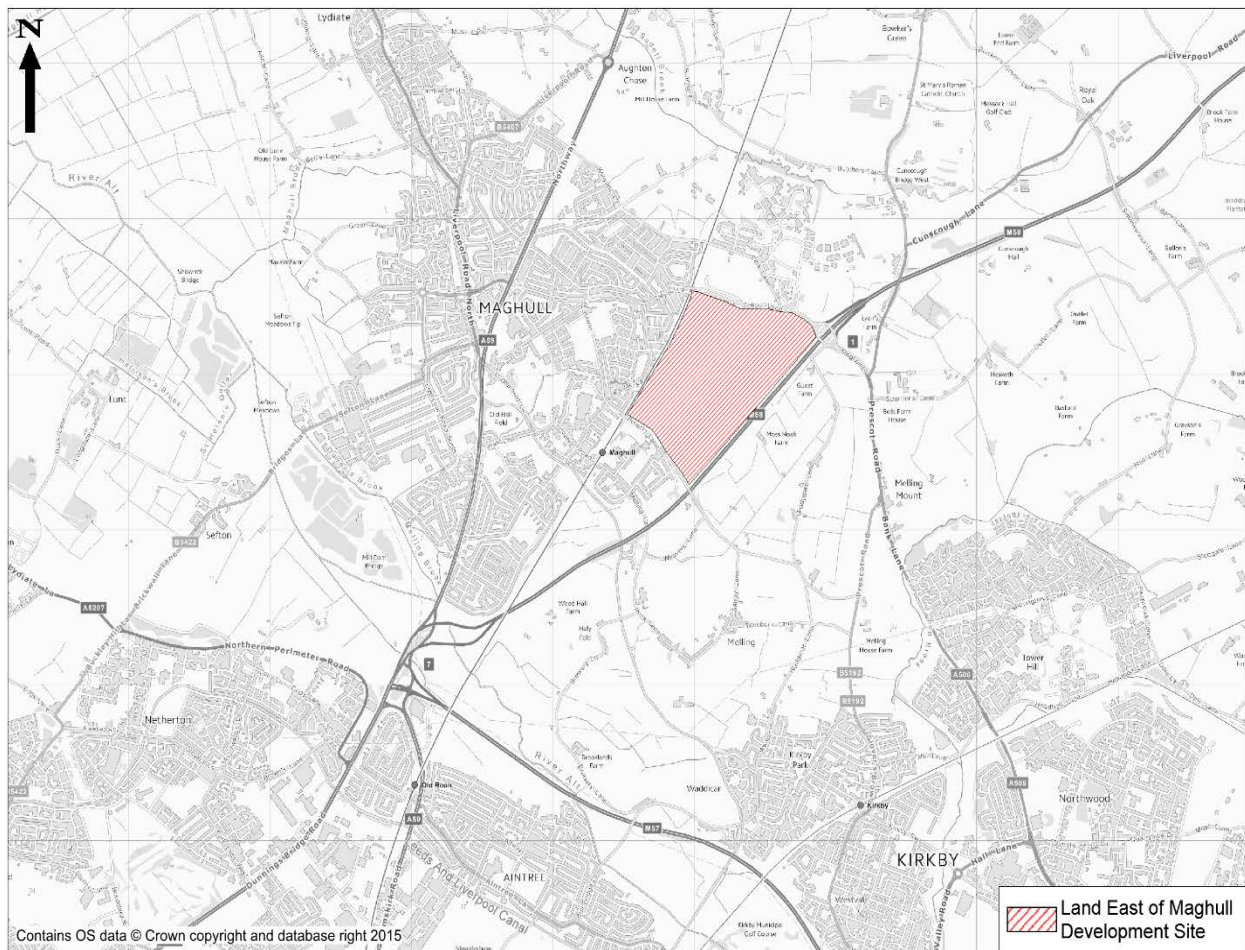
1. Introduction

Sefton Council (SC) has commissioned Atkins to use the recently completed M58 Junction 1 West Facing Slips SATURN traffic model to analyse the transport impacts of a new housing and business park development on land to the east of the Maghull borough of Sefton, Merseyside. Details of this model are reported in the M58 Junction 1 West Facing Slips Local Model Validation report.

This report documents the impact of, and assumptions made in developing forecast scenarios for the development site on land to the east of Maghull.

The development site is located to the east of the Maghull area of Sefton and is bounded on its northern side by School Lane which has two proposed access points, on the southern side by Poverty Lane which also has two proposed access points, to the east by the M58 Motorway and to the west by the railway line that connects Preston / Ormskirk to the north and Liverpool to the south. Figure 1-1 shows the location of the proposed development site.

Figure 1-1 Development Site Location



2. Methodology

SC requested that a number of different scenarios should be tested to ascertain the effects of the development site on the local road network at different forecast horizon years.

2.1. Development Scenarios

Three design horizon years have been modelled:

- 2019;
- 2024; and,
- 2034

Each scenario has differing levels of development and associated infrastructure. For each scenario, analysis has been undertaken with and without the proposed M58 Junction 1 west facing slip roads in-situ. Each scenario is described in turn below.

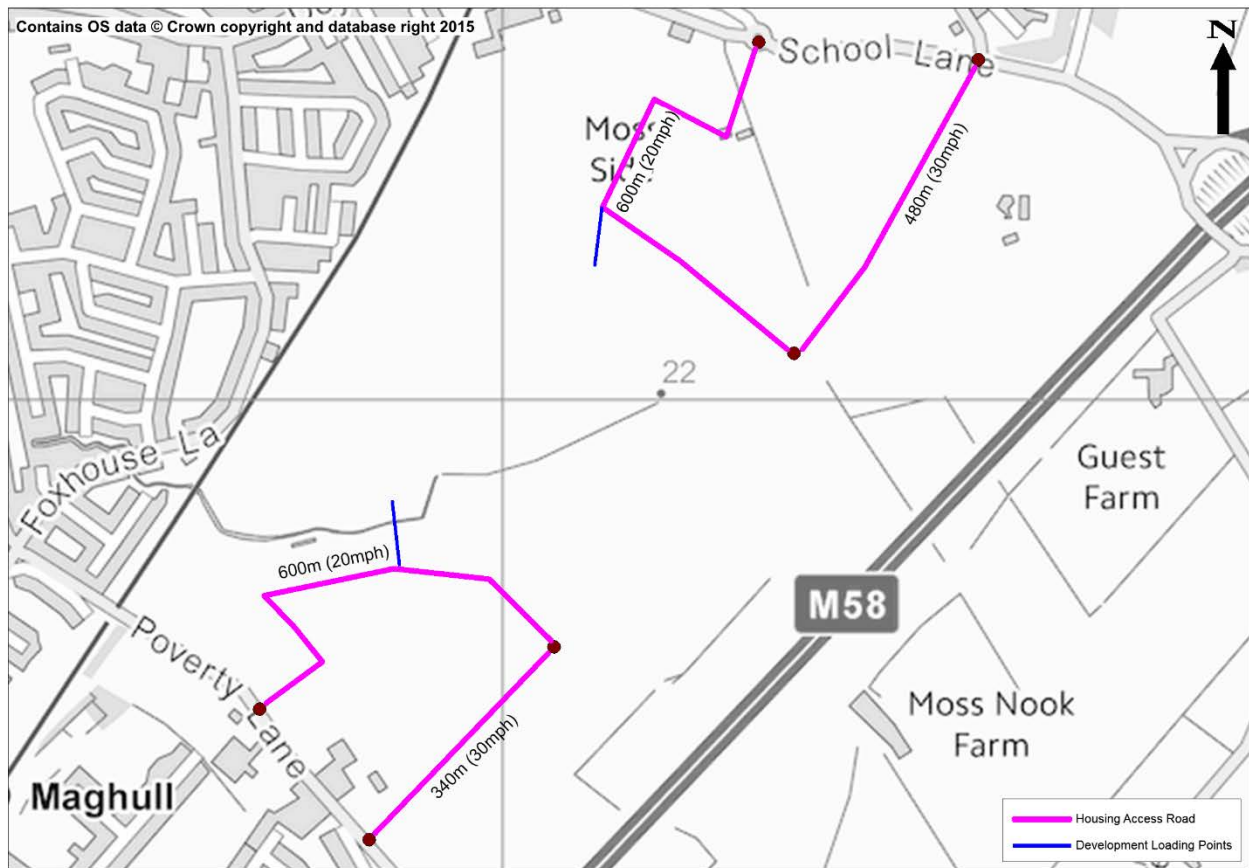
Opening Forecast Year 2019

For the opening year 2019, traffic is loaded via 2 zones at the mid-point of a 600m long residential link road between the proposed spine road and existing high way network at either side of the site. Figure 2-1 shows the site layout.

The quantum of residential development (as provided by SC) for the opening year scenario is 200 houses, with 100 houses loaded onto the northern residential access road and 100 houses loaded onto the southern residential access road.

There is no business park / employment land development included in the 2019 opening year scenario.

Figure 2-1 2019 Opening Year Site Layout.



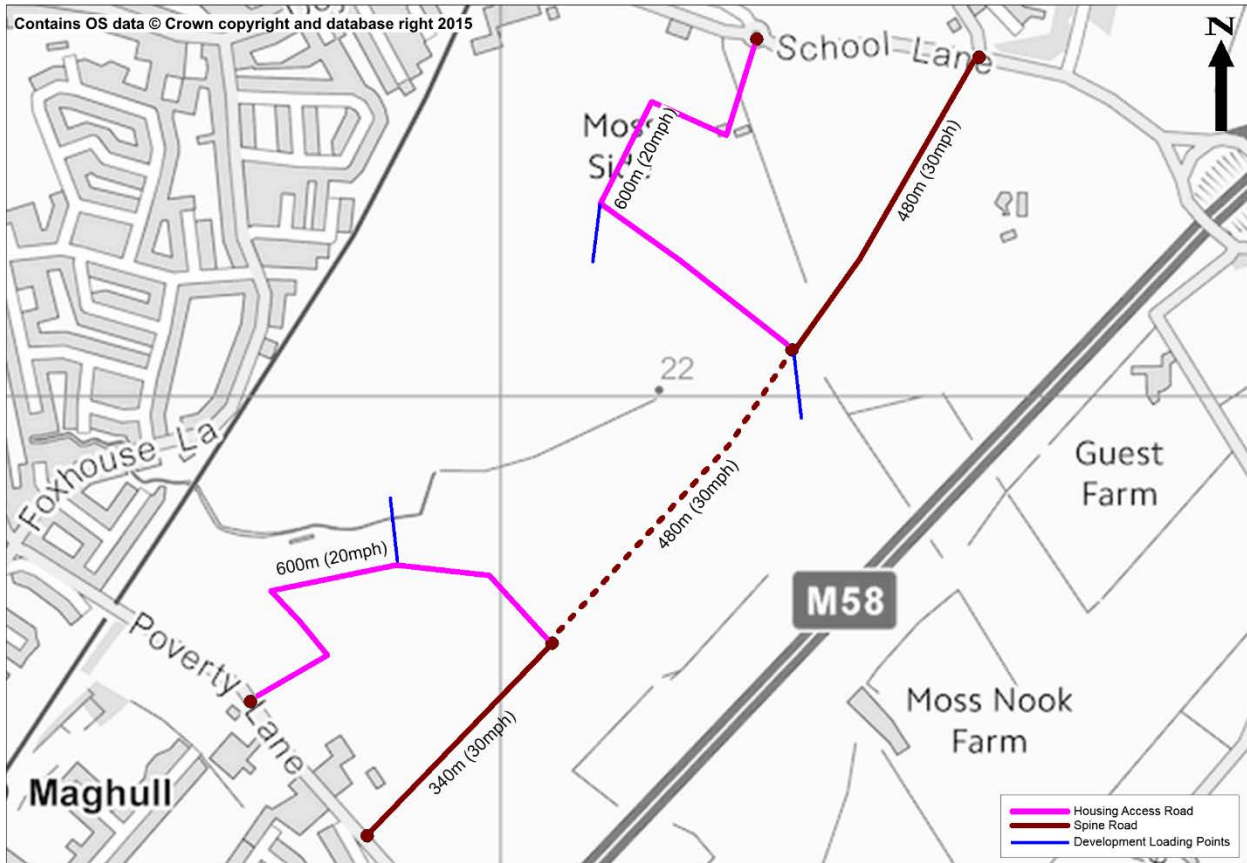
Interim Forecast Year 2024

For the 2024 interim scenario, residential development traffic is loaded via the same two access points onto the residential access road as the 2019 opening year scenario, with 370 houses at each access point.

Business Park / Employment Land is loaded onto the northern end of the spine road. This scenario has been tested with and without the spine road (brown dashed) connecting the north and south of the site.

Figure 2-2 shows the 2024 interim scenario site layout.

Figure 2-2 2024 Interim Year Site Layout.



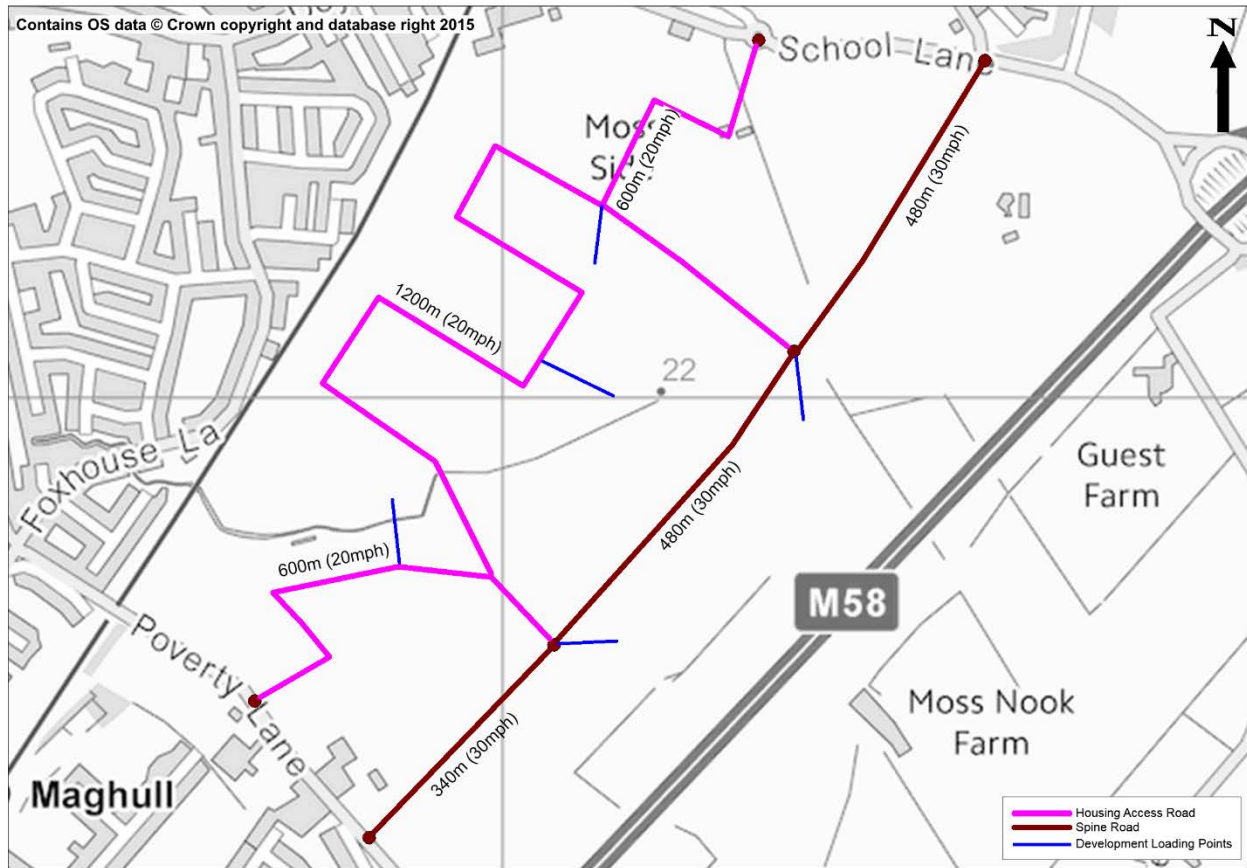
Design Forecast Year 2034

For the Design year, residential traffic is loaded via three zones with 467 homes in each, loading points to the north and south are the same as for 2019 and 2024 scenarios, the third zone is loaded onto the mid-point of an additional 1200m long residential link.

All of the Business Park / Employment land is assumed to be built out and is loaded via the spine road at the northern and southern ends of the spine road.

Figure 2-3 shows the 2034 design year site layout.

Figure 2-3 2034 Design Year Site Layout.



2.2. Forecast Year Development Trips.

After discussions with council officers and interrogation of the TEMPRO 6.2 data sets, it was agreed that no underlying growth would be added to the 2014 M58 Junction 1 SATURN model base matrices, as growth in the Sefton area of Merseyside is predicted to be neutral and possibly slightly negative for the forecast years developed for this analysis.

2.2.1. Background Local Plan and Proposed Development.

It was agreed that a number of local plan and proposed housing development sites in and around the Maghull area of Sefton would be included in the 2014 Base and Do-Minimum matrices. Following consultation with Knowsley Council, these include 2 housing developments in Knowsley in the sphere of influence. The locations of these sites are shown in Figure 2-4, the number of dwellings at each site are tabulated in Table 2-1.

Figure 2-4 Sefton Background Local Plan and Proposed Development Sites.

Table 2-1 Background Proposed Housing Developments. (Number of Dwellings)

Forecast Year	MN2.27 (Zone 369) Land at Turnbridge Road, Maghull (Dwellings)	MN2.28 (Zone 370) Land north of Kenyons Lane, Lydiate (Dwellings)	MN2.29 (Zone 371) Former Prison Site, Park Lane, Maghull (Dwellings)	MN2.30 (Zone 372) Land east of Waddicar Lane, Melling (Dwellings)	MN2.31 (Zone 373) Wadacre Farm, Chapel Lane, Melling (Dwellings)	MN2.32 (Zone 374) Land south of Spencers Lane, Melling (Dwellings)	MN2.33 (Zone 375) Land at Wango Lane, Aintree (Dwellings)	MN2.34 (Zone 376) Aintree Curve Site, Ridgewood Way, Netherton (Dwellings)	(Zone 377) Tower Hill, Kirkby Principal Regeneration Area (Dwellings)	(Zone 378) Bank Lane, Kirkby Sustainable Urban Extension (Dwellings)	Total
2019	40	60	90	60	60	18	25	90	108	125	676
2024	40	210	240	178	135	18	25	100	288	207	1441
2034	40	295	370	178	135	18	25	100	360	207	1728

2.2.1. Land East of Maghull Development Quantum

The number of dwellings for the Land East of Maghull residential development and the gross floor area for the Business Park / Employment land development are tabulated below in Table 2-2.

Table 2-2 Land East of Maghull Development Quantum

Forecast Year	Residential Development (Dwellings)	Business Park (B1) GFA m ²	Business Park (B2) GFA m ²	Business Park (B8) GFA m ²
2019	200	0	0	0
2024	740	12,500	12,500	12,500
2034	1400	25,000	25,000	25,000

2.2.2. Trip Rates

After discussion with Sefton council officers and to provide continuity with previous work undertaken for SC, it was agreed that the trip rates from the 'HCA' development site (which is just to the north of the Land East of Maghull) would be used for the residential element of the development. These trip rates are calculated using the TRICS data base and include the provision of a rail station within 1km of the development site, as requested by SC.

Business Park / Employment land trip rates were provided by CBO Transport Ltd, these rates were checked against the previously used HCA Business park development rates and were found to be very similar, it was therefore agreed that the trip rates provided by CBO Transport Ltd would be used in this assessment. Appendix A of this report details the Housing and Business Park / Employment Land TRICS assessments.

The trip rates used in the assessment are tabulated below.

Table 2-3 Development Trip Rates

Land Use	Average Trip Rates (per Dwelling / 100 sqm)					
	Morning (0800-0900)			Evening (1700-1800)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Housing within 1K of Rail Station	0.165	0.369	0.534	0.352	0.231	0.583
B1 (Employment/A - Office)	1.597	0.261	1.858	0.203	1.262	1.465
B2 (Employment/B - Industrial)	0.450	0.213	0.663	0.107	0.391	0.498
B8 (Employment/F - Warehousing)	0.200	0.094	0.294	0.076	0.157	0.233

2.2.3. Trip Generation

Based on the trip rates and the quantum of development described above, a trip generation for each scenario has been calculated. The trip generation for the proposed background developments are tabulated in Tables 2-4 to 2-6 for the 2019, 2024 and 2034 forecast years respectively, the Land East of Maghull trip generation is tabulated in Table 2-7.

Table 2-4 2019 Background Trip Generation.

Site Reference	Background Housing Development					
	Morning (0800-0900)			Evening (1700-1800)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
MN2.27 (Model Zone 369)	7	15	21	14	9	23
MN2.28 (Model Zone 370)	10	22	32	21	14	35
MN2.29 (Model Zone 371)	15	33	48	32	21	52
MN2.30 (Model Zone 372)	10	22	32	21	14	35
MN2.31 (Model Zone 373)	10	22	32	21	14	35
MN2.32 (Model Zone 374)	3	7	10	6	4	10
MN2.33 (Model Zone 375)	4	9	13	9	6	15
MN2.34 (Model Zone 376)	15	33	48	32	21	52
Kirkby (Model Zone 377)	18	40	58	38	25	63
Kirkby (Model Zone 378)	21	46	67	44	29	73
Total	112	249	361	238	156	394

Table 2-5 2024 Background Trip Generation.

Site Reference	Background Housing Development					
	Morning (0800-0900)			Evening (1700-1800)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
MN2.27 (Model Zone 369)	7	15	21	14	9	23
MN2.28 (Model Zone 370)	35	77	112	74	49	122
MN2.29 (Model Zone 371)	40	89	128	84	55	140
MN2.30 (Model Zone 372)	29	66	95	63	41	104
MN2.31 (Model Zone 373)	22	50	72	48	31	79
MN2.32 (Model Zone 374)	3	7	10	6	4	10
MN2.33 (Model Zone 375)	4	9	13	9	6	15
MN2.34 (Model Zone 376)	17	37	53	35	23	58
Kirkby (Model Zone 377)	48	106	154	101	67	168
Kirkby (Model Zone 378)	34	76	111	73	48	121
Total	238	532	769	507	333	840

Table 2-6 2034 Background Trip Generation.

Site Reference	Background Housing Development					
	Morning (0800-0900)			Evening (1700-1800)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
MN2.27 (Model Zone 369)	7	15	21	14	9	23
MN2.28 (Model Zone 370)	49	109	158	104	68	172
MN2.29 (Model Zone 371)	61	137	198	130	85	216
MN2.30 (Model Zone 372)	29	66	95	63	41	104
MN2.31 (Model Zone 373)	22	50	72	48	31	79
MN2.32 (Model Zone 374)	3	7	10	6	4	10
MN2.33 (Model Zone 375)	4	9	13	9	6	15
MN2.34 (Model Zone 376)	17	37	53	35	23	58
Kirkby (Model Zone 377)	59	133	192	127	83	210
Kirkby (Model Zone 378)	34	76	111	73	48	121
Total	285	638	923	608	399	1007

Table 2-7 2034 Land East of Maghull Trip Generation.

Forecast Year	Development Type	Land East of Maghull Development					
		Morning (0800-0900)			Evening (1700-1800)		
		Arrivals	Departures	Total	Arrivals	Departures	Total
2019	Housing within 1K of Rail Station	33	74	107	70	46	117
	B1 (Employment/A - Office)	0	0	0	0	0	0
	B2 (Employment/B - Industrial)	0	0	0	0	0	0
	B8 (Employment/F - Warehousing)	0	0	0	0	0	0
	Total	33	74	107	70	46	117
2024	Housing within 1K of Rail Station	122	274	396	260	170	430
	B1 (Employment/A - Office)	200	33	232	25	158	183
	B2 (Employment/B - Industrial)	56	27	83	13	49	62
	B8 (Employment/F - Warehousing)	25	12	37	10	20	29
	Total	403	346	748	308	397	704
2034	Housing within 1K of Rail Station	229	511	740	488	320	808
	B1 (Employment/A - Office)	399	65	465	51	316	366
	B2 (Employment/B - Industrial)	113	53	166	27	98	125
	B8 (Employment/F - Warehousing)	50	24	74	19	39	58
	Total	791	653	1,445	585	773	1,357

2.2.4. Trip Distribution

Trip distributions for the background developments and the Land East of Maghull development site have been taken from suitable adjacent donor zones. The background development sites have used various local residential zones, for the Land East of Maghull, the residential areas to the north and west of the development site have been used for the housing element of the development. Aintree Industrial estate has been used as the donor zone for the Business Park / Employment elements of the development.

Figures 2-5 to 2-8 show the distribution patterns for the AM peak departures and PM peak arrivals for the northern and southern housing development accesses.

Figures 2-9 to 2-12 show the AM arrivals and PM departure trip distributions for the Business Park / Employment development.

Figure 2-5 AM Peak Northern Access Housing Departures.

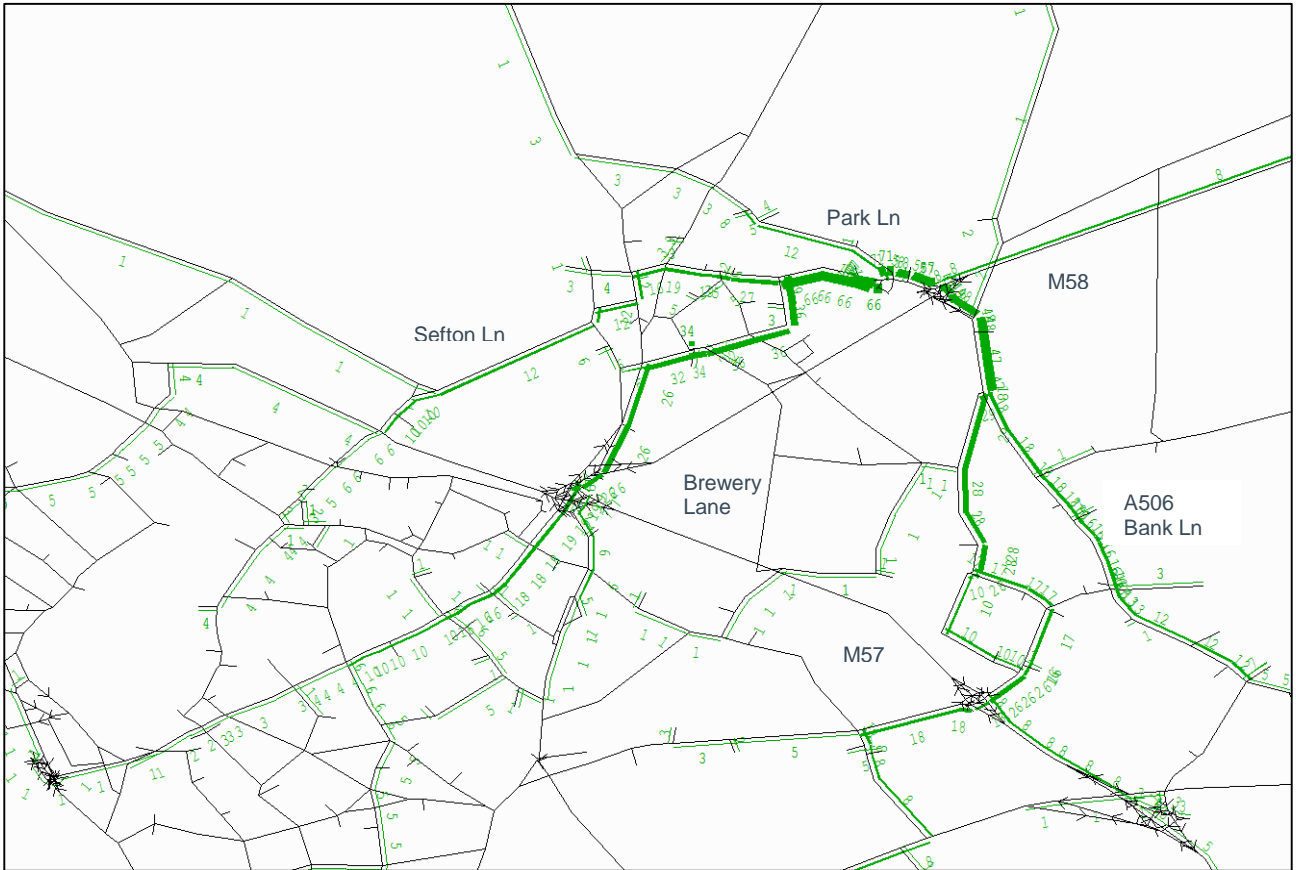


Figure 2-6 AM Peak Southern Access Housing Departures.

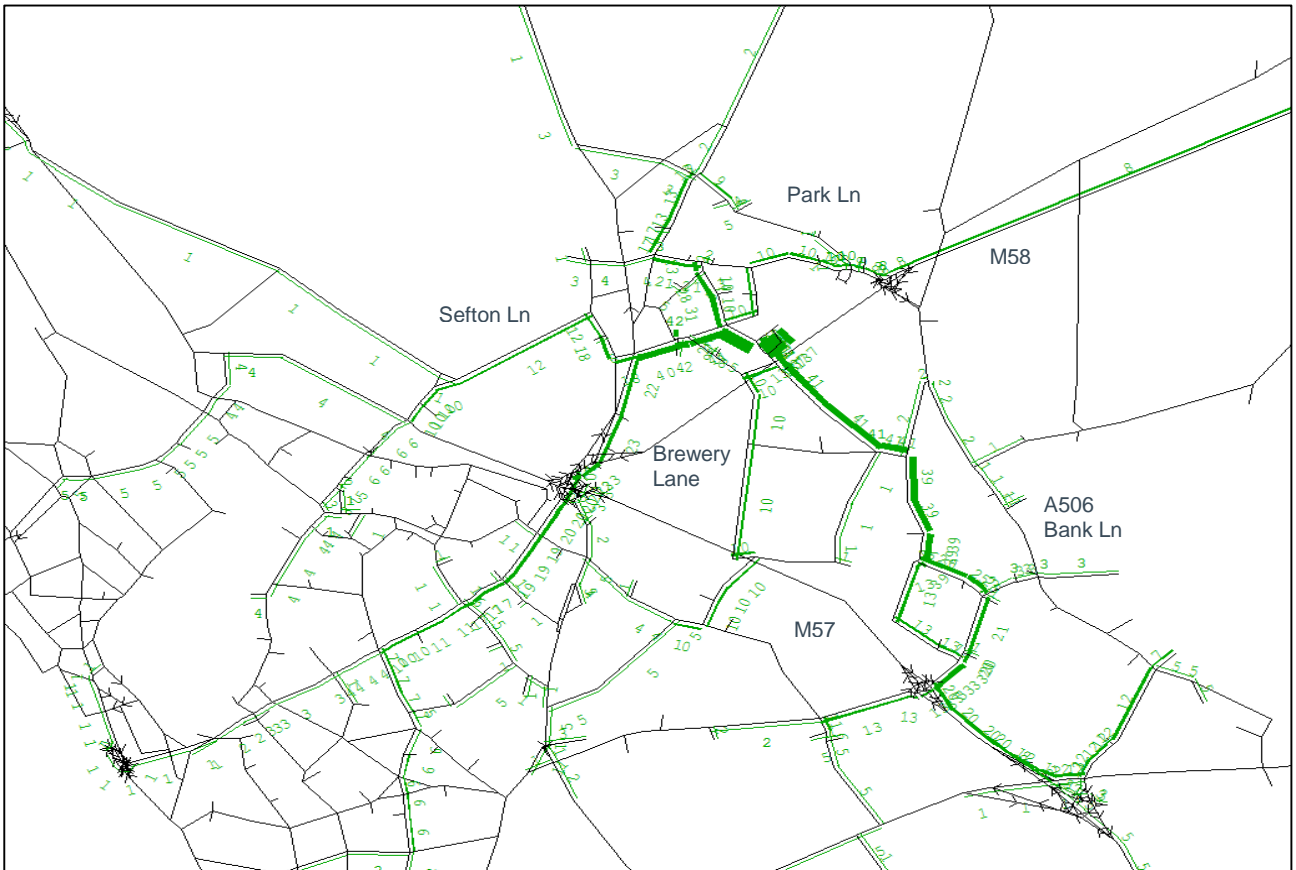


Figure 2-7 PM Peak Northern Access Housing Arrivals.

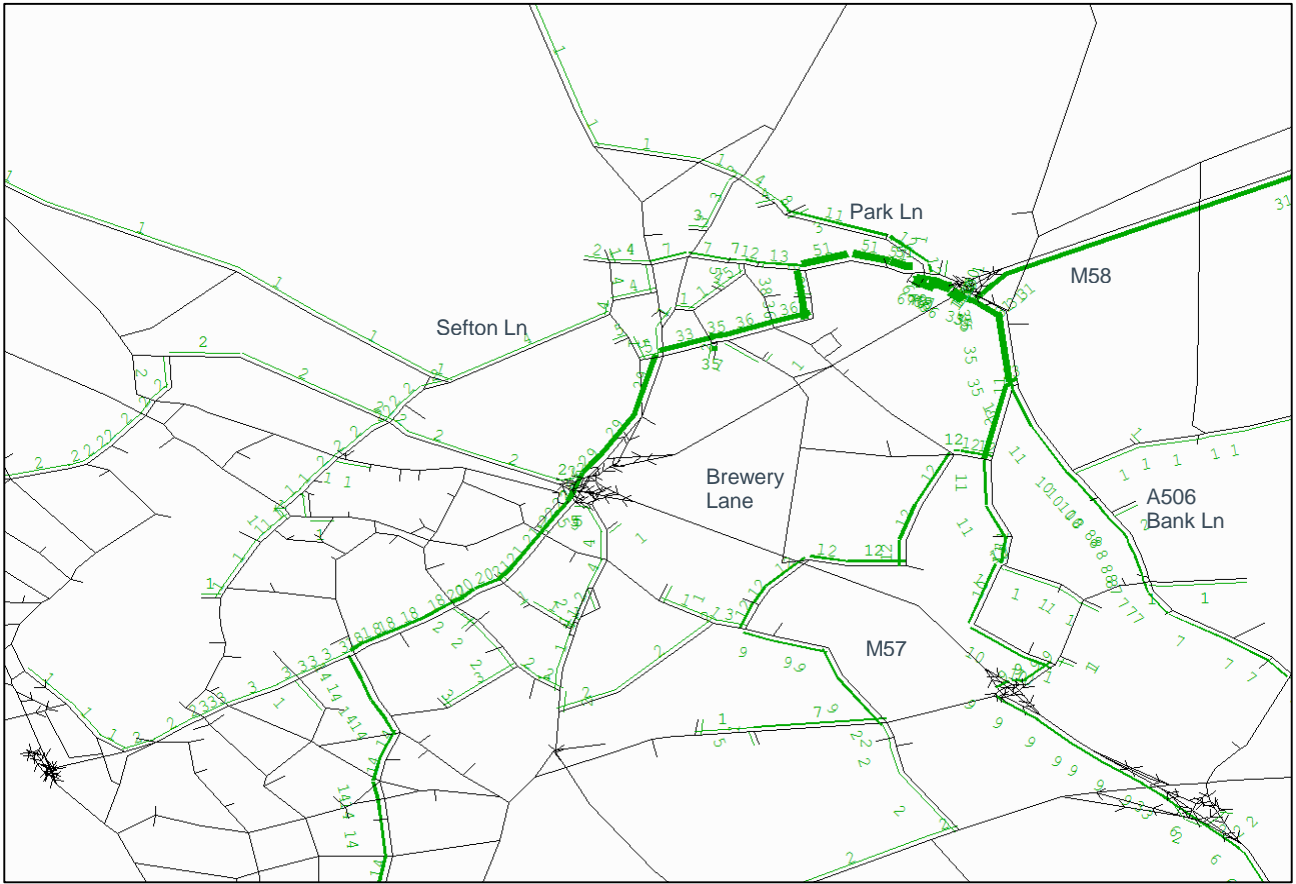


Figure 2-8 PM Peak Southern Access Housing Arrivals.

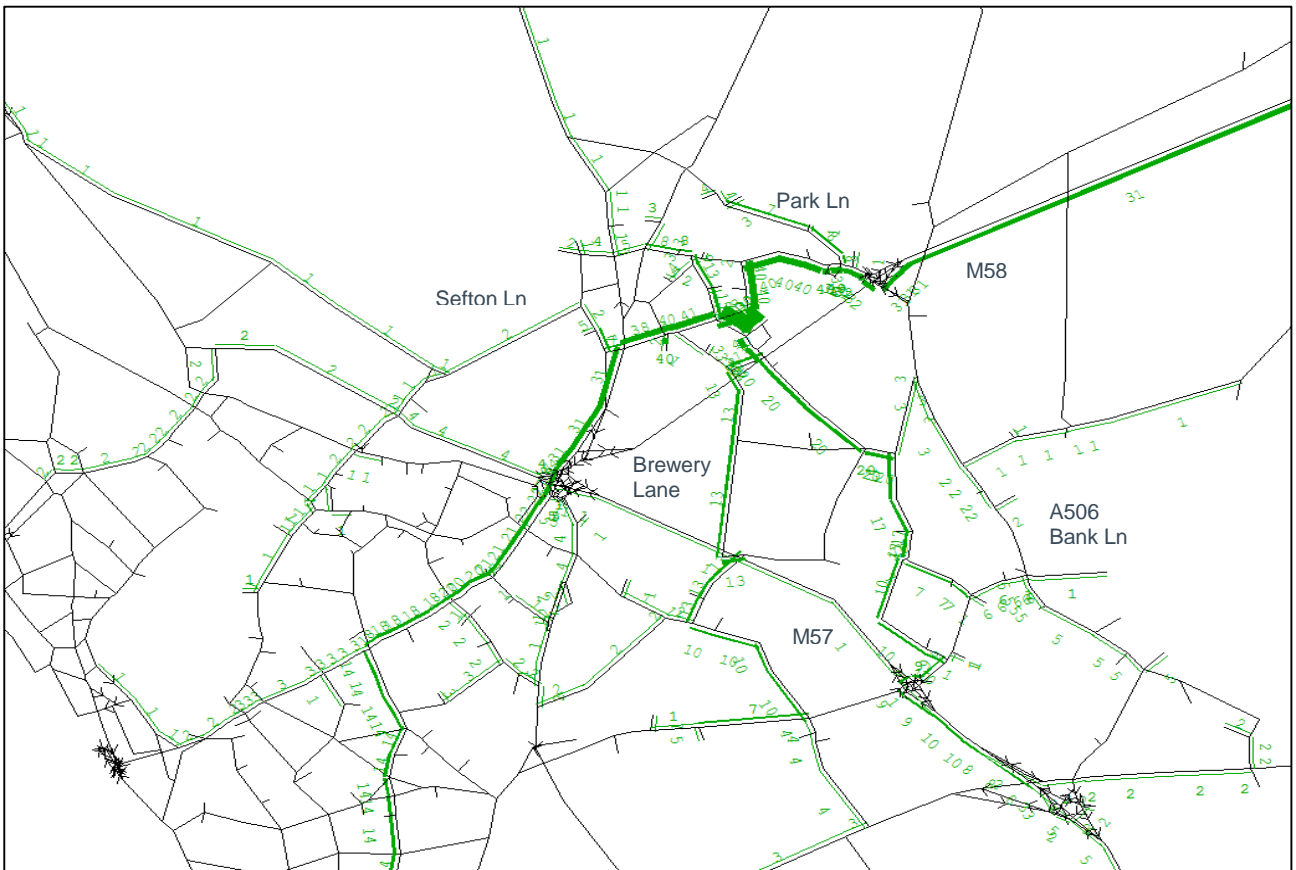


Figure 2-9 AM Peak Northern Access Business Park Arrivals (including spine road)

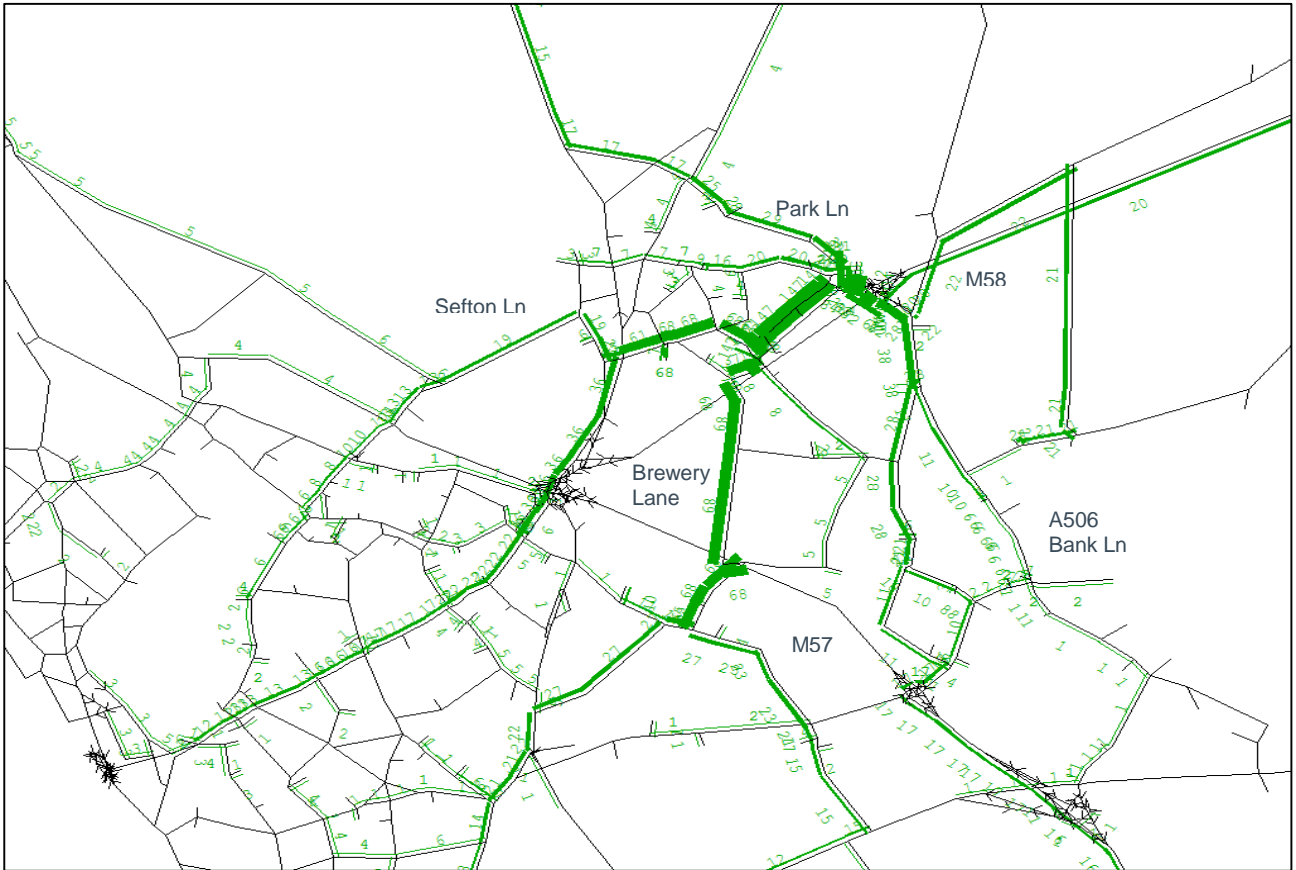


Figure 2-10 AM Peak Southern Access Business Park Arrivals (including spine road)

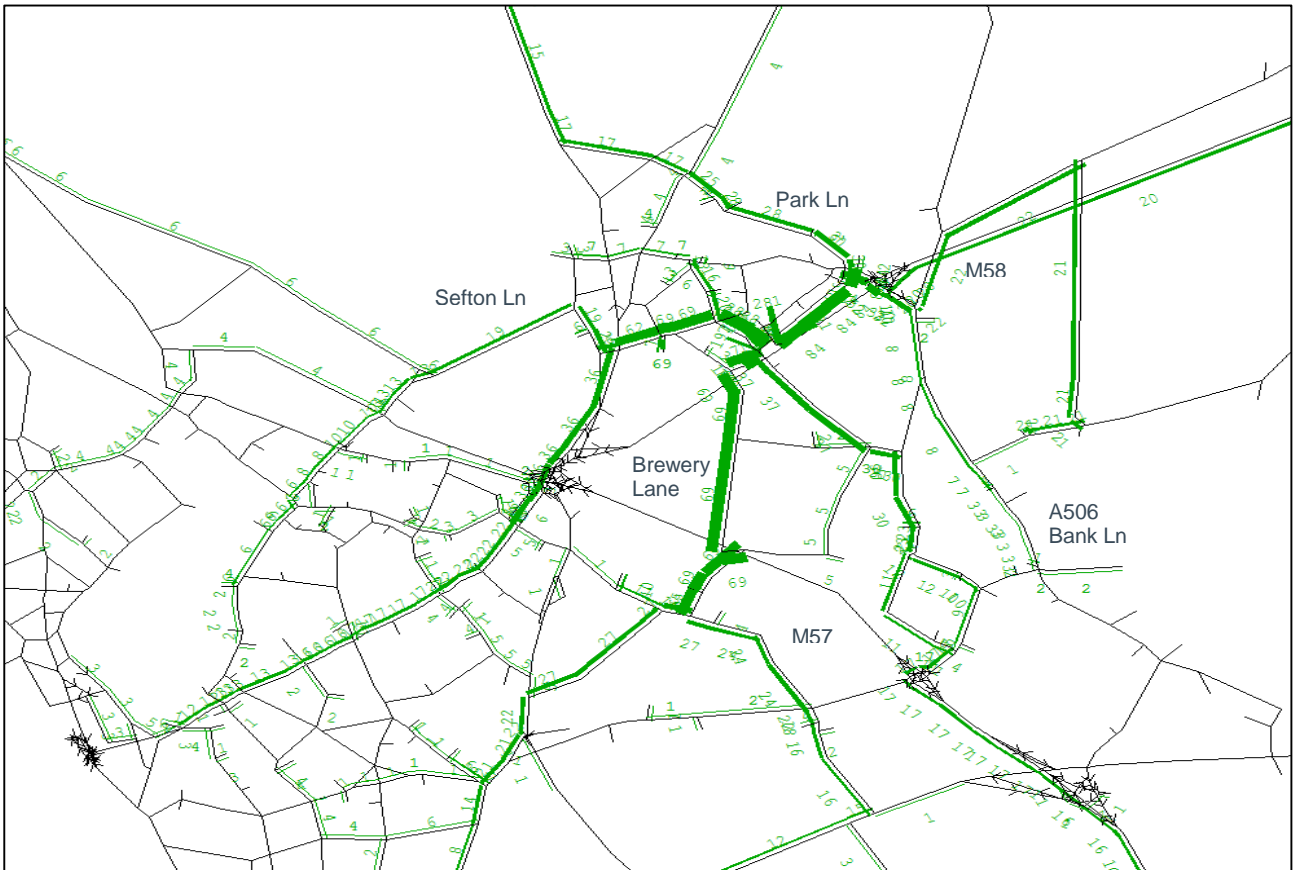


Figure 2-11 PM Peak Northern Access Business Park Departures (including spine road)

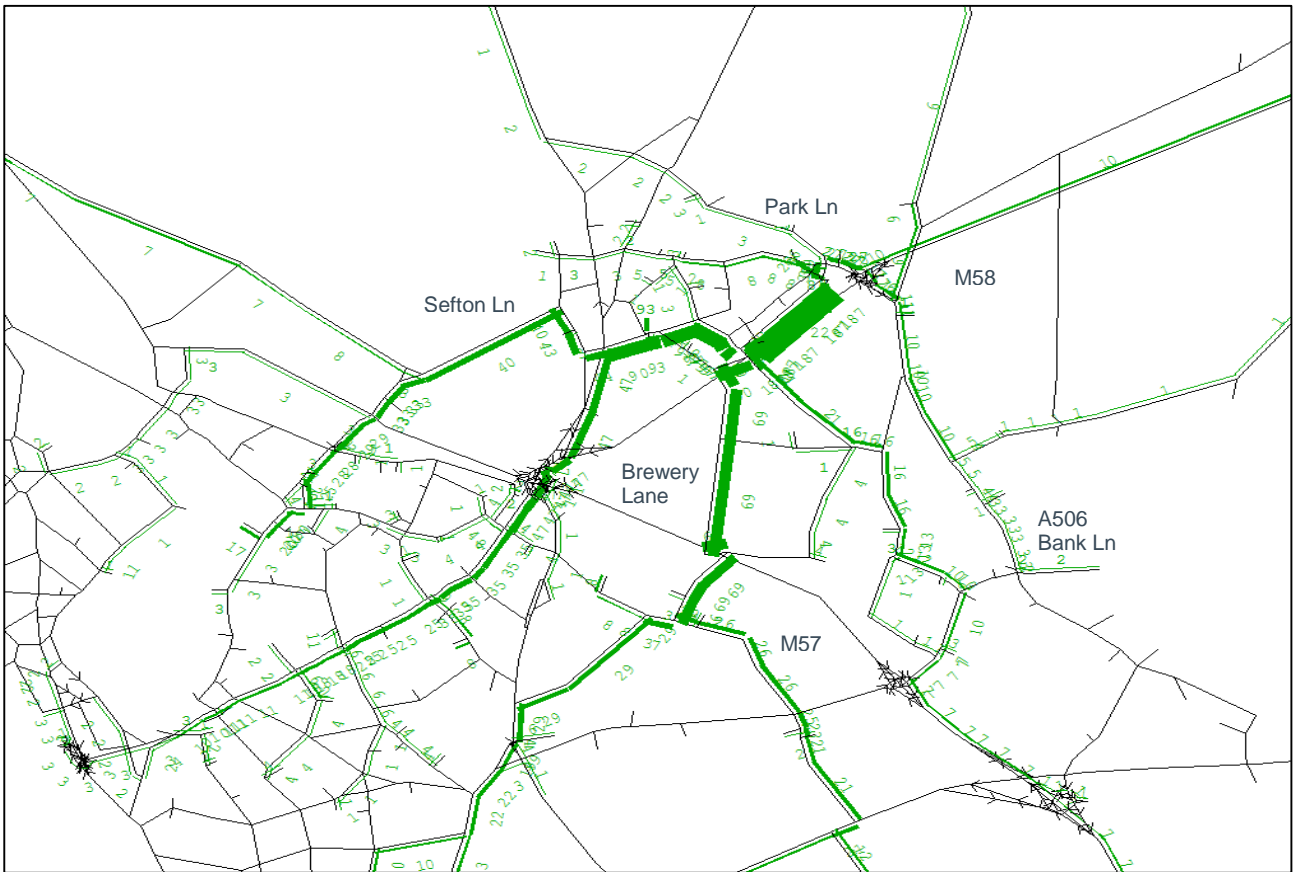
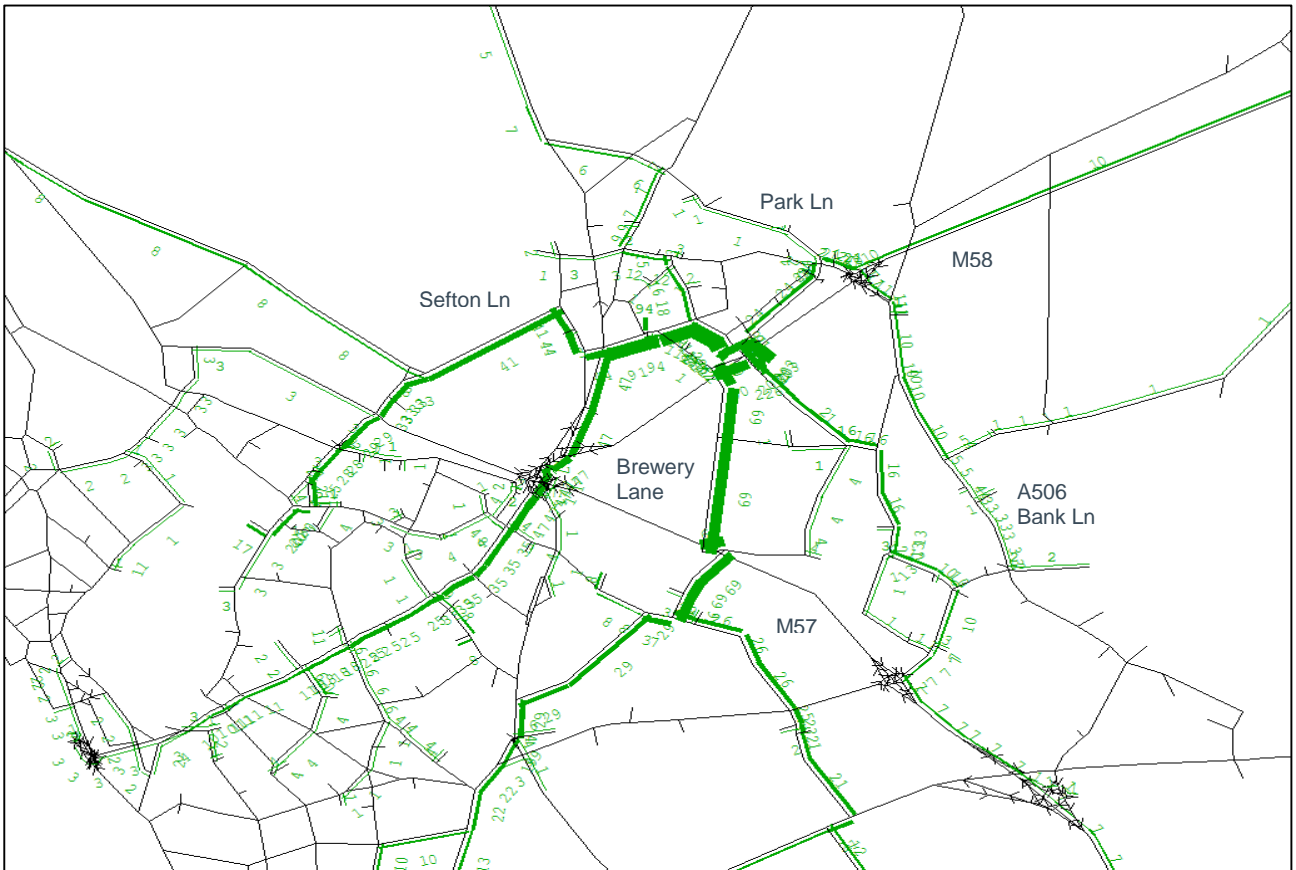


Figure 2-12 PM Peak Southern Access Business Park Departures (including spine road)



3. Forecast Analysis

The following sections of the report detail the effects of each of the development scenarios on the local road network in and around the Sefton area.

3.1. Model Assignments

Model assignments have been run for the AM and PM peak periods for the forecast years, which are:

- Opening year 2019;
- Intermediate year 2024; and,
- Horizon year 2034.

3.2. Network Analysis

3.2.1. Flow Difference

The difference in flows have been assessed against both a Base scenario which does not include Thornton Link Road and a Do-Minimum scenario which does include Thornton Link Road. The Do-Minimum forecast scenarios include the proposed developments at Tower Hill and Bank Lane in Kirkby, and the HCA development of the former prison site on Park Lane. The Base scenarios include all of the local plan and proposed development sites described earlier in this report.

3.2.1.1. Do-Something – Do-Minimum Scenario Flow Difference

Analysis has been undertaken to compare the change in flows between the Do-Minimum assignments and each of the development scenarios. This analysis has been undertaken using SATURN difference plots for the AM and PM peak periods.

The difference plots are reproduced in an addendum provided separately to this report.

Analysis comparing the Do-Something scenarios with the Do-Minimum scenario shows that the AM and PM peaks exhibit similar traffic patterns of flow difference, which in the main are:

- Without M58 junction1 slip roads, as well as an increase in traffic flows in the immediate area of the site, an increase in traffic is also predicted on Spencers Lane, Waddicar Lane and onto the A506 Prescott Road. Traffic levels are also predicted to increase on Sefton Lane;
- With the M58 slip roads in-situ there is a reduction in the increase of traffic flows on Spencers Lane, Waddicar Lane and the A506 Prescott Road when compared to the without slip roads scenario, the increase in traffic is also predicted to be reduced along Deyes Lane and School Lane, as more traffic uses the M58 with the introduction of the slip roads at junction 1;
- With the inclusion of the spine road, both with and without the M58 junction 1 slip roads, traffic increases on Brewery Lane and Weavers Lane to the south of the site and traffic increases are reduced on School Lane to the north of the site during the AM peak. Traffic levels increase through Kirkby as traffic from the north of the site uses this route instead of travelling south across the site using the spine road and onto Weavers Lane / Brewery Lane where traffic flows increase. Traffic decreases on Prescott Lane are predicted during the PM peak;

3.2.1.2. Do-Something – Base Scenario Flow Difference

Analysis has been undertaken to compare the change in flows between the Base year assignments and each of the development scenarios. This analysis has been undertaken using SATURN difference plots for the AM and PM peak periods.

The difference plots are reproduced in an addendum provided separately to this report.

Analysis comparing the Do-Something scenarios shows that the AM and PM peaks exhibit similar traffic patterns of flow difference, which in the main are:

- With M58 J1 slips in-situ. Traffic is reduced on Waddicar Lane, through Kirkby and A506 Valley Rd, there is also traffic reductions on Foxhouse Lane and the A59. Traffic increases on the M58 and M57 motorways, there is also a switch of traffic off School Lane and onto Park Lane;

- With the inclusion of M58 J1 slip roads and the Spine Road connecting the north and south of the development site there is a reduction in traffic on A506 Prescott Rd and the M57 and M58. Traffic flows increase on Brewery Lane; and,
- Without M58 J1 slips with the spine road in place, similar traffic patterns are observed as above. Indicating that the spine road has little effect on traffic patterns whether the M58 Junction 1 slip roads are in-situ or not.

It should be noted that for the comparison of Base to Do-Something scenarios, Thornton link will provide the majority of the traffic pattern changes on the non-local traffic away from the vicinity of the development site.

3.2.2. Junction Stress

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

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

Colour coded thematically mapped plots have been used to indicate the Do-Minimum compared to the Do-Something scenarios at each junction, these colour codes are listed below:

As with the flow difference plots it should be noted that changes in operation of junctions will be linked to the introduction of Thornton Link for junctions away from the vicinity of the development site and close to the Switch Island gyratory.

Volume to Capacity Ratio

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

Delay.

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

The junction stress plots are replicated in an addendum provided separately to this report.

The stress plots for all three scenarios, opening year 2019, intermediate year 2024 and horizon year 2034 indicate that in general there are no junctions that show an increase in stress for either V/C or Delay, with the one exception being slight increases in V/C for the PM Peak 2034 at Damfield Lane / Hall Street junction and the Station Road / Hall Street junction and on A506 County Road in the vicinity of the Tower Hill and Bank Lane developments in Kirkby.

4. Summary

The assessment of the three development scenarios for the housing and Business Park on Land to the East of Maghull has been undertaken for the opening, intermediate and horizon forecast years of 2019, 2024 and 2034 respectively. Each scenario has been tested with and without the proposed M58 Junction 1 west facing slip roads in-situ.

A number of proposed and local plan residential development sites across the borough in the vicinity of the Land East of Maghull development site have been incorporated into the M58 Junction 1 SATURN traffic model, which forms the basis of this assessment. These developments form the background growth for the analysis, as TEMPRO data predicts no traffic growth for the forecast years across most of the Merseyside region.

Agreed 'build-out' rates for each of the Land East of Maghull development scenarios have been modelled.

Agreed infrastructure servicing the development site has been coded into the SATURN model for each scenario.

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

The impacts of the proposed development on the existing local Sefton road infrastructure has been assessed by comparing the current day levels of traffic delay and congestion, including local plan and proposed housing developments and road schemes against the 2019, 2024 and 2034 AM and PM peak scenarios with the Land East of Maghull development in place.

The traffic model results indicate that there will be very little increase in junction stress when V/C and Delay are analysed for any of the future year scenarios.

Flow difference plots comparing the Do-Something and Do-Minimum scenarios indicate that the main areas of flow increase away from the immediate vicinity of the site occur on Spencers Lane, Waddicar Lane, A506 Prescott Road and Sefton Lane. The introduction of the M58 junction 1 slip roads reduces the increase in traffic flows on Spencers Lane, Waddicar Lane and the A506 Prescott Road, the increase in traffic levels is also predicted to be reduced along the A59 Northway, Hall Lane, Deyes Lane and School Lane, as traffic accesses the M58 motorway using the junction 1 slip roads.

Introducing the spine road connecting the north and south of the site increases traffic levels on Brewery Lane and Weavers Lane to the south of the site, traffic increases are reduced on School Lane to the north of the site during the AM peak. The spine road connecting the north and south of the site moves traffic away from the Kirkby area and onto Brewery Lane and Weavers Lane, as traffic from the north of the development travels south across the site using the spine road instead of using the A506 Prescott Road / Bank Lane and through Kirkby.

Flow difference analysis comparing the Do-Something and Base scenarios indicates that there is some localised change in traffic patterns with the development in place, with increases in flow predicted on the M58 and M57 motorways, Brewery Lane and Park Lane, with flow decreases predicted on School Lane, A506 Prescott Road, Waddicar Lane, Spencers Lane, as well as less traffic through Kirkby with the M58 Junction 1 slip roads in-situ.

It should be noted that there are a number of factors influencing the changes in traffic flows, such as the introduction of the M58 Junction 1 west facing slips and the opening of Thornton Link at the Switch Island gyratory.

Appendix A. TRICS Analysis

A.1. Residential Sites TRICS Data

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

03	SOUTH WEST	
	CW CORNWALL	1 days
06	WEST MIDLANDS	
	SH SHROPSHIRE	1 days
	WM WEST MIDLANDS	1 days
	WO WORCESTERSHIRE	3 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	NY NORTH YORKSHIRE	1 days
08	NORTH WEST	
	CH CHESHIRE	1 days
10	WALES	
	CF CARDIFF	1 days
11	SCOTLAND	
	AG ANGUS	1 days
	FA FALKIRK	2 days
	PK PERTH & KINROSS	1 days

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

Filtering Stage 2 selection:

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

Parameter: Number of dwellings
Actual Range: 7 to 232 (units:)
Range Selected by User: 5 to 4334 (units:)

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/05 to 30/05/13

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

Selected survey days:

Monday	1 days
Tuesday	5 days
Wednesday	3 days
Thursday	4 days

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

Selected survey types:

Manual count	13 days
Directional ATC Count	0 days

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

Selected Locations:

Suburban Area (PP56 Out of Centre)	11
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:

Residential Zone	9
No Sub Category	4

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

Filtering Stage 3 selection:

Use Class:

C3 13 days

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

Population within 1 mile:

5,001 to 10,000 1 days
10,001 to 15,000 3 days
15,001 to 20,000 6 days
20,001 to 25,000 2 days
25,001 to 50,000 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 3 days
75,001 to 100,000 4 days
100,001 to 125,000 3 days
250,001 to 500,000 2 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 6 days
1.1 to 1.5 7 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 13 days

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

LIST OF SITES relevant to selection parameters

1	AG-03-A-01 KEPTIE ROAD	BUNGALOWS/DET.	ANGUS
	ARBROATH Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 7 Survey date: TUESDAY 22/05/12		
2	CF-03-A-03 LLANTRISANT ROAD	DETACHED	CARDIFF
	CARDIFF Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 29 Survey date: MONDAY 08/10/07		
3	CH-03-A-06 CREWE ROAD	SEMI-DET./BUNGALOWS	CHESHIRE
	CREWE Suburban Area (PPS6 Out of Centre) No Sub Category Total Number of dwellings: 129 Survey date: TUESDAY 14/10/08		
4	CW-03-A-02 BOSVEAN GARDENS	SEMI D./DETACHED	CORNWALL
	TRURO Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 73 Survey date: TUESDAY 18/09/07		
5	FA-03-A-01 MANDELA AVENUE	SEMI-DETACHED/TERRACED	FALKIRK
	FALKIRK Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 37 Survey date: THURSDAY 30/05/13		
6	FA-03-A-02 ROSEBANK AVENUE & SPRINGFIELD DRIVE	MIXED HOUSES	FALKIRK
	FALKIRK Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 161 Survey date: WEDNESDAY 29/05/13		
7	NY-03-A-01 GRAMMAR SCHOOL LANE	MIXED HOUSES	NORTH YORKSHIRE
	NORTHALLERTON Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 52 Survey date: TUESDAY 25/09/07		

MANUALLY DESELECTED SITES (Cont.)

Site Ref	Reason for Deselection
CP-03-A-02	No Comparable Rail Service Provision
CW-03-A-01	No Comparable Rail Service Provision
DC-03-A-01	No Comparable Rail Service Provision
DS-03-A-01	No Comparable Rail Service Provision
EA-03-A-01	No Comparable Rail Service Provision
ES-03-A-02	No Comparable Rail Service Provision
EX-03-A-01	No Comparable Rail Service Provision
FI-03-A-02	No Comparable Rail Service Provision
FI-03-A-03	No Comparable Rail Service Provision
GM-03-A-10	No Comparable Rail Service Provision
HI-03-A-11	No Comparable Rail Service Provision
HI-03-A-13	No Comparable Rail Service Provision
HI-03-A-14	No Comparable Rail Service Provision
LC-03-A-22	No Comparable Rail Service Provision
LE-03-A-01	No Comparable Rail Service Provision
LN-03-A-01	No Comparable Rail Service Provision
LN-03-A-02	No Comparable Rail Service Provision
LN-03-A-03	No Comparable Rail Service Provision
MS-03-A-01	No Comparable Rail Service Provision
NF-03-A-01	No Comparable Rail Service Provision
NF-03-A-02	No Comparable Rail Service Provision
NT-03-A-03	No Comparable Rail Service Provision
NY-03-A-03	No Comparable Rail Service Provision
NY-03-A-05	No Comparable Rail Service Provision
NY-03-A-06	No Comparable Rail Service Provision
NY-03-A-07	No Comparable Rail Service Provision
SF-03-A-01	No Comparable Rail Service Provision
SF-03-A-02	No Comparable Rail Service Provision
SF-03-A-03	No Comparable Rail Service Provision
SF-03-A-04	No Comparable Rail Service Provision
SH-03-A-03	No Comparable Rail Service Provision
SR-03-A-01	No Comparable Rail Service Provision
ST-03-A-05	No Comparable Rail Service Provision
TV-03-A-01	No Comparable Rail Service Provision
WK-03-A-01	No Comparable Rail Service Provision
WL-03-A-01	No Comparable Rail Service Provision
WM-03-A-01	No Comparable Rail Service Provision
WM-03-A-03	No Comparable Rail Service Provision
WO-03-A-03	No Comparable Rail Service Provision

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

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	13	72	0.057	13	72	0.246	13	72	0.303
08:00 - 09:00	13	72	0.165	13	72	0.369	13	72	0.534
09:00 - 10:00	13	72	0.157	13	72	0.214	13	72	0.371
10:00 - 11:00	13	72	0.133	13	72	0.161	13	72	0.294
11:00 - 12:00	13	72	0.151	13	72	0.163	13	72	0.314
12:00 - 13:00	13	72	0.171	13	72	0.150	13	72	0.321
13:00 - 14:00	13	72	0.166	13	72	0.173	13	72	0.339
14:00 - 15:00	13	72	0.166	13	72	0.182	13	72	0.348
15:00 - 16:00	13	72	0.237	13	72	0.183	13	72	0.420
16:00 - 17:00	13	72	0.312	13	72	0.185	13	72	0.497
17:00 - 18:00	13	72	0.352	13	72	0.231	13	72	0.583
18:00 - 19:00	13	72	0.234	13	72	0.168	13	72	0.402
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.301			2.425			4.726

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: 7 - 232 (units :)
 Survey date date range: 01/01/05 - 30/05/13
 Number of weekdays (Monday-Friday): 13
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys manually removed from selection: 48

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.

A.2. Business Park / Employment Land Sites TRICS Data

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	BU	BUCKINGHAMSHIRE	1 days
	HF	HERTFORDSHIRE	1 days
	OX	OXFORDSHIRE	1 days
06	WEST MIDLANDS		
	HE	HEREFORDSHIRE	1 days
	SH	SHROPSHIRE	1 days
	WM	WEST MIDLANDS	1 days
10	WALES		
	CF	CARDIFF	1 days
	CP	CAERPHILLY	1 days
11	SCOTLAND		
	FA	FALKIRK	1 days

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

Filtering Stage 2 selection:

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

Parameter: Gross floor area
Actual Range: 12000 to 33105 (units: sqm)
Range Selected by User: 10000 to 40000 (units: sqm)

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/03 to 24/10/13

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

Selected survey days:

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

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

Selected survey types:

Manual count	9 days
Directional ATC Count	0 days

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

Selected Locations:

Suburban Area (PP56 Out of Centre)	1
Edge of Town	7
Neighbourhood Centre (PP56 Local Centre)	1

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

Selected Location Sub Categories:

Industrial Zone	2
Commercial Zone	5
Village	1

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

Filtering Stage 3 selection:

Use Class:

Not Known	1 days
B1	8 days

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

Population within 1 mile:

1,001 to 5,000	2 days
5,001 to 10,000	1 days
10,001 to 15,000	4 days
25,001 to 50,000	2 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

5,001 to 25,000	1 days
50,001 to 75,000	1 days
75,001 to 100,000	2 days
100,001 to 125,000	1 days
125,001 to 250,000	2 days
250,001 to 500,000	1 days
500,001 or More	1 days

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

Car ownership within 5 miles:

0.5 or Less	1 days
0.6 to 1.0	5 days
1.1 to 1.5	3 days

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

Travel Plan:

No	9 days
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This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

LIST OF SITES relevant to selection parameters

1	BU-02-B-01	BUSINESS PARK		BUCKINGHAMSHIRE
	LONDON ROAD			
	HIGH WYCOMBE			
	Edge of Town			
	No Sub Category			
	Total Gross floor area:	13300 sqm		
	Survey date: THURSDAY	08/07/04		Survey Type: MANUAL
2	CF-02-B-01	BUSINESS PARK		CARDIFF
	FORTTRAN ROAD			
	ST MELLONS			
	CARDIFF			
	Edge of Town			
	Industrial Zone			
	Total Gross floor area:	12000 sqm		
	Survey date: WEDNESDAY	18/10/06		Survey Type: MANUAL
3	CP-02-B-01	BUSINESS PARK		CAERPHILLY
	VAN ROAD			
	CAERPHILLY			
	Edge of Town			
	Commercial Zone			
	Total Gross floor area:	14450 sqm		
	Survey date: TUESDAY	17/07/12		Survey Type: MANUAL
4	FA-02-B-02	BUSINESS PARK		FALKIRK
	CALENDAR BOULEVARD			
	CALENDAR PARK			
	FALKIRK			
	Edge of Town			
	Commercial Zone			
	Total Gross floor area:	16000 sqm		
	Survey date: FRIDAY	31/05/13		Survey Type: MANUAL
5	HE-02-B-01	BUSINESS PARK		HEREFORDSHIRE
	A4103			
	WHITESTONE			
	NEAR HEREFORD			
	Neighbourhood Centre (PPS6 Local Centre)			
	Village			
	Total Gross floor area:	18808 sqm		
	Survey date: TUESDAY	13/09/11		Survey Type: MANUAL
6	HF-02-B-01	BUSINESS PARK		HERTFORDSHIRE
	ST ALBANS ROAD WEST			
	HATFIELD			
	Edge of Town			
	Commercial Zone			
	Total Gross floor area:	26000 sqm		
	Survey date: MONDAY	07/07/08		Survey Type: MANUAL
7	OX-02-B-01	BUSINESS PARK		OXFORDSHIRE
	GARSINGTON ROAD			
	COWLEY			
	OXFORD			
	Edge of Town			
	Commercial Zone			
	Total Gross floor area:	33105 sqm		
	Survey date: TUESDAY	21/10/03		Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

8	SH-02-B-01 WELSHPOOL ROAD	BUSINESS PARK		SHROPSHIRE
	SHREWSBURY Edge of Town Commercial Zone			
	Total Gross floor area:		17197 sqm	
	Survey date:	TUESDAY	14/06/05	Survey Type: MANUAL
9	WM-02-B-01 COURTALD WAY	BUSINESS PARK		WEST MIDLANDS
	FOLESHILL COVENTRY Suburban Area (PPS6 Out of Centre) Industrial Zone			
	Total Gross floor area:		30042 sqm	
	Survey date:	FRIDAY	10/02/06	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.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
TW-02-B-02	B8 Component
TW-02-B-04	B8 Component

TRIP RATE for Land Use 02 - EMPLOYMENT/B - BUSINESS PARK

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 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	9	20100	0.181	9	20100	0.037	9	20100	0.218
07:30 - 08:00	9	20100	0.426	9	20100	0.065	9	20100	0.491
08:00 - 08:30	9	20100	0.751	9	20100	0.140	9	20100	0.891
08:30 - 09:00	9	20100	0.846	9	20100	0.121	9	20100	0.967
09:00 - 09:30	9	20100	0.584	9	20100	0.167	9	20100	0.751
09:30 - 10:00	9	20100	0.324	9	20100	0.154	9	20100	0.478
10:00 - 10:30	9	20100	0.179	9	20100	0.125	9	20100	0.304
10:30 - 11:00	9	20100	0.136	9	20100	0.103	9	20100	0.239
11:00 - 11:30	9	20100	0.140	9	20100	0.136	9	20100	0.276
11:30 - 12:00	9	20100	0.118	9	20100	0.151	9	20100	0.269
12:00 - 12:30	9	20100	0.167	9	20100	0.355	9	20100	0.522
12:30 - 13:00	9	20100	0.246	9	20100	0.310	9	20100	0.556
13:00 - 13:30	9	20100	0.312	9	20100	0.331	9	20100	0.643
13:30 - 14:00	9	20100	0.284	9	20100	0.177	9	20100	0.461
14:00 - 14:30	9	20100	0.178	9	20100	0.175	9	20100	0.353
14:30 - 15:00	9	20100	0.150	9	20100	0.190	9	20100	0.340
15:00 - 15:30	9	20100	0.125	9	20100	0.252	9	20100	0.377
15:30 - 16:00	9	20100	0.121	9	20100	0.268	9	20100	0.389
16:00 - 16:30	9	20100	0.092	9	20100	0.407	9	20100	0.499
16:30 - 17:00	9	20100	0.112	9	20100	0.484	9	20100	0.596
17:00 - 17:30	9	20100	0.112	9	20100	0.736	9	20100	0.848
17:30 - 18:00	9	20100	0.091	9	20100	0.526	9	20100	0.617
18:00 - 18:30	9	20100	0.051	9	20100	0.280	9	20100	0.331
18:30 - 19:00	9	20100	0.030	9	20100	0.125	9	20100	0.155
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			5.756			5.815			11.571

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

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

Parameter summary

Trip rate parameter range selected:	12000 - 33105 (units: sqm)
Survey date date range:	01/01/03 - 24/10/13
Number of weekdays (Monday-Friday):	9
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	2

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.