REPORT N^{O} 70020236

HEREFORD TRANSPORT MODEL

REPORT OF HIGHWAY SURVEYS

SEPT 2017

WSP | PARSONS BRINCKERHOFF

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REPORT OF HIGHWAY SURVEYS

Herefordshire Council

Project no: 70020236
Date: Sept 2017

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QUALITY MANAGEMENT

ISSUE/REVISION	VERSION 1	VERSION 2	VERSION 3	VERSION 4
Remarks	Draft to Client	Issued to Client Awaiting comment by DfT		
Date	23/12/2016	20/09/2017		
Prepared by	DL/GM/MM/MH	DL/GM/MM/MH		
Signature				
Checked by	TM	TM		
Signature				
Authorised by	MC	MC		
Signature				
Project number	70020236	70020236		
Report number	70020236-ROS	70020236-ROS		
File reference	70020236-ROS-001	70020236-ROS-002		

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1 INTRODUCTION

1.1 PROJECT BACKGROUND

1.1.1 In March 2016, WSP | Parsons Brinckerhoff (WSP | PB) was commissioned by Herefordshire Council (HC) to develop the Hereford Transport Model (hereon referred to as HTM).

1.1.2 The HTM will be a representation of a 2016 five-day weekday morning hour, evening peak hour, and an average interpeak hour in the intervening period between the morning and evening peaks.

1.1.3 Data was collected in order to meet the specifications for a robust base year highway assignment model, as set out in WebTAG Unit M3.1 Highway Assignment Modelling. This is to ensure the model is suitable for use in forecasting the traffic impact of the South Wye Transport Package (SWTP), the Hereford Transport Package (HTP) and for providing an evidence base for the Herefordshire Local Plan and Herefordshire Local Transport Plan.

1.1.4 The data collection exercise reported on in this report is focused on the highway network. Further data collection focused on the public transport network, and walking and cycling network will be undertaken in early 2017 and will be reported separately.

1.2 AIM OF REPORT

1.2.1 The aim of this report is to describe the data collection within the study area which will assist the development of the Hereford Transport Model.

1.2.2 The highway data and contained in this report was collected by Tracsis Traffic Data Collection during June and July 2016.

1.2.3 This report has been structured to focus on each of the survey types individually, and the results have been provided on a peak period basis (AM peak period, Interpeak (IP) period and PM peak period), and to cover the 12-hour survey period (and 24-hour survey period where available).

1.2.4 The report contains descriptions, summaries and analysis of the Automatic Traffic Data (ATC), Manual Classified Junction Counts (MCJC), Roadside Interview Data (RSI), Car Park Interview data (CPI), Trafficmaster Origin and Destination data, and journey time data.

1.2.5 Further data will also be collected on travel behaviours through household surveys. These surveys are scheduled to be undertaken in early 2017. The data collected through these surveys will be reported on in the Report of Public Transport Surveys report.

1.2.6 Following the introduction, the report comprises of the following sections:

- **Section 2** details and analyses Automatic Traffic Count (ATC) data. The section provides an introduction, dates, and site by site analysis. This data will be utilised to understand link flows on the highway network within the study area.
- **Section 3** gives an overview of the process and purpose for collecting Manual Classified Junction Count (MCJC) data. The MCJC methodology is firstly discussed and a summary of the location, date and who carried out the data collection process is then given before presenting a summary of the results for the AM, IP and PM peak and 12-hour weekday. This data will be utilised to inform the model development process of the junction turning counts on the highway network within the study area.

- **Section 4** provides dates, methodology and information relating to Roadside Interview (RSI) surveys. Locations of sites, questions asked and a full vehicle classification outline are provided. Sector to sector movements are detailed and discussed. This data will be utilised to inform the trip matrix development process.
- **Section 5** provides dates, methodology and information relating to Car Park Interview (CPI) surveys. Locations of sites, questions asked and a full vehicle classification outline are provided. Sector to sector movements are detailed and discussed. This data will be utilised to inform the trip matrix development process.
- **Section 6** provides the analysis of the Trafficmaster origin-destination data and provides an overview of what the dataset contains and how it will be utilised in the prior trip matrix development.
- **Section 7** discusses the method behind collecting the journey time data and gives a summary of each journey time route during the AM, IP and PM peaks. This data will be utilised in the model validation process.
- **Section 8** provides an overview of the data collection exercise, summarising the conclusions from the preceding sections and recommendations on the suitability of the data collected to ensure that the subsequent transport modelling can meet its objectives.

2 AUTOMATIC TRAFFIC COUNT DATA

2.1 INTRODUCTION

2.1.1 The following chapter provides an overview of the process and purpose of collecting Automatic Traffic Count (ATC) data. The methodology is presented with a summary of the ATC findings.

2.1.2 ATC data has been gathered for 59 key sites across the study network.

2.1.3 Transportation data collection specialists Tracsis were commissioned to undertake ATC surveys at 51 of these sites (ATC sites 1 to 37 and 46 to 59). At each of these sites an ATC was in place for the six week period (42 days), between Monday 6th June 2016 and Sunday 17th July 2016. The remaining 8 ATCs were undertaken and managed by HC.

2.1.4 The ATCs recorded vehicles using a pneumatic activator in tubes laid across the carriageway, with a counting device attached to a fixture off the carriageway. The ATCs are utilised to derive flow profiles over links split by direction, time and vehicle type. Vehicles flows are aggregated every 15 minutes. The ATCs did not record speed data.

2.1.5 ATC sites 46 to 59 were located at each of the Roadside Interview (RSI) sites (as set out in **Section 4**). Data from these counters has been utilised to derive local flow profiles, to monitor traffic patterns during the survey period, and to develop flow factors for the RSI data at each site.

2.1.6 The following vehicle types were detected for ATC Sites 1-37 and 46-59:

- Class 1 – Bicycle or Motorcycle;
- Class 2 – Car, 4WD or Light Van;
- Class 3 – Short Towing i.e. Trailer or Caravan;
- Class 4 – 2 Axle Truck or Bus;
- Class 5 – 3 Axle Truck or Bus;
- Class 6 – 4 Axle Truck;
- Class 7 – 3 Axle Articulated Vehicle or Rigid Vehicle & Trailer;
- Class 8 – 4 Axle Articulated Vehicle or Rigid Vehicle & Trailer;
- Class 9 – 5 Axle Articulated Vehicle or Rigid Vehicle & Trailer;
- Class 10 – 6+ Axle Articulated Vehicle or Rigid Vehicle & Trailer;
- Class 11 – B-Double or Heavy Truck & Trailer ; and
- Class 12 - Double or Triple Heavy Truck & 2 (or more) Trailers

2.1.7 The available vehicle classification data enabled analysis of the number of HGVs against the total traffic flow.

2.1.8 The remaining 8 ATC site data (Sites 38 to 45) was obtained from available HC long-term ATC count sites. These sites provided average directional daily flows for the period from June 1st 2016 to 31st July 2016. The data was aggregated hourly and was not split by vehicle type.

2.1.9 The following sections summarise the data from the ATC sites.

2.2 DATA COVERAGE

2.2.1 **Figure 2-1** and **Figure 2-2** show the locations of all ATC surveys, split by the managing agent (Tracsis or HC). **Table 2-1**, shown below, indicates the placing, managing agent and validity of each of the ATCs:

Table 2-1 - ATC Sites and their Locations, Agent and Validity

ATC Site	Site Name	Agent Covering	**Total Invalid Days of Data**	**Total Complete Days of Data**
1	Bridge Sollers Near A438	Tracsis	0	42
2	A4110 Three Elms Road	Tracsis	23	19
3	Holmer Road	Tracsis	12	30
4	A4103 Roman Road by Holmer	Tracsis	17	25
5	A4103 Roman Road	Tracsis	22	20
6	Aylestone Hill	Tracsis	0	42
7	College Road	Tracsis	0	42
8	Old School Lane	Tracsis	0	42
9	A438 Kings Acre Road	Tracsis	0	42
10	A49 by Widemarsh Brook	Tracsis	24	18
11	B4359 Newtown Road	Tracsis	15	27
12	Burcott Road	Tracsis	1	41
13	A438 Ledbury Road	Tracsis	14	28
14A & 14B	A438 Newmarket Street	Tracsis	14	28
15	A438 Ledbury Road	Tracsis	4	38
16	B4224 Eign Road	Tracsis	0	42
17A & 17B	A49 Bridge	Tracsis	16	26
18	HJunderton Road by Hunderton	Tracsis	2	40
19	Belmont Road	Tracsis	14	28
20	A465 Newton Coppice	Tracsis	11	31
21	Holme Lacy Road by Red Hill	Tracsis	22	20
22	The Straight Mile	Tracsis	13	29
23	The Straight Mile	Tracsis	1	41
24	Watery Lane	Tracsis	0	42
25	Lower Bullingham Lane	Tracsis	0	42
26	Hoarwithy Road	Tracsis	0	42
27	Bullingham Lane	Tracsis	0	42
28	Ross Road (Red Hill)	Tracsis	5	37
29	Near Haywood Lodge Farmhouse	Tracsis	1	41
30	A49 by Norton Brook Farm	Tracsis	19	23
31	B4399 Near Ridge Hill	Tracsis	3	39
32	B4224 by West Wood	Tracsis	0	42
33	A49 South of Holme Lacey Road, North of Pencroft Road	Tracsis	10	32
34	A49, north of Grafton Lane, south of A49 junction with B4399	Tracsis	6	36

35	A465, north of junction with Church Road (Goose Pool)	Tracsis	9	33
36	Grafton Lane (north), on approach to junction with A49(T), south of railway bridge	Tracsis	0	42
37	Grafton Lane (south), on approach to junction with A49(T) (by Renault Garage)	Tracsis	0	42
38	A438, West of Lugwardine	HC		
39	B4224, Hampton Park Road	HC		
40	B4399, The Straight Mile, North of Dinedor Hill	HC		
41	B4399, Norton Brook	HC		
42	A438, By Broomy Hill	HC		
43	Edgar Street	HC		
44	A438, Opposite Maylord Shopping Centre	HC		
45	A465, on Crossing with Railway Line	HC		
46	A49 South, West of Aconbury Hill	Tracsis	5	37
47	B4349, The Bines in Clehonger	Tracsis	9	33
48	A438 West of Stretton Sugwas Junction	Tracsis	8	34
49	Stretton Sugwas Roundabout, Northern Arm	Tracsis	0	42
50	A4103/A4110 Signalised Junction, North Arm	Tracsis	0	42
51	A49, East of Dinmore	Tracsis	7	35
52	Aylestone Hill Roundabout, Northern Arm	Tracsis	0	42
53	Aylestone Hill Roundabout, Eastern Arm	Tracsis	14	28
54	A438 Frome Park	Tracsis	4	38
55	B4224, North East of Mordiford	Tracsis	3	39
56	B4399, Straight Mile/Chapel Road Roundabout, Eastern Arm	Tracsis	17	25
57	Tillington Road by Bronte Cottages	Tracsis	8	34
58	A438, Green Crize	Tracsis	0	42
59	A465, North of Goose Pool	Tracsis	10	32

Note: An incomplete day of data is one where a full 24-hour record is unavailable

Figure 2-1 - Location of Tracsis ATC Sites

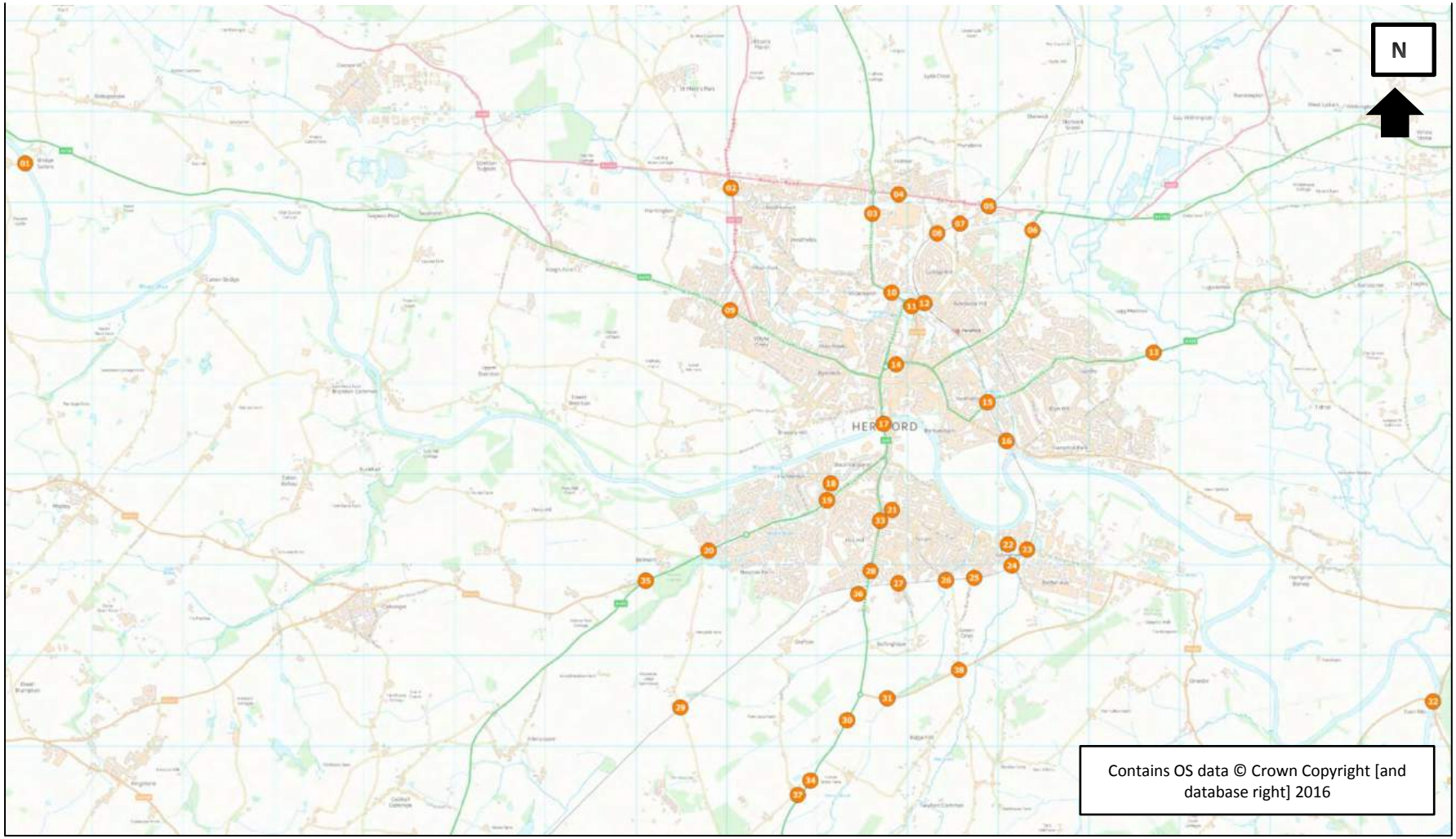
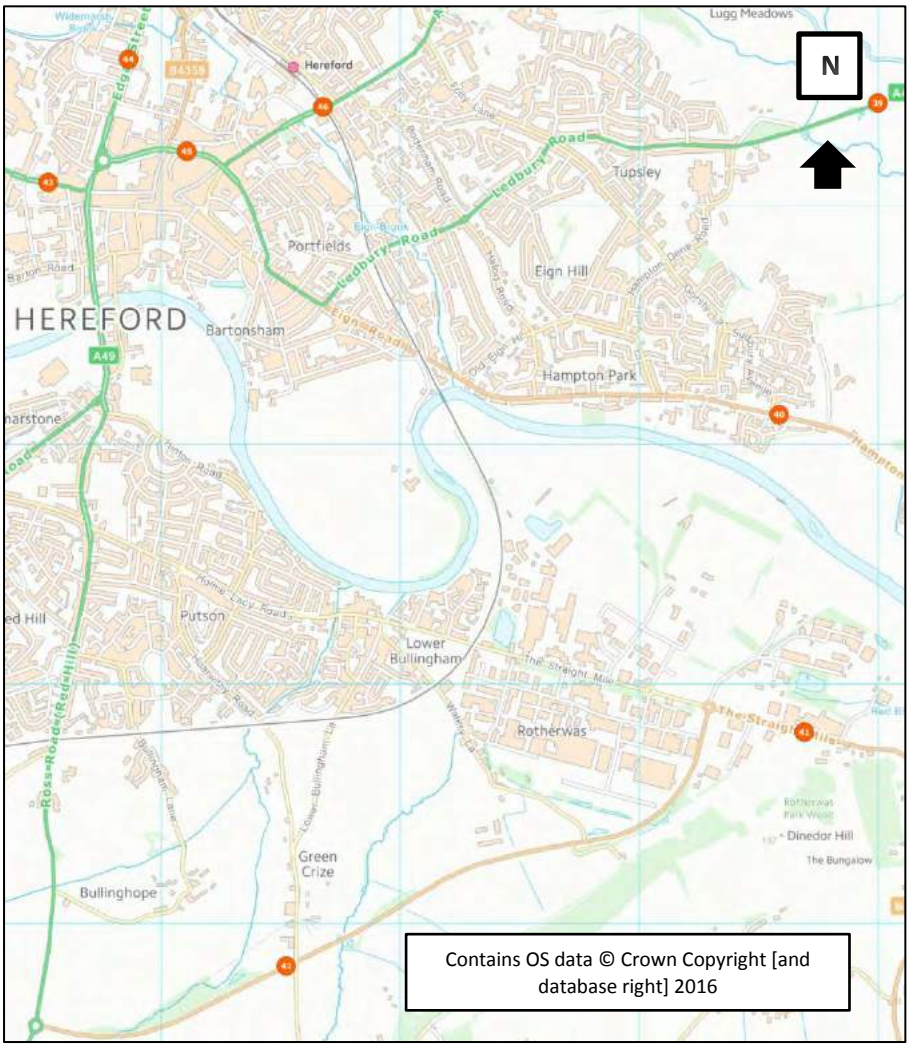


Figure 2-2: Location of Herefordshire Council ATC Sites



2.2.2 The data collected from each ATC site will be utilised within the SATURN model development to be undertaken by WSP|PB. The Hereford Transport Model will represent vehicle movements during a normal weekday period, and, therefore, the average daily weekday flows (Monday to Friday) have been summarised for each ATC.

2.3 ATC ISSUES

2.3.1 Due to their nature, ATC surveys are prone to occasional errors from such things as: vehicles parking on the tubes; tubes being damaged by passing vehicles; or by a fault within the equipment. As may be expected for an ATC survey of the scale undertaken as part of this project, a number of units experienced faults at some point over the six-week survey period.

2.3.2 In total, 36 Tracsis ATC sites were deemed to have encountered an issue at some point over the six-week survey period. **Table 2-1** identifies which of the Tracsis ATCs encountered problems, and how many incomplete days of data (where a full 24-hour record is unavailable) were incurred as a result. A more detailed breakdown of errors incurred at each ATC site is contained in **Appendix A-1**.

2.3.3 Despite the issues identified with the ATCs, the surveys provided a sufficient level of data capture from all sites. For example, the most affected site (ATC 10) recorded at least 18 full days of valid data. This is a sufficient level of data capture to be utilised for modelling purposes.

2.3.4 Two events occurred on the Roadside Interview (RSI) ATCs due to a fault with the equipment on the day of the RSI, as **Table 2-2** below details:

Table 2-2: Events on RSI ATCs

ATC Site	RSI Site	Site Description	Error
51	6	A49, East of Dinmore	Full set of data missing on the day of the RSI, in both directions and for all time periods
56	11	B4399, Straight Mile/Chapel Road Roundabout, Eastern Arm	Full set of data missing on the day of the RSI, in both directions and for all time periods

2.3.5 There were manual classified link counts undertaken on the day of the RSI to ensure that the traffic flow was consistent with an average day on the day of the RSI.

2.3.6 Analysis of ATC Site 39 (HC site on B4224 Hampton Park Road) has identified that eastbound flows at the site are significantly lower than those of the westbound flows. The westbound 7-day 24-hour average flow is 3,052, whereas the eastbound flow is just 95. This indicates that an error has likely to have occurred with the counter during this period for the eastbound traffic, and the eastbound results should not be utilised within any modelling work. Due to the nature of an ATC, caution should also be applied to the westbound flows as these may also be erroneous.

2.4 YEARLY FLOW VARIATION

2.4.1 HC have a number of permanent ATC sites situated throughout Hereford. Data has been obtained from some of these sites in order to undertake yearly analysis on flows at each site. A plan of all HC ATC sites is included in **Figure 2-2.**

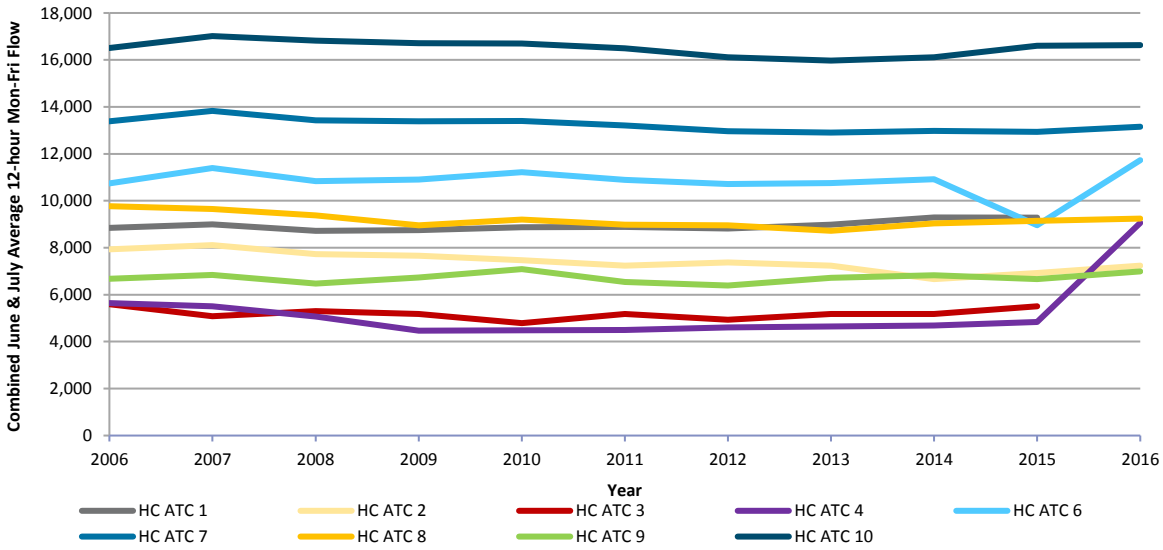
2.4.2 Data has been obtained for HC ATC sites 1 to 4 and 6 to 10, for the combined June and July 12-hour (07:00-19:00) Monday to Friday average flows for each year between 2006 and 2016. **Table 2-3** and **Chart 2—1** show the two-way combined June and July 12-hour (07:00-19:00) Monday to Friday average flows at each of the nine HC ATC sites the data was received for.

Table 2-3: Two-way combined June and July 12-hour (0700-1900) Monday to Friday average flows at each HC ATC sites

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
HC1- Aylestone Hill	8,841	9,000	8,719	8,747	8,875	8,893	8,822	8,986	9,290	9,285	NA*
HC2- Lugwardine Bridge	7,929	8,112	7,731	7,666	7,471	7,241	7,376	7,241	6,663	6,919	7,231
HC3- B4224 Hampton Park Road	5,595	5,086	5,303	5,183	4,788	5,184	4,933	5,172	5,177	5,506	NA*
HC4-B4399 Holme Lacey Rd.	11,047	11,224	10,424	9,220	9,325	9,334	9,551	9,600	9,799	9,884	9,069
HC6- A49(T) Ross Road	10,746	11,397	10,832	10,903	11,221	10,896	10,713	10,759	10,924	8,958	11,730
HC7- A465(T) Abergavenny Rd.	13,387	13,830	13,430	13,388	13,393	13,208	12,961	12,906	12,976	12,940	13,159
HC8- A438 Kings Acre Road	9,770	9,644	9,376	8,958	9,205	8,984	8,949	8,722	9,035	9,151	9,246
HC9-A4110 Three elms Rd.	6,678	6,848	6,474	6,734	7,089	6,537	6,391	6,724	6,821	6,661	6,986
HC10- A49(T) Holmer Rd.	16,510	17,016	16,822	16,719	16,698	16,494	16,109	15,973	16,117	16,605	16,629

Note: Due to ATC error, two-way flows not available for this period

Chart 2—1: Two-way combined June and July 12-hour (07:00-19:00) Monday to Friday average flows at each HC ATC sites



2.4.3 Table 2-3 and **Chart 2**—1 show that the combined two-way June and July 12-hour Monday to Friday flows at each HC ATC site show very little variation in flow between 2006 and 2016. This would indicate that there has been little or no traffic growth within Hereford over this period.

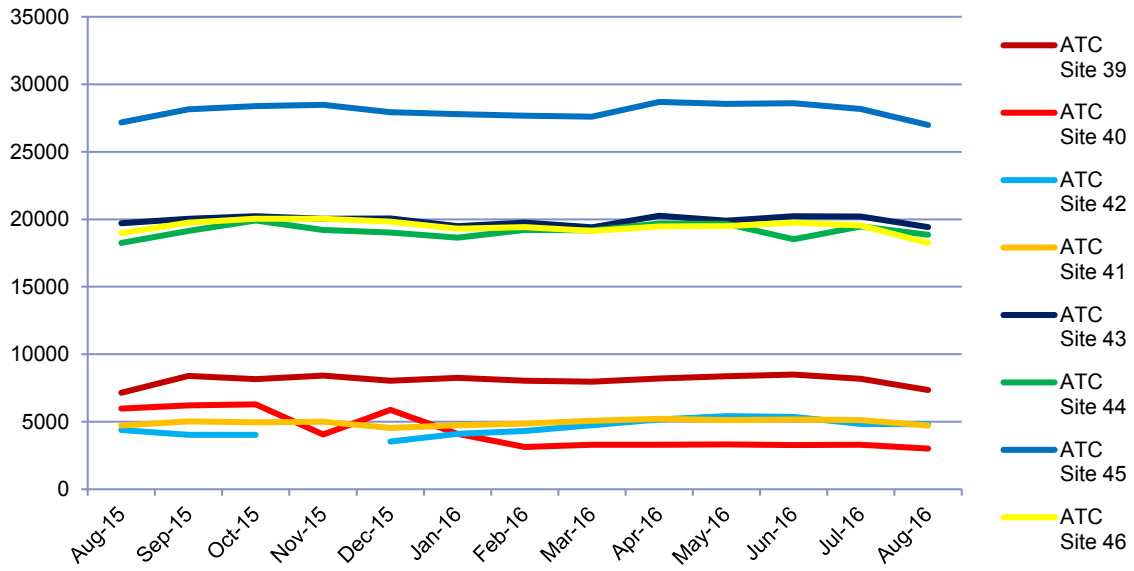
2.5 MONTHLY FLOW VARIATIONS

2.5.1 Data relating to the total monthly flows observed across the HC ATC sites has been obtained for the period August 2015 to August 2016. The data obtained provides an average daily flow for each of the HC ATC sites for each month during the 12-month period.

2.5.2 In order to ascertain which months whether the months June and July can be considered representative in terms of traffic demand in the study area over the course of a year, analysis was undertaken of the daily averages for each month.

2.5.3 The analysis is based upon a comparison of the traffic demand across a 16-hour period (between 06:00 and 22:00), as there were several missing records in the 12-hour totals in the dataset.

Chart 2—2: Monthly Flow Variation across ATC sites 39-46, based on 16-Hour Flow (06:00-22:00), on Monday to Friday



2.5.4 The analysis shown in **Chart 2—2**, shows that the average flows observed in June and July are representative of a neutral month.

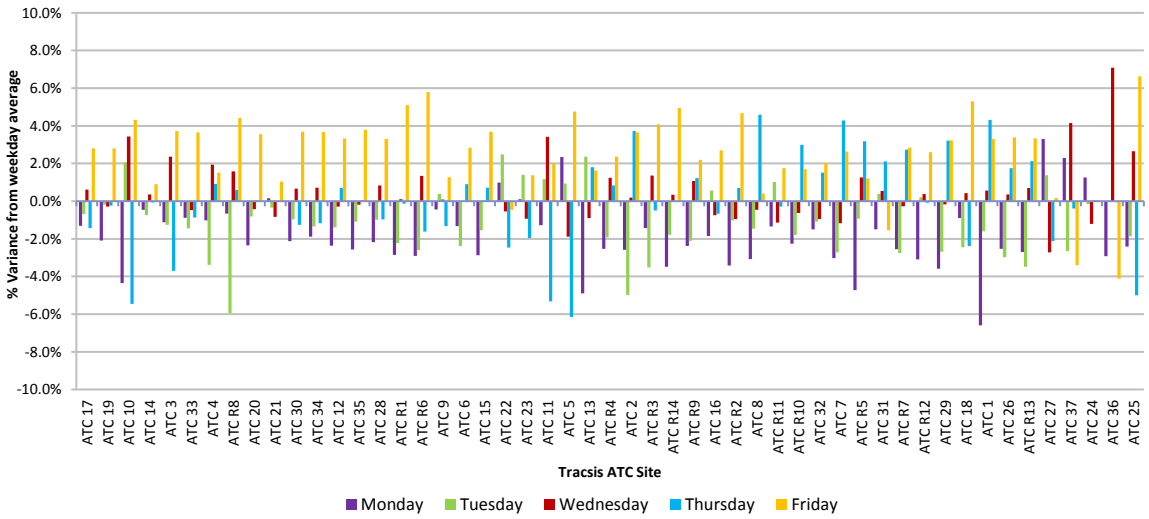
2.6 WEEKDAY FLOW VARIATIONS

2.6.1 Weekday traffic demand in a study area will often vary over the course of the week. Traffic demand on a Monday and Friday for example may often differ from other weekdays (due extended weekend trips, or weekly commute trips).

2.6.2 Wednesday is the historical livestock market day in Hereford. Although the market moved from the city centre to a new site on the outskirts of Hereford in June 2011, it was advised by HC that some people still recognise Wednesday as market day, and that traffic demand on this day may not be reflect those of a typical weekday. This observation has been considered as part of the ATC data analysis.

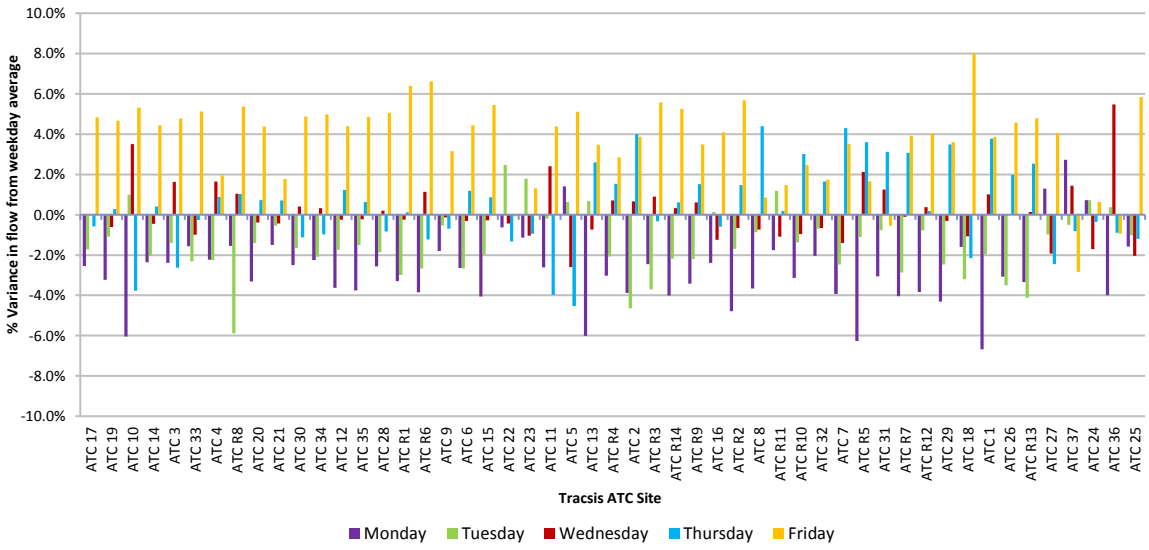
2.6.3 An analysis of the weekday flow variations across each Tracsis ATC site was undertaken to identify which days should be utilised to represent a 'normal' weekday across the study area. **Chart 2**—3 and **Chart 2**—4 identify the difference in weekday flow from the Monday to Friday average at all Tracsis ATC sites for the 12-hour (07:00-19:00) and 24-hour periods respectively. **Table 2-4** identifies the mean variation from the average weekday flow at each Tracsis ATC site, and **Table 2-5** identifies the number of ATC sites where the average daily flow was below or above that of the weekday average.

Chart 2—3: Variation in weekday flow from the Monday to Friday average, across all Tracsis ATC sites – 12-hour (07:00-19:00) period



Note: ATCs are sorted (from left to right) by highest to lowest weekday average two-way flow

Chart 2—4: Variation in weekday flow from the Monday to Friday average, across all Tracsis ATC sites – 24-hour period



Note: ATCs are sorted (from left to right) by highest to lowest weekday average two-way flow

Table 2-4: Average variation from weekday mean flow across all Tracsis ATC sites

Analysis Period	Average Variation from Weekday Mean Flow				
	Monday	Tuesday	Wednesday	Thursday	Friday
12-hour period (07:00-19:00)	-1.8%	-1.2%	+0.4%	+0.0%	+2.6%
24-hour period	-2.8%	-1.5%	+0.1%	+0.5%	+3.7%

Table 2-5: Number of Tracsis ATC sites where daily flow was above or below that of the average weekday flow

Criteria	Monday	Tuesday	Wednesday	Thursday	Friday
12-hour period (07:00-19:00)					

Count of Tracsis ATC sites with daily flow **below** weekday average	47	42	29	21	4
Count of Tracsis ATC sites with daily flow **above** weekday average	4	9	22	30	47
24-hour period					
Count of Tracsis ATC sites with daily flow **below** weekday average	44	38	22	27	4
Count of Tracsis ATC sites with daily flow **above** weekday average	7	13	29	24	47

2.6.5 The weekday flow variation analysis identifies a trend where flows at each Tracsis ATC site tend to be lower than the weekday average at the start of the weekday period, and gradually become higher than the weekday average by the end of the weekday period.

2.6.6 Wednesday and Thursday flows appear to show little variation across all Tracsis ATC sites, with Wednesday flows varying by just +0.4% and +0.1% from the weekday average over the 12-hour and 24-hour periods respectively, and Thursday flows varying by just +0.0% and +0.5% from the weekday average over the 12-hour and 24-hour periods respectively.

2.6.7 Monday and Tuesday showed a small level of variation from that of the weekday average, with Monday flows varying by -1.8% and -2.8% from the weekday average over the 12-hour and 24-hour periods respectively, and Tuesday flows varying -1.2% and -1.5% from the weekday average over the 12-hour and 24-hour periods respectively. Across all 51 Tracsis ATC sites Monday flows were lower than the weekday average at 47 sites in the 12-hour analysis period, and 44 sites in the 24-hour analysis period. Tuesday flows were lower than the weekday average at 42 sites in the 12-hour analysis period, and 38 sites in the 24-hour analysis period.

2.6.8 The day with the greatest variation in flow from the weekday average was Friday, when the flow is greater than that of the weekday average at 47 out of the 51 Tracsis ATC sites in both the 12-hour and 24-hour analysis periods, with an average variation of +2.6% from the weekday average in the 12-hour period, and +3.7% during the 24-hour period.

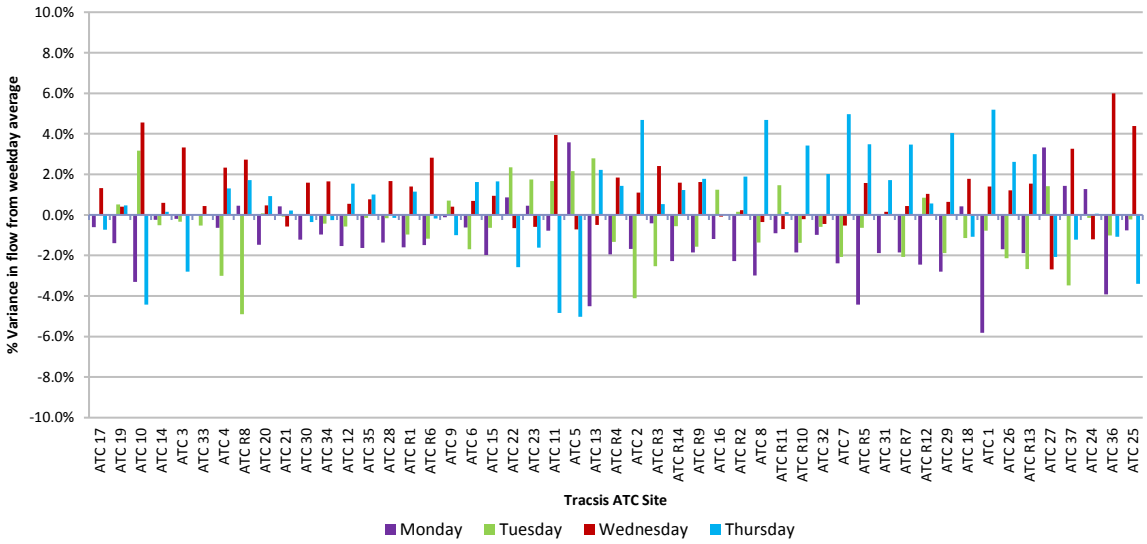
2.6.9 Friday is the only weekday where the flows show a significant and consistent level of variance from that of the weekday average. This indicates that a Friday within the study area may not be representative of a 'normal' weekday.

2.6.10 Although Monday (and to some extend Tuesday) flows show a level of negative variance from the weekday average, this appears to be in part attributed to the effect of including Friday flows within the weekday average (and thus skewing the average weekday flow towards that of the increased Friday flows). As such further analysis of the weekday flow variation was undertaking against the average Monday to Thursday flows.

2.6.11 **Chart 2**—5 and **Chart 2**—6 identify the difference in weekday flow (excluding Friday) from the Monday to Thursday average at all Tracsis ATC sites for the 12-hour (07:00-19:00) and 24-hour periods respectively. **Table 2-6** identifies the mean variation from the average Monday to Thursday flow at each Tracsis ATC site, and

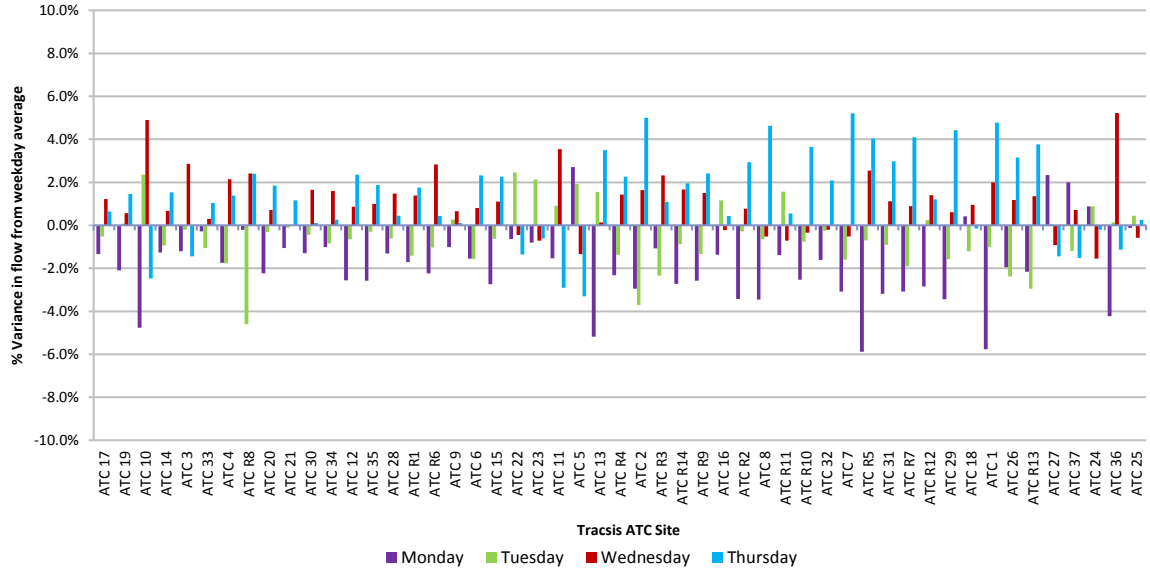
2.6.12 **Table** 2-7 identifies the number of ATC sites where the average daily flow was below or above that of the Monday to Thursday average.

Chart 2—5: Variation in weekday flow (excluding Friday) from the Monday to Thursday average, across all Tracsis ATC sites – 12-hour (07:00-19:00) period



Note: ATCs are sorted (from left to right) by highest to lowest weekday average two-way flow

Chart 2—6: Variation in weekday flow (excluding Friday) from the Monday to Thursday average, across all Tracsis ATC sites – 24-hour period



Note: ATCs are sorted (from left to right) by highest to lowest weekday average two-way flow

Table 2-6: Average variation from Monday to Thursday average flow across all Tracsis ATC sites

Analysis Period	Average Variation from Monday to Thursday Mean Flow			
	Monday	Tuesday	Wednesday	Thursday
12-hour period (07:00-19:00)	-1.2%	-0.5%	+1.1%	+0.6%
24-hour period	-1.9%	-0.5%	+1.0%	+1.4%

Table 2-7: Number of Tracsis ATC sites where daily flow (excluding Friday) was above or below that of the average Monday to Thursday flow

	Monday	Tuesday	Wednesday	Thursday

12-hour period (07:00-19:00)				
Count of Tracsis ATC sites with daily flow **below** weekday average	46	36	12	11
Count of Tracsis ATC sites with daily flow **above** weekday average	5	15	39	40
24-hour period				
Count of Tracsis ATC sites with daily flow **below** weekday average	41	35	13	17
Count of Tracsis ATC sites with daily flow **above** weekday average	10	16	38	34

2.6.14 When excluding the Friday flows from the weekday flow variation analysis, the Monday to Thursday flows show a smaller level of variation from that of the average weekday flow across the Tracsis ATC sites.

2.6.15 There still appears to be a slight trend where the average flows across all ATC sites is lower than the average at the start of the Monday to Thursday period, and gradually become higher than the average by the end of the Monday to Thursday period. However, this trend does not appear as significant as within the Monday to Friday analysis, with a maximum average variations of just -1.9% (Monday 24-hour period) and +1.4% (Thursday 24-hour period) during the Monday to Thursday analysis, compared to maximum average variations of -2.8% (Monday 24-hour period) and +3.7% (Friday 24-hour period) during the Monday to Friday analysis. This reduction in variance is especially noticeable at the Tracsis ATC sites with the greatest average weekday flows.

2.6.16 The Monday to Thursday daily flow variation analysis identifies that vehicle flows for this period can be considered representative of a 'normal' weekday across the study area. As a result, it was decided that the link counts to be utilised in the Hereford Transport Model Calibration and Validation will be an average of the Monday to Thursday peak hour flows.

2.6.17 A copy of all weekday flow variation data is included at **Appendix A-2**.

LONGITUDINAL ANALYSIS

2.6.18 The HC ATC data supplied provides average 2016 June and July (combined) flows at each Hereford ATC site. June and July average flows have also been supplied on an annual basis, dating as far back as 2006 at some ATC sites. Utilising these historic flows a longitudinal analysis has been undertaken to identify whether the move of the cattle market in June 2011 (from the town centre to the outskirts of the town) had any effect on the Wednesday flows within the study area.

2.6.19 Data received for HC ATC sites 1 to 4 and 6 to 10 (as identified on plan in **Figure 2-2** and utilised previously in Section 2.4) contain average June and July flow data for every year in the period from 2006 to 2016. These are the sites which were utilised within the longitudinal analysis.

2.6.20 **Table 2-8** identifies the combined June and July average Wednesday flow variation from the Monday to Thursday average flows across the nine HC sites to be analysed, for each year between 2006 and 2016.

Table 2-8: Combined June and July average Wednesday flow variation from the Monday-Thursday average flows across the selected HC ATC sites, for the years between 2006 and 2016

HC ATC Site	June & July average Wednesday Flow Variation from Monday to Thursday Average Flow										
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
AM Peak Period (0700-1000)											

HC1- Aylestone Hill	+2.8%	+3.8%	+1.0%	+2.7%	+2.0%	+3.0%	+1.3%	+2.0%	+2.5%	+0.1%	+2.0%
HC2- Lugwardine Bridge	+4.0%	+4.1%	+0.2%	+2.2%	-0.9%	+2.6%	+4.7%	+1.1%	+1.3%	+2.3%	+0.8%
HC3- B4224 Hampton Park Road	+3.5%	+0.6%	+2.2%	+2.1%	+1.2%	+1.9%	+3.1%	+2.9%	+2.9%	+1.0%	+3.0%
HC4-B4399 Holme Lacey Rd.	-0.4%	+1.6%	+0.5%	+0.8%	-1.5%	+0.5%	-1.4%	+0.1%	-0.3%	+1.6%	+0.3%
HC6- A49(T) Ross Road	+4.2%	+4.5%	+1.2%	-0.0%	+2.6%	+2.7%	+2.5%	+1.5%	+2.8%	+7.0%	+2.4%
HC7- A465(T) Abergavenny Rd.	+1.1%	+3.8%	-0.4%	+1.6%	-1.4%	+0.0%	-0.3%	-0.6%	+1.5%	+2.2%	-1.1%
HC8- A438 Kings Acre Road	+2.2%	+0.4%	+2.6%	+2.9%	+2.1%	+2.7%	+2.2%	+0.9%	+2.1%	+0.6%	+0.6%
HC9-A4110 Three elms Rd.	+0.8%	+4.3%	+3.6%	+4.8%	+0.4%	+4.9%	+2.4%	+1.3%	+0.9%	+1.4%	-1.2%
HC10- A49(T) Holmer Rd.	-0.1%	+2.0%	+2.2%	+1.1%	+2.0%	+2.7%	+2.9%	+3.5%	+1.5%	+2.4%	+2.9%
Interpeak Period (1000-1600)											
HC1- Aylestone Hill	+0.3%	+2.0%	-0.4%	+1.8%	+1.7%	+1.0%	-2.5%	-1.2%	-0.7%	-2.8%	-1.2%
HC2- Lugwardine Bridge	+1.8%	+2.3%	-0.4%	-0.2%	-0.9%	-1.1%	+2.6%	+0.6%	-0.3%	-0.2%	-0.0%
HC3- B4224 Hampton Park Road	+1.4%	-1.7%	+2.3%	+1.3%	-1.1%	+1.0%	-3.1%	+3.1%	+0.1%	-1.2%	-3.1%
HC4-B4399 Holme Lacey Rd.	-2.6%	+0.2%	-4.1%	-0.4%	-2.4%	-0.8%	-1.0%	-0.7%	-1.8%	-3.7%	-1.8%
HC6- A49(T) Ross Road	-1.4%	-2.0%	-1.0%	-1.0%	-1.4%	-1.8%	-2.9%	-1.3%	-1.7%	+2.2%	-1.9%
HC7- A465(T) Abergavenny Rd.	-2.9%	+0.7%	+0.1%	-0.9%	-1.4%	-0.9%	-3.7%	-1.7%	-1.1%	-2.9%	-1.8%
HC8- A438 Kings Acre Road	-2.6%	-1.7%	-0.2%	-0.7%	-1.9%	+0.4%	-2.9%	+0.3%	-1.8%	-1.8%	-1.5%
HC9-A4110 Three elms Rd.	+0.8%	-0.1%	-1.8%	+1.2%	-0.7%	+1.5%	-2.2%	+0.2%	-0.2%	+0.4%	-3.3%
HC10- A49(T) Holmer Rd.	-1.9%	-1.0%	-1.1%	-1.1%	-0.3%	+0.1%	-1.2%	+0.6%	+0.4%	-0.6%	+3.3%
PM Peak Period (1600-1900)											
HC1- Aylestone Hill	+3.1%	+2.6%	+1.2%	+0.1%	+0.0%	+1.2%	+1.6%	-1.9%	+3.1%	-1.4%	-1.5%
HC2- Lugwardine Bridge	+2.0%	+6.8%	+2.7%	+3.1%	-0.3%	+0.8%	+2.4%	+0.0%	-0.1%	-0.0%	+0.4%
HC3- B4224 Hampton Park Road	+4.2%	-1.4%	+0.8%	-0.4%	-3.6%	+2.3%	-1.8%	+1.8%	+0.3%	+1.5%	+1.1%
HC4-B4399 Holme Lacey Rd.	+4.6%	+3.5%	+0.0%	+0.8%	+0.7%	-0.3%	+6.6%	+0.4%	+0.1%	-3.0%	+2.1%
HC6- A49(T) Ross Road	+3.3%	+1.0%	-3.2%	-0.5%	+0.2%	+1.1%	+1.1%	+1.4%	+2.6%	+18.6%	+1.9%
HC7- A465(T) Abergavenny Rd.	+1.7%	+2.3%	+0.0%	+0.1%	+0.1%	+1.8%	-0.0%	-0.7%	+1.6%	+1.4%	+2.4%
HC8- A438 Kings Acre Road	-2.0%	-0.2%	+0.0%	+0.8%	-1.2%	+0.2%	+2.5%	+0.6%	+3.2%	+2.9%	+0.2%
HC9-A4110 Three elms Rd.	+5.6%	+4.5%	+0.9%	+2.5%	+1.6%	+7.2%	+1.8%	+2.6%	+4.5%	+6.7%	+2.0%
HC10- A49(T) Holmer Rd.	+1.3%	+0.7%	-0.5%	-0.0%	-1.0%	+1.4%	+1.6%	+0.6%	+2.2%	-0.2%	+2.1%

Note: Hereford cattle market moved from the town centre to its new location in the outskirts of the town in June 2011
With the exception of HC ATC 4 (which is based only on inbound vehicles to Hereford) all values are based on the combined two-way flow at each ATC site

2.6.21 **Table 2-8** identifies no apparent trend in Wednesday flows being significantly different to that of the average Monday to Thursday flows in June and July, during any of the peak periods over the period from 2006 to 2016. The table also shows that since the cattle market moved to its new location in June 2011, although it may have impacted on the purpose of travel across the study area on a Wednesday, the move does not appear to have had a major impact on total traffic volumes during any of the peak periods.

2.6.22 This analysis further verifies the inclusion of Wednesday flows when calculating an average 'normal' weekday flow.

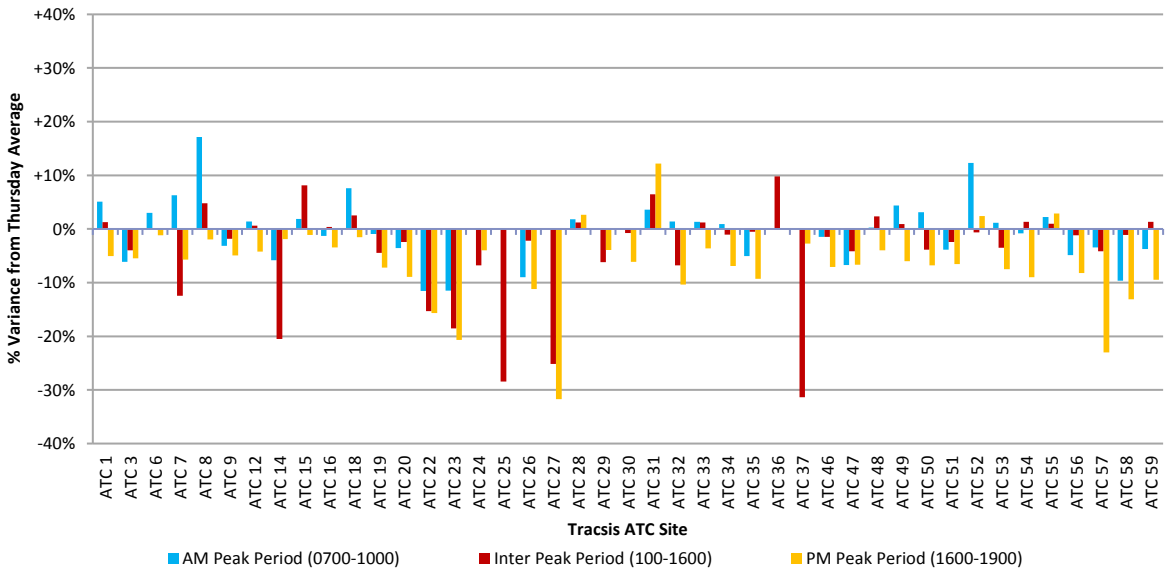
2.7 EVENTS DURING THE SURVEY PERIOD

2.7.1 During the survey period, there were two external events occurring which could have potentially affected traffic flows within Hereford. These were the England v Wales Euro 2016 football match (Thursday 16th June) and the EU referendum vote (Thursday 23rd June). An analysis has been undertaken on both of these days to identify whether any significant change in traffic flows were observed on each.

WALES V ENGLAND EURO 2016 FIXTURE (THURSDAY 16TH JUNE 2016)

2.7.2 **Chart 2**—7 and **Table 2-9** show the percentage difference in flow at each Tracsis ATC site between the Thursday coinciding with the Wales v England Euro 2016 fixture (16th June) and the survey period Thursday average (excluding the 16th and 23rd of June) for the AM, Inter and PM peak periods. Due to no data being recorded at ATC sites 2, 4, 5, 10, 11, 13, 17 and 21, no comparison is available at these sites. Comparisons for certain peak periods at ATC sites 17, 24, 25, 27, 29, 36 and 37 have also been omitted where ATC data is not available.

Chart 2—7: Percentage variance in flows between the Thursday coinciding with the Wales v England Euro 2016 fixture and the survey period Thursday average (excluding the 16th and 23rd of June)



Note: Only ATCs with valid data for at least one time period are shown

Table 2-9: Percentage variance in flows between the Thursday coinciding with the Wales v England Euro 2016 fixture and the survey period Thursday average (excluding the 16th and 23rd of June)

Time Period	Analysis Criteria	All ATC sites		ATC sites with a variance > 5%		ATC sites with a variance > 10%	
		Count	% of Total	Count	% of Total	Count	% of Total
AM Peak Period (07:00-10:00)	June 16th flow **lower** than survey period Thursday average	18	49%	8	22%	2	5%
	June 16th flow **higher** than survey period Thursday average	19	51%	5	14%	2	5%
Interpeak Period (10:00-16:00)	June 16th flow **lower** than survey period Thursday average	27	63%	10	23%	7	16%
	June 16th flow **higher** than survey period Thursday average	16	37%	3	7%	0	0%
PM Peak Period (16:00-19:00)	June 16th flow **lower** than survey period Thursday average	37	90%	24	59%	7	17%
	June 16th flow **higher** than survey period Thursday average	4	10%	1	2%	1	2%

Note: Only ATCs with valid data for each time period are counted

2.7.3 **Chart 2**—7 and **Table 2-9** identify that during the AM peak period on 16th June, traffic flows showed no significant variation from that of the survey period Thursday average, with 18 sites (49%) having flows lower than the survey period average, and 19 sites (51%) having flows higher

than the survey period average. Only 4 (10% in total) of the 37 valid sites had a variance in flow of greater than 10%, with a maximum variance of +17% observed at ATC site 8.

2.7.4 Whilst the AM peak shows little variance from the Thursday average, the Inter and PM peak periods appear to have a consistently lower flow across the Tracsis ATC sites. This is especially so during the PM peak period where 37 sites (90%) had a 16th June flow lower than that of the survey period Thursday average. Of these 37 sites, 24 (59% of total) had a variance in flow greater than 5%, and 7 (17% of total) had a variance in flow greater than 10%, with a maximum variance of -31% was observed at ATC site 27.

2.7.5 During the Interpeak period 27 (63%) sites had 16th June flows lower than that of the survey period Thursday average, and 16 (37%) sites had flows higher than the survey period average. Of the 27 sites which had a 16th June flow lower than the survey period average, 10 (23% of total) had a variance in flow greater than 5%, and 7 (16% of total) had a variance in flow greater than 10%. Of the 16 sites which had a 16th June flow higher than the survey period average, only 3 (7% of total) had a variance in flow greater than 5%, and none had a variance in flow greater than 10%. A maximum variance of -32% observed at ATC site 37 during the Interpeak period.

2.7.6 The kick off time for the Wales v England game was at 14:00 and so the decrease in observed flows over the Inter and PM peak periods would seem to indicate that the this event did have an impact on normal traffic flows within the study area.

2.7.7 As a result it was decided that flows for the 16th June would not be representative of those for a 'normal' Thursday, and that all data recorded during this period would be omitted from all summary results and SATURN modelling work.

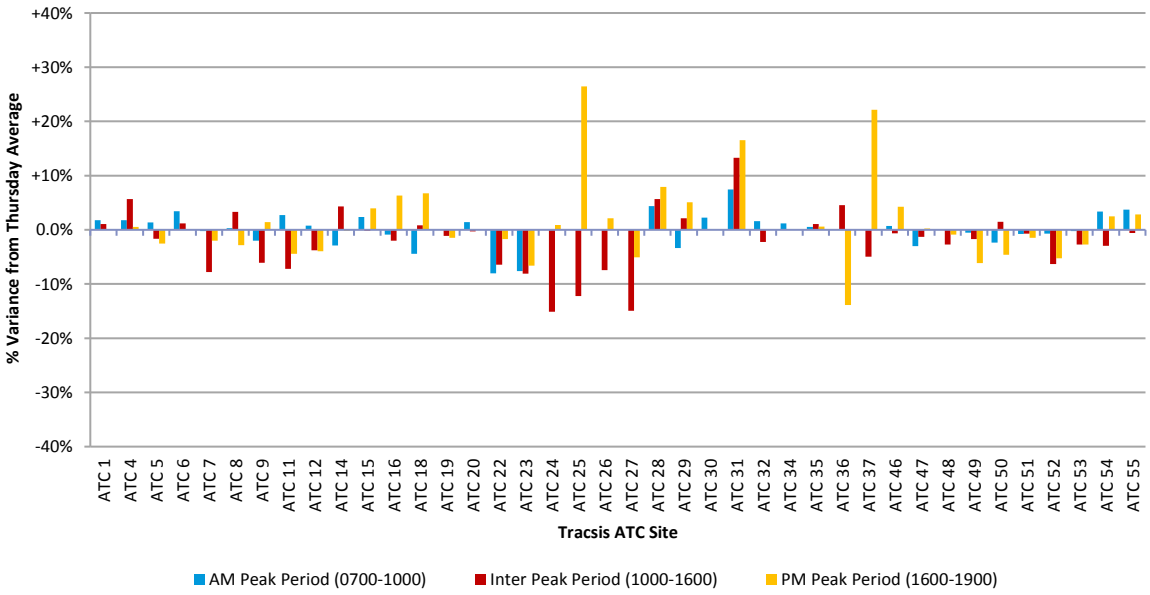
EU REFERENDUM VOTE (THURSDAY 23RD JUNE 2016)

2.7.8 **Chart 2—8** and **Table 2-10** show the percentage difference in flow at each Tracsis ATC site between the Thursday coinciding with the EU referendum vote day (23rd June) and the Thursday average (excluding the 16th and 23rd of June) for the AM, inter and PM peak periods. Due to no data being recorded at ATC sites 2, 3, 10, 13, 17, 21, 33 and 56, no comparison is available at these sites. Comparisons for certain peak periods at ATC sites 24, 25, 26, 27, 30, 34, 36 and 37 have also been omitted where ATC data is not available.

2.7.9 **Chart 2—8** and **Table 2-10** identify that during the AM peak period on 23rd June, traffic flows showed no significant variation from that of the survey period Thursday average, with 14 (41%) sites having flows lower than the survey period average, and 20 (59%) sites having flows higher than the survey period average. Only 3 of the 34 valid sites had a variance in flow of greater than 5%, and none had a variance in flow greater than 10%. Over the AM peak period a maximum variance of -8% was observed, occurring at ATC site 22.

2.7.10 Similarly, traffic flows during the PM peak period on 23rd June showed no significant variation from that of the survey period Thursday average. During this period 17 (45%) ATC sites had flows lower than the survey period average, and 21 (55%) sites had flows higher than the survey period average. A total of 12 (31% of total) sites had a variance in flow of greater than 5%, and only 4 (11% of total) had a variance in flow greater than 10%. Over the PM peak period a maximum variance of +26% was observed, occurring at ATC site 25.

Chart 2—8: Percentage variance in flows between the Thursday coinciding with the EU Referendum vote day and the survey period Thursday average (excluding the 16th and 23rd of June)



Note: Only ATCs with valid data for at least one time period are shown

Table 2-10: Percentage variance in flows between the Thursday coinciding with the EU Referendum vote day and the survey period Thursday average (excluding the 16th and 23rd of June)

Time Period	Analysis Criteria	All ATC sites		ATC sites with a variance > 5%		ATC sites with a variance > 10%	
		Count	% of Total	Count	% of Total	Count	% of Total
AM Peak Period (07:00-10:00)	June 23rd flow **lower** than survey period Thursday average	14	41%	2	6%	0	0%
	June 23rd flow **higher** than survey period Thursday average	20	59%	1	3%	0	0%
Interpeak Period (10:00-16:00)	June 23rd flow **lower** than survey period Thursday average	26	69%	10	26%	3	8%
	June 23rd flow **higher** than survey period Thursday average	12	31%	3	8%	1	3%
PM Peak Period (16:00-19:00)	June 23rd flow **lower** than survey period Thursday average	17	45%	5	13%	1	3%
	June 23rd flow **higher** than survey period Thursday average	21	55%	7	18%	3	8%

Note: Only ATCs with valid data for each time period are counted

2.7.11 Whilst the AM peak and PM peak period differs little from the Thursday average, the Interpeak period appears to have a more consistent lower flow. During this period 26 (69%) ATC sites had flows lower than the survey period average, whereas 12 (31%) sites had flows higher than the survey period average. A total of 13 (34% of total) sites had a variance in flow of greater than 5%, and only 4 (11% of total) had a variance in flow greater than 10%. Over the Interpeak period a maximum variance of -15% was observed, occurring at ATC site 24. Although showing a trend towards slightly lower flows during the Interpeak period, this variance is comparatively insignificant over all ATC sites.

2.7.12 The overall analysis would seem to identify that the EU referendum did not have a marked effect on the usual traffic flows within Hereford. As a result it was decided that flows for the 23rd June would be representative of those for a 'normal' Thursday, and that all data recorded during this period would be valid for use in all summary results and SATURN modelling work.

2.7.13 A copy of all the data utilised within the special event day analysis is included at **Appendix A-3**.

2.8 ATC SUMMARIES

24-HOUR FLOWS

2.8.1 **Table 2-11** below outlines the average 24-hour two-way Monday to Thursday all vehicle flows across the 51 ATC sites undertaken by Tracsis, ranked by volume from highest flow to lowest flow.

Table 2-11 - ATC Site 24-Hour Flows

ATC Weekday Volume Rank	ATC Site	Site Name	24-hour two way weekday average flow
1	ATC 17	A49 Bridge	44,296
2	ATC 19	Belmont Road	26,880
3	ATC 10	A49 by Widemarsh Brook	25,316
4	ATC 14	A438 Newmarket Street	24,078
5	ATC 3	Holmer Road	21,113
6	ATC 33	A49 South of Holme Lacey Road, North of Pencroft Road	19,757
7	ATC 4	A4103 Roman Road by Holmer	18,641
8	ATC 54	A438 Frome Park	16,691
9	ATC 20	A465 Newton Coppice	16,297
10	ATC 21	Holme Lacy Road by Red Hill	15,612
11	ATC 30	A49 by Norton Brook Farm	15,569
12	ATC 34	A49, north of Grafton Lane, south of A49 junction with B4399	15,532
13	ATC 12	Burcott Road	14,799
14	ATC 35	A465, north of junction with Church Road (Goose Pool)	14,548
15	ATC 28	Ross Road (Red Hill)	14,253
16	ATC 47	B4349, The Bines in Clehonger	13,588
17	ATC 52	Aylestone Hill Roundabout, Northern Arm	13,430
18	ATC 9	A438 Kings Acre Road	12,968
19	ATC 6	Aylestone Hill	11,439
20	ATC 15	A438 Ledbury Road	11,073
21	ATC 22	The Straight Mile	10,950
22	ATC 23	The Straight Mile	10,296
23	ATC 11	B4359 Newtown Road	9,856
24	ATC 5	A4103 Roman Road	9,010

25	ATC 13	A438 Ledbury Road	8,997
26	ATC 50	A4103/A4110 Signalised Junction, North Arm	8,559
27	ATC 2	A4110 Three Elms Road	8,281
28	ATC 49	Stretton Sugwas Roundabout, Northern Arm	7,752
29	ATC 59	A465, North of Goose Pool	7,607
30	ATC 55	B4224, North East of Mordiford	7,517
31	ATC 16	B4224 Eign Road	7,301
32	ATC 48	A438 West of Stretton Sugwas Junction	7,154
33	ATC 8	Old School Lane	7,134
34	ATC 57	Tillington Road by Bronte Cottages	6,683
35	ATC 56	B4399, Straight Mile/Chapel Road Roundabout, Eastern Arm	6,448
36	ATC 32	B4224 by West Wood	5,835
37	ATC 7	College Road	5,542
38	ATC 51	A49, East of Dinmore	5,457
39	ATC 31	B4399 Near Ridge Hill	5,295
40	ATC 53	Aylestone Hill Roundabout, Eastern Arm	3,640
41	ATC 58	A438, Green Crize	3,587
42	ATC 29	Near Haywood Lodge Farmhouse	2,653
43	ATC 18	HJunderton Road by Hunderton	2,624
44	ATC 1	Bridge Sollers Near A438	2,312
45	ATC 26	Hoarwithy Road	1,600
46	ATC 38	A438, West of Lugwardine	1,565
47	ATC 27	Bullingham Lane	453
48	ATC 37	Grafton Lane (south), on approach to junction with A49(T) (by Renault Garage)	414
49	ATC 24	Watery Lane	372
50	ATC 36	Grafton Lane (north), on approach to junction with A49(T), south of railway bridge	317
51	ATC 25	Lower Bullingham Lane	180

ATC SITE SUMMARIES

2.8.2 **Figures 2-2 to 2-60** (in **Appendix A-4**) provide a summary of the ATC flows at each site. They identify the average Monday to Thursday all vehicle flows (plus percentage HGV) for each ATC, over the AM peak period, Interpeak period, PM peak period and 24-hour daily period respectively.

2.8.3 The following paragraphs provide a summary of the ATC findings at each site.

ATC SITE 1 - BRIDGE SOLLERS NEAR A438

2.8.4 This ATC is located on a two-lane unnamed road by the village of Bridge Sollers, at the point where the road overpasses the River Wye.

2.8.5 The average daily Monday to Thursday flows at this site were 1,152 vehicles in the northbound direction and 1,138 vehicles in the southbound direction. The percentage of HGVs over this period was 1% in both the northbound and southbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-2**.

ATC SITE 2 - A4110 THREE ELMS ROAD

2.8.6 This ATC is located on the two-lane A4110 between the Redcar Avenue and Roman Road junctions.

2.8.7 The average daily Monday to Thursday flows at this site were 3,546 vehicles in the northbound direction and 4,655 vehicles in the southbound direction. The percentage of HGVs over this period was 2% in the northbound direction and 1% in the southbound direction. A breakdown of flows at this site for all peak periods is shown in **Figure 2-3**.

ATC SITE 3 – A49 HOLMER ROAD

2.8.8 This ATC is located near the Premier Inn on the two-lane A49 Holmer Road, south of the roundabout junction with the A4103 Roman Road.

2.8.9 The average daily Monday to Thursday flows at this site were 9,817 vehicles in the northbound direction and 11,111 vehicles in the southbound direction. The percentage of HGVs over this period was 4% in both the northbound and southbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-4**.

ATC SITE 4 – A4103 ROMAN ROAD BY HOLMER

2.8.10 This ATC is located on the two-lane A4103 (Roman Road) between the Cleeve Orchard and Attwood Lane junctions.

2.8.11 The average daily Monday to Thursday flows at this site were 9,218 vehicles in the eastbound direction and 9,332 vehicles in the westbound direction. The percentage of HGVs over this period was 2% in the eastbound direction and 3% in the westbound direction. A breakdown of flows at this site for all peak periods is shown in **Figure 2-5**.

ATC SITE 5 - A4103 ROMAN ROAD

2.8.12 This ATC is located on the two-lane A4103 (Roman Road) at the point where the road overpasses the railway line.

2.8.13 The average daily Monday to Thursday flows at this site were 5,545 vehicles in the eastbound direction and 5,800 vehicles in the westbound direction. The percentage of HGVs over this period was 3% in both the eastbound and westbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-6**.

ATC SITE 6 - AYLESTONE HILL

2.8.14 This ATC is located on the two-lane A4103 (Aylestone Hill), south of the A465/A4103 roundabout.

2.8.15 The average daily Monday to Thursday flows at this site were 5,779 vehicles in the northbound direction and 5,538 vehicles in the southbound direction. The percentage of HGVs over this period was 2% in both the northbound and southbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-7**.

ATC SITE 7 – COLLEGE ROAD

2.8.16 This ATC is located on the two-lane College Road, at the point where the road overpasses the railway line.

2.8.17 The average daily Monday to Thursday flows at this site were 2,153 vehicles in the northbound direction and 3,357 vehicles in the southbound direction. The percentage of HGVs over this period was 1% in the northbound direction and >1% in the southbound direction. A breakdown of flows at this site for all peak periods is shown in **Figure 2-8**.

ATC SITE 8 – OLD SCHOOL LANE

2.8.18 This ATC is located on the two-lane Old School Lane, at the point where the road overpasses the railway line.

2.8.19 The average daily Monday to Thursday flows at this site were 3,975 vehicles in the northbound direction and 3,132 vehicles in the southbound direction. The percentage of HGVs over this period was 1% in both the northbound and southbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-9**.

ATC SITE 9 – A438 KINGS ACRE ROAD

2.8.20 This ATC is located on the two-lane A438 Kings Acre Road, between the junctions with Huntington Lane (to the west) and Cotswold Drive (to the east).

2.8.21 The average daily Monday to Thursday flows at this site were 6,199 vehicles in the eastbound direction and 6,680 vehicles in the westbound direction. The percentage of HGVs over this period was 3% in the eastbound direction and 2% in the westbound direction. A breakdown of flows at this site for all peak periods is shown in **Figure 2-10**.

ATC SITE 10 – A49 BY WIDEMARSH BROOK

2.8.22 This ATC is located on the two-lane A49 Newtown Road at the point where the road overpasses the railway line, to the west of the roundabout junction with A49 Edgar Street / Farriers Way.

2.8.23 The average daily Monday to Thursday flows at this site were 12,564 vehicles in the eastbound direction and 12,416 vehicles in the westbound direction. The percentage of HGVs over this period was 3% in both the eastbound and westbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-11**.

ATC SITE 11 – B4359 NEWTOWN ROAD

2.8.24 This ATC is located on the two-lane B4359 Newtown Road, directly east of the A49 Newtown Road / A49 Edgar Street / Farriers Way roundabout.

2.8.25 The average daily Monday to Thursday flows at this site were 5,359 vehicles in the eastbound direction and 4,389 vehicles in the westbound direction. The percentage of HGVs over this period was 1% in both the eastbound and westbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-12**.

ATC SITE 12 – BURCOTT ROAD

2.8.26 This ATC is located on the two-lane Burcott Road, at the point where the road overpasses the railway line.

2.8.27 The average daily Monday to Thursday flows at this site were 5,912 vehicles in the eastbound direction and 8,730 vehicles in the westbound direction. The percentage of HGVs over this period was >1% in the eastbound direction and 1% in the westbound direction. A breakdown of flows at this site for all peak periods is shown in **Figure 2-13**.

ATC SITE 13 – A438 LEDBURY ROAD (A)

2.8.28 This ATC is located on the two-lane A438 Ledbury Road, east of the Herefordshire Wildlife Trust access junction.

2.8.29 The average daily Monday to Thursday flows at this site were 4,269 vehicles in the eastbound direction and 4,650 vehicles in the westbound direction. The percentage of HGVs over this period was 1% in the eastbound direction and 2% in the westbound direction. A breakdown of flows at this site for all peak periods is shown in **Figure 2-14**.

ATC SITE 14 (A AND B) – A438 NEWMARKET STREET

2.8.30 ATC 14A and 14B are located on the A438 Newmarket Street directly to the west of the roundabout junction with A49 Edgar Street / A49 Victoria Street (by the Maylord Shopping Centre). A438 Newmarket Street is a four-lane carriageway with two lanes in each direction separated by a central island. ATC 14A was placed across the two lanes on the eastbound carriageway and 14B was placed across the two lanes on the westbound carriageway.

2.8.31 The average daily Monday to Thursday flows at this site were 10,289 vehicles in the eastbound direction and 13,561 vehicles in the westbound direction. The percentage of HGVs over this period was 6% in the eastbound direction and 5% in the westbound direction. A breakdown of flows at this site for all peak periods is shown in **Figure 2-15**.

ATC SITE 15 – A438 LEDBURY ROAD (B)

2.8.32 This ATC is located on the two-lane A438 Ledbury Road, between the Central Avenue and Foley Street junctions at the point where the railway line overpasses the road.

2.8.33 The average daily Monday to Thursday flows at this site were 5,252 vehicles in the northbound direction and 5,666 vehicles in the southbound direction. The percentage of HGVs over this period was 1% in both the northbound and southbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-16**.

ATC SITE 16 – B4224 EIGN ROAD

2.8.34 This ATC is located on the two-lane B4224 Eign Road, between the Outfall Works Road Junction and Scot's Close Junction, at the point where the railway overpasses the road.

2.8.35 The average daily Monday to Thursday flows at this site were 3,637 vehicles in the northbound direction and 3,596 vehicles in the southbound direction. The percentage of HGVs over this period was 1% in both the northbound and southbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-17**.

ATC SITE 17 (A AND B) – A49 BRIDGE

2.8.36 ATC 17A and 17B are located on the A49, at the point where the road crosses the river Wye. The A49 is a four-lane carriageway with two lanes in each direction separated by a small central island. ATC 17A was placed across the two lanes on the northbound carriageway and 17B was placed across the two lanes on the southbound carriageway. A lack of suitable street furniture meant that they ATC 17A and ATC 17B could not be placed directly parallel, however flows will still be accurate as no traffic could leave the link between the two sites.

2.8.37 The average daily Monday to Thursday flows at this site were 21,807 vehicles in the northbound direction and 21,954 vehicles in the southbound direction. The percentage of HGVs over this period was 6% in the northbound direction and 7% in the southbound direction. A breakdown of flows at this site for all peak periods is shown in **Figure 2-18**.

ATC SITE 18 –HUNDERTON ROAD BY HUNDERTON

2.8.38 This ATC is located on the Hunderton Road north of the Hunderton Avenue / Pembridge Close junction. The road is so narrow as to be effectively one lane, although this is not apparent through any signage in the locale.

2.8.39 The average daily Monday to Thursday flows at this site were 1,303 vehicles in the northbound direction and 1,264 vehicles in the southbound direction. The percentage of HGVs over this period was 2% in the northbound direction and >1% in the southbound direction. A breakdown of flows at this site for all peak periods is shown in **Figure 2-19**.

ATC SITE 19 – A465 BELMONT ROAD

2.8.40 This ATC is located on the two-lane A465 Belmont Road, between the junctions with Beattie Avenue and Hunderton Lane.

2.8.41 The average daily Monday to Thursday flows at this site were 13,285 vehicles in the northbound direction and 13,343 vehicles in the southbound direction. The percentage of HGVs over this period was 2% in both the northbound and southbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-20**.

ATC SITE 20 – A465 NEWTON COPPICE

2.8.42 This ATC is located on the two-lane A465, east of the Ruckhall Lane and Belmont Pool junction.

2.8.43 The average daily Monday to Thursday flows at this site were 7,794 vehicles in the eastbound direction and 8,377 vehicles in the westbound direction. The percentage of HGVs over this period was 3% in both the eastbound and westbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-21**.

ATC SITE 21 – HOLME LACY ROAD BY RED HILL

2.8.44 This ATC is located on the two-lane Holme Lacy Road, west of the Oak Crescent junction.

2.8.45 The average daily Monday to Thursday flows at this site were 6,743 vehicles in the eastbound direction and 8,800 vehicles in the westbound direction. The percentage of HGVs over this period was 1% in both the eastbound and westbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-22**.

ATC SITE 22 – THE STRAIGHT MILE (A)

2.8.46 This ATC is located on the two-lane Holme Lacy Road, between the St Vincent Close and Goodwin Way junctions.

2.8.47 The average daily Monday to Thursday flows at this site were 5,264 vehicles in the eastbound direction and 5,762 vehicles in the westbound direction. The percentage of HGVs over this period was 1% in both the eastbound and westbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-23**.

ATC SITE 23 – THE STRAIGHT MILE (B)

2.8.48 This ATC is located on the two-lane The Straight Mile Road, east of the railway overpass.

2.8.49 The average daily Monday to Thursday flows at this site were 5,313 vehicles in the eastbound direction and 5,006 vehicles in the westbound direction. The percentage of HGVs over this period was 1% in both the eastbound and westbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-24**.

ATC SITE 24 – WATERY LANE

2.8.50 This ATC is located on the Watery Lane Road at the point where the railway lane overpasses the road. The road is so narrow as to be effectively one lane, although this is not apparent through any signage in the locale.

2.8.51 The average daily Monday to Thursday flows at this site were 176 vehicles in the northbound direction and 194 vehicles in the southbound direction. The percentage of HGVs over this period was 3% in both the northbound and southbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-25**.

ATC SITE 25 –LOWER BULLINGHAM LANE

2.8.52 This ATC is located on Lower Bullingham Lane at the point where the railway line overpasses the road. The road is so narrow as to be effectively one lane, although this is not apparent through any signage in the locale.

2.8.53 The average daily Monday to Thursday flows at this site were 90 vehicles in the northbound direction and 89 vehicles in the southbound direction. The percentage of HGVs over this period was 1% in both the northbound and southbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-26**.

ATC SITE 26 – HOARWITHY ROAD

2.8.54 This ATC is located on Hoarwithy Road at the point where the railway line overpasses the road. The road is narrow but should allow for passing traffic.

2.8.55 The average daily Monday to Thursday flows at this site were 805 vehicles in the northbound direction and 782 vehicles in the southbound direction. The percentage of HGVs over this period was 1% in both the northbound and southbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-27**.

ATC SITE 27 – BULLINGHAM LANE

2.8.56 This ATC is located on Bullingham Lane at the point where the railway line overpasses the road.

2.8.57 The average daily Monday to Thursday flows at this site were 237 vehicles in the northbound direction and 216 vehicles in the southbound direction. The percentage of HGVs over this period was 1% in the northbound direction and 5% in the southbound direction. A breakdown of flows at this site for all peak periods is shown in **Figure 2-28**.

ATC SITE 28 – ROSS ROAD (RED HILL)

2.8.58 This ATC is located on the two-lane Ross Road, South of Red Hill Avenue.

2.8.59 The average daily Monday to Thursday flows at this site were 7,288 vehicles in the northbound direction and 6,768 vehicles in the southbound direction. The percentage of HGVs over this period was 5% in the northbound direction and 6% in the southbound direction. A breakdown of flows at this site for all peak periods is shown in **Figure 2-29**.

ATC SITE 29 – NEAR HAYWOOD LODGE FARMHOUSE

2.8.60 This ATC is located on the two lane unnamed road, west of the village of Grafton and North of the village of Portway. The ATC is at the point where the road overpasses the railway line.

2.8.61 The average daily Monday to Thursday flows at this site were 1,103 vehicles in the northbound direction and 1,531 vehicles in the southbound direction. The percentage of HGVs over this period was 1% in both the northbound and southbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-30**.

ATC SITE 30 – A49 BY NORTON BROOK FARM

2.8.62 This ATC is located on the two-lane A49, south of the A49/B4399 roundabout.

2.8.63 The average daily Monday to Thursday flows at this site were 7,813 vehicles in the northbound direction and 7,585 vehicles in the southbound direction. The percentage of HGVs over this period was 5% in both the northbound and southbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-31**.

ATC SITE 31 – B4399 NEAR RIDGE HILL

2.8.64 This ATC is located on the two-lane B4399, east of the A49/B4399 roundabout.

2.8.65 The average daily Monday to Thursday flows at this site were 2,484 vehicles in the eastbound direction and 2,784 vehicles in the westbound direction. The percentage of HGVs over this period was 9% in both the eastbound and westbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-32**.

ATC SITE 32 – B4399 BY WEST WOOD

2.8.66 This ATC is located on the two-lane B4399, west of the B4399 at the point where the road crosses the River Wye.

2.8.67 The average daily Monday to Thursday flows at this site were 2,949 vehicles in the eastbound direction and 2,875 vehicles in the westbound direction. The percentage of HGVs over this period was 1% in both the eastbound and westbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-33**.

ATC SITE 33 – A49 SOUTH OF HOLME LACY ROAD, NORTH OF PENCROFT ROAD

2.8.68 This ATC is located on the two-lane A49, between the Broadleys Crescent junction to the north, and the Pencroft Road junction to the south.

2.8.69 The average daily Monday to Thursday flows at this site were 9,862 vehicles in the northbound direction and 9,638 vehicles in the southbound direction. The percentage of HGVs over this period was 4% in both the northbound and southbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-34**.

ATC SITE 34 – A49, NORTH OF GRAFTON LANE, SOUTH OF A49 JUNCTION WITH B4399

2.8.70 This ATC is located on the two-lane A49, between the Grafton Lane junction to the south, and the North Brook Cottages junction to the north.

2.8.71 The average daily Monday to Thursday flows at this site were 7,780 vehicles in the northbound direction and 7,578 vehicles in the southbound direction. The percentage of HGVs over this period was 6% in both the northbound and southbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-35**.

ATC SITE 35 – A465, NORTH OF JUNCTION WITH CHURCH ROAD (GOOSE POOL)

2.8.72 This ATC is located on the two-lane A465, south of the B4349 junction.

2.8.73 The average daily Monday to Thursday flows at this site were 7,093 vehicles in the northbound direction and 7,315 vehicles in the southbound direction. The percentage of HGVs over this period was 3% in both the northbound and southbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-36**.

ATC SITE 36 – GRAFTON LANE (NORTH), ON APPROACH TO JUNCTION WITH A49(T), SOUTH OF RAILWAY BRIDGE

2.8.74 This ATC is located on Grafton Lane west of the A49 Ross Road junction. The road is so narrow as to be effectively one lane, although this is not apparent through any signage in the locale.

2.8.75 The average daily Monday to Thursday flows at this site were 167 vehicles in the northbound direction and 150 vehicles in the southbound direction. The percentage of HGVs over this period was 1% in both the northbound and southbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-37**.

ATC SITE 37 – GRAFTON LANE (SOUTH), ON APPROACH TO JUNCTION WITH A49(T), (BY RENAULT GARAGE)

2.8.76 This ATC is located on Grafton Lane west of the A49 junction. The road is so narrow as to be effectively one lane.

2.8.77 The average daily Monday to Thursday flows at this site were 193 vehicles in the eastbound direction and 227 vehicles in the westbound direction. The percentage of HGVs over this period was 3% in the eastbound direction and 1% in the westbound direction. A breakdown of flows at this site for all peak periods is shown in **Figure 2-38**.

ATC SITE 38 – A438, WEST OF LUGWARDINE

2.8.78 This ATC is located on the two-lane A438, east of the Herefordshire Wildlife Trust access junction. This is a permanent site operated by Herefordshire Council.

2.8.79 The average daily Monday to Thursday flows at this site were 4,246 vehicles in the eastbound direction and 4,426 vehicles in the westbound direction. A breakdown of these flows is shown in **Figure 2-39**.

2.8.80 No vehicle class split information was provided in the HC ATC data and so no HGV percentages can be calculated at this site.

ATC SITE 39 – B4224, HAMPTON PARK ROAD

2.8.81 This ATC is located on the two-lane B4224 Hampton Park Road, east of the Sudbury Avenue junction. This is a permanent site operated by Herefordshire Council.

2.8.82 The average daily Monday to Thursday flows at this site were 3,267 vehicles in the westbound direction. From analysis of the data it appears that there was an error in the recording of eastbound data resulting in unexpectedly low flow. Due to the nature of the ATC, the presence of the error also impacts the reliability of the westbound flows at the site. A breakdown of these flows is shown in **Figure 2-40**.

2.8.83 No vehicle class split information was provided in the HC ATC data and so no HGV percentages can be calculated at this site.

ATC SITE 40 – THE STRAIGHT MILE, NORTH OF DINEDOR HILL

2.8.84 This ATC is located on the two-lane B4399, east of the Coldnose Road access junction. This is a permanent site operated by Herefordshire Council.

2.8.85 The average daily Monday to Thursday flows at this site were 2,691 vehicles in the eastbound direction and 2,627 vehicles in the westbound direction. A breakdown of these flows is shown in **Figure 2-41**.

2.8.86 No vehicle class split information was provided in the HC ATC data and so no HGV percentages can be calculated at this site.

ATC SITE 41 – B4399, NORTON BROOK

2.8.87 This ATC is located on the two-lane B4399 near Norton Brook, east of the A49/B4399 roundabout. This is a permanent site operated by Herefordshire Council.

2.8.88 The average daily Monday to Thursday flows at this site were 2,497 vehicles in the eastbound direction and 2,783 vehicles in the westbound direction. A breakdown of these flows is shown in **Figure 2-42**.

2.8.89 No vehicle class split information was provided in the HC ATC data and so no HGV percentages can be calculated at this site.

ATC SITE 42 – A438, BY BROOMY HILL

2.8.90 This ATC is located on the two-lane A438, west of the Friars Street junction and east of the Grimmer Road junction. This is a permanent site operated by Herefordshire Council.

2.8.91 The average daily Monday to Thursday flows at this site were 10,721 vehicles in the eastbound direction and 10,284 vehicles in the westbound direction. A breakdown of these flows is shown in **Figure 2-43**.

2.8.92 No vehicle class split information was provided in the HC ATC data and so no HGV percentages can be calculated at this site.

ATC SITE 43 – EDGAR STREET

2.8.93 This ATC is located on the two-lane Edgar Street, north of the Moor Street junction and south of the Prior Street junction. This is a permanent site operated by Herefordshire Council.

2.8.94 The average daily Monday to Thursday flows at this site were 9,531 vehicles in the northbound direction and 10,531 vehicles in the southbound direction. A breakdown of these flows is shown in **Figure 2-44**.

2.8.95 No vehicle class split information was provided in the HC ATC data and so no HGV percentages can be calculated at this site.

ATC SITE 44 – A438, OPPOSITE MAYLORD SHOPPING CENTRE

2.8.96 This ATC is located on the four-lane A438, parallel to the Maylord Shopping Centre. This is a permanent site operated by Herefordshire Council.

2.8.97 The average daily Monday to Thursday flows at this site were 14,293 vehicles in the eastbound direction and 15,626 vehicles in the westbound direction. A breakdown of these flows is shown in **Figure 2-45**.

2.8.98 No vehicle class split information was provided in the HC ATC data and so no HGV percentages can be calculated at this site.

ATC SITE 45 – A465, ON CROSSING WITH RAILWAY LINE

2.8.99 This ATC is located on the two-lane A465, west of Aylestone Hill at the point where the road overpasses the railway line. This is a permanent site operated by Herefordshire Council.

2.8.100 The average daily Monday to Thursday flows at this site were 11,636 vehicles in the eastbound direction and 8,758 vehicles in the westbound direction. A breakdown of these flows is shown in **Figure 2-46**.

2.8.101 No vehicle class split information was provided in the HC ATC data and so no HGV percentages can be calculated at this site.

ATC SITE 46 – RSI SITE 1: A49 SOUTH, WEST OF ACONBURY HILL

2.8.102 This ATC is located on the two-lane A49, Hampton Park Road, west of Aconbury Hill and north of the A456 junction.

2.8.103 The average daily Monday to Thursday flows at this site were 6,575 vehicles in the northbound direction and 6,818 vehicles in the southbound direction. The percentage of HGVs over this period was 6% in the northbound direction and 7% in the southbound direction. A breakdown of flows at this site for all peak periods is shown in **Figure 2-47**.

2.8.104 The roadside interviews that took place at this site on Tuesday 28th June 2016 were conducted in the northbound direction.

2.8.105 In order to identify whether the flows at the site were influenced by the RSI survey, **Table 2-12** provides a comparison of the total two-way daily vehicle counts at this site for all Tuesdays within the survey period.

Table 2-12: Two-way total vehicle count comparison for all Tuesdays within the survey period compared to the RSI survey day (Tue 28th June) at ATC 46

Time Period	RSI Day Flows	Comparative Tuesday Flows					% Variation from RSI Day Flow				
	Tue 28th Jun	Tue 6th Jun	Tue 14th Jun	Tue 21st Jun	Tue 5th July	Tue 12th July	Tue 6th Jun	Tue 14th Jun	Tue 21st Jun	Tue 5th July	Tue 12th July
AM Peak Period (07:00-10:00)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Interpeak Period (10:00-16:00)	2,561	2,458	2,504	2,527	2,503	2,580	-4.0%	-2.2%	-1.3%	-2.3%	+0.7%
PM Peak Period (16:00-19:00)	1,324	1,393	1,432	1,462	1,406	1,435	+5.2%	+8.2%	+10.4%	+6.2%	+8.4%

Note: Due to ATC error on RSI survey day, AM peak comparison is not available

2.8.106 The comparisons in **Table 2-12** do seem to identify that there was a difference in flow at the ATC site during the RSI survey data, compared to the other Tuesdays within the survey period.

2.8.107 During the Interpeak period flows on the RSI survey day were lower than 4 out of the 5 other Tuesdays within the survey period, with flows varying slightly by between -1.3% and -4.0%. Only on 12th July were flows lower (by +0.7%) than on the RSI survey day.

2.8.108 During the PM peak period flows were higher on all other Tuesdays within the survey period, varying from between +5.2% and +10.4% from the RSI survey day. This variation appears quite significant (The RSI day flow varies by over 2 standard deviations from the non RSI survey Tuesday flow) and suggests that the RSI survey might have influenced a reduction in flows on the survey day.

2.8.109 As a result of this potential influence on flows, ATC data from Tue 28th June at ATC Site 46 will be omitted from all summary results and SATURN modelling work.

ATC SITE 47 – RSI SITE 2: B4349, THE BINES IN CLEHONGER

2.8.110 This ATC is located on the two-lane B4349, east of the junction with Birch Hill Road.

2.8.111 The average daily Monday to Thursday flows at this site were 3,618 vehicles in the eastbound direction and 3,457 vehicles in the westbound direction. The percentage of HGVs over this period was 1% in the eastbound direction and 2% in the westbound direction. A breakdown of flows at this site for all peak periods is shown in **Figure 2-48**.

2.8.112 The roadside interviews that took place at this site on Tuesday 21st June 2016 were conducted in the eastbound direction.

2.8.113 In order to identify whether the flows at the site were influenced by the RSI survey, **Table 2-13** provides a comparison of the total two-way daily vehicle counts at this site for all Tuesdays within the survey period.

Table 2-13: Two-way total vehicle count comparison for all Tuesdays within the survey period compared to the RSI survey day (Tue 28th June) at ATC 47

Time Period	RSI Day Flows	Comparative Tuesday Flows					% Variation from RSI Day Flow				
	Tue 21st Jun	Tue 6th Jun	Tue 14th Jun	Tue 28th Jun	Tue 5th July	Tue 12th July	Tue 6th Jun	Tue 14th Jun	Tue 28th Jun	Tue 5th July	Tue 12th July
AM Peak Period (07:00-10:00)	722	815	826	NA	760	806	+12.9%	+14.4%	NA	+5.3%	+11.6%
Interpeak Period (10:00-16:00)	1,295	1,392	1,420	NA	1,424	1,354	+7.5%	+9.7%	NA	+10.0%	+4.6%
PM Peak Period (16:00-19:00)	776	842	869	NA	847	831	+8.5%	+12.0%	NA	+9.1%	+7.1%

Note: Due to ATC error, no data was available for 28th June

2.8.114 The comparisons in **Table 2-13** do seem to identify that there was a difference in flow at the ATC site during the RSI survey data, compared to the other Tuesdays within the survey period, with all periods identifying lower flows at the site on the RSI survey day.

2.8.115 During the AM peak period flows were higher on all other Tuesdays within the survey period, varying by between +5.3% and +14.4% from the RSI survey day. This variation appears quite significant (The RSI day flow varies by over 2 standard deviations from the non RSI survey Tuesday average flow) and suggests that the RSI survey might have influenced a reduction in flows on the survey day during this period.

2.8.116 During the Interpeak period flows were higher on all other Tuesdays within the survey period, varying by between +4.6% and +10.0% from the RSI survey day. This variation although appearing quite significant is within 2 standard deviations from the non RSI survey Tuesday flow.

2.8.117 During the PM peak period flows were higher on all other Tuesdays within the survey period, varying by between +7.1% and +12.0% from the RSI survey day. This variation although appearing quite significant is again within 2 standard deviations from the non RSI survey Tuesday flow.

2.8.118 As a result of the potential reduction in flows caused by the RSI survey (especially during the AM peak period), ATC data from Tue 21st June at ATC Site 47 will be omitted from all summary results and SATURN modelling work.

ATC SITE 48 – RSI SITE 3: A438 WEST OF STRETTON SUGWAS JUNCTION

2.8.119 This ATC is located on the two-lane A438, west of the Stretton Sugwas junction.

2.8.120 The average daily Monday to Thursday flows at this site were 3,864 vehicles in the eastbound direction and 3,780 vehicles in the westbound direction. The percentage of HGVs over this period was 4% in the eastbound direction and 5% in the westbound direction. A breakdown of flows at this site for all peak periods is shown in **Figure 2-49**.

2.8.121 The roadside interviews that took place at this site on Tuesday 14th June 2016 were conducted in the westbound direction.

2.8.122 In order to identify whether the flows at the site were influenced by the RSI survey, **Table 2-14** provides a comparison of the total two-way daily vehicle counts at this site for all Tuesdays within the survey period.

Table 2-14: Two-way total vehicle count comparison for all Tuesdays within the survey period compared to the RSI survey day (Tue 14th June) at ATC 48

Time Period	RSI Day Flows	Comparative Tuesday Flows					% Variation from RSI Day Flow				
	Tue 14th Jun	Tue 6th Jun	Tue 21st Jun	Tue 28th Jun	Tue 5th July	Tue 12th July	Tue 6th Jun	Tue 21st Jun	Tue 28th Jun	Tue 5th July	Tue 12th July
AM Peak Period (07:00-10:00)	599	592	560	NA	616	593	-1.2%	-6.5%	NA	+2.8%	-1.0%
Interpeak Period (10:00-16:00)	1,519	1,539	1,448	NA	1,436	1,517	+1.3%	-4.7%	NA	-5.5%	-0.1%
PM Peak Period (16:00-19:00)	1,024	1,007	1,013	NA	943	1,012	-1.7%	-1.1%	NA	-7.9%	-1.2%

Note: Due to ATC error, no data was available for 28th June

2.8.123 The comparisons in **Table 2-14** do not appear to identify that there was any significant difference in flow at the ATC site during the RSI survey day, compared to the other Tuesdays within the survey period.

2.8.124 During the AM peak period flows on the RSI survey day were lower than 3 out of the 4 other Tuesdays within the survey period, with flows varying slightly by between -1.0% and -6.5%. Only on 5th July were flows higher (by +2.8%) than on the RSI survey day.

2.8.125 During the Interpeak period flows on the RSI survey day were lower than 3 out of the 4 other Tuesdays within the survey period, with flows varying slightly by between -0.1% and -5.5%. Only on 6th June were flows higher (by +1.3%) than on the RSI survey day.

2.8.126 During the PM peak period flows were lower on all other Tuesdays within the survey period, varying by between -1.1% and -7.9% from the RSI survey day.

2.8.127 The results indicate that the RSI survey had very little impact on the flows at the site, and as such ATC data from Tue 21st June at ATC Site 48 can be included within all summary results and SATURN modelling work.

ATC SITE 49 – RSI SITE 4: STRETTON SUGWAS ROUNDABOUT, NORTHERN ARM

2.8.128 This ATC is located on the two-lane A480, on the Northern Arm of the Stretton Sugwas roundabout.

2.8.129 The average daily Monday to Thursday flows at this site were 4,200 vehicles in the northbound direction and 4,301 vehicles in the southbound direction. The percentage of HGVs over this period was 1% in both the northbound and southbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-50**.

2.8.130 The roadside interviews that took place at this site on Tuesday 14th June 2016 were conducted in the southbound direction.

2.8.131 In order to identify whether the flows at the site were influenced by the RSI survey, **Table 2-15** provides a comparison of the total two-way daily vehicle counts at this site for all Tuesdays within the survey period.

Table 2-15: Two-way total vehicle count comparison for all Tuesdays within the survey period compared to the RSI survey day (Tue 14th June) at ATC 49

Time Period	RSI Day Flows	Comparative Tuesday Flows					% Variation from RSI Day Flow				
	Tue 14th Jun	Tue 6th Jun	Tue 21st Jun	Tue 28th Jun	Tue 5th July	Tue 12th July	Tue 6th Jun	Tue 21st Jun	Tue 28th Jun	Tue 5th July	Tue 12th July
AM Peak Period (07:00-10:00)	1,097	1,100	1,083	1,058	1,047	1,016	+0.3%	-1.3%	-3.6%	-4.6%	-7.4%
Interpeak Period (10:00-16:00)	1,441	1,584	1,616	1,634	1,491	1,576	+9.9%	+12.1%	+13.4%	+3.5%	+9.4%
PM Peak Period (16:00-19:00)	911	1,052	1,022	947	1,073	977	+15.5%	+12.2%	+4.0%	+17.8%	+7.2%

Note: Due to ATC error, no data was available for 28th June

2.8.132 The comparisons in **Table 2-15** do seem to identify that there was a variation in flow at the ATC site during the RSI survey data, compared to the other Tuesdays within the survey period.

2.8.133 During the AM peak period flows on the RSI survey day were lower than 4 out of the 5 other Tuesdays within the survey period, with flows varying slightly by between -1.3% and -7.4%. Only on 6th June were flows higher (by +0.3%) than on the RSI survey day. This variation is within 2 standard deviations from the non RSI survey Tuesday flow.

2.8.134 During the Interpeak period flows were higher on all other Tuesdays within the survey period, varying by between +3.5% and +13.4% from the RSI survey day. This variation although appearing quite significant is within 2 standard deviations from the non RSI survey Tuesday flow.

2.8.135 During the PM peak period flows were again higher on all other Tuesdays within the survey period, varying by between +4.0% and +17.8% from the RSI survey day. This variation although appearing quite significant is within 2 standard deviations from the non RSI survey Tuesday flow.

2.8.136 The results indicate that the RSI survey may have had a slight impact on the flows at the site, and although the variance in flows may appear quite significant, all Tuesday flows are still within 2 standard deviations of the RSI day flow. As such ATC data from Tue 21st June at ATC Site 49 can be included within all summary results and SATURN modelling work.

ATC SITE 50 – RSI SITE 5: A4103/A4110 SIGNALISED JUNCTION, NORTHERN ARM

2.8.137 This ATC is located on the two-lane A4110, on the northern arm of the A4110/A4103 signalised junction.

2.8.138 The average daily Monday to Thursday flows at this site were 2,730 vehicles in the northbound direction and 2,712 vehicles in the southbound direction. The percentage of HGVs over this period was 3% in the northbound direction and 2% in the southbound. A breakdown of flows at this site for all peak periods is shown in **Figure 2-51**.

ATC SITE 51 – RSI SITE 6: A49, EAST OF DINMORE

2.8.139 This ATC is located on the two-lane A49, east of the parish of Dinmore.

2.8.140 The average daily Monday to Thursday flows at this site were 6,528 vehicles in the northbound direction and 6,711 vehicles in the southbound direction. The percentage of HGVs over this period was 5% in both the northbound and southbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-52**.

ATC SITE 52 – RSI SITE 7: AYLSETONE HILL ROUNDABOUT, NORTHERN ARM

2.8.141 This ATC is located on a two-lane unnamed road, on the northern arm of the Aylestone Hill Roundabout.

2.8.142 The average daily Monday to Thursday flows at this site were 1,816 vehicles in the northbound direction and 1,784 vehicles in the southbound direction. The percentage of HGVs over this period was 1% in both the northbound and southbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-53**.

ATC SITE 53 – RSI SITE 8: AYLSETONE HILL ROUNDABOUT, EASTERN ARM

2.8.143 This ATC is located on the two-lane A4103, on the eastern arm of the Aylestone Hill Roundabout.

2.8.144 The average daily Monday to Thursday flows at this site were 8,268 vehicles in the eastbound direction and 8,228 vehicles in the westbound direction. The percentage of HGVs over this period was 3% in both the eastbound and westbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-54**.

ATC SITE 54 – RSI SITE 9: A438 FROME PARK

2.8.145 This ATC is located on the two-lane A438, north-east of the St. Michael's Hospice access junction.

2.8.146 The average daily Monday to Thursday flows at this site were 3,773 vehicles in the northbound direction and 3,689 vehicles in the southbound direction. The percentage of HGVs over this period was 2% in both the northbound and southbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-55**.

ATC SITE 55 – RSI SITE 10: B4224, NORTH EAST OF MORDIFORD

2.8.147 This ATC is located on the two-lane B42249, east of the point where the road crosses the River Lugg.

2.8.148 The average daily Monday to Thursday flows at this site were 3,137 vehicles in the eastbound direction and 3,271 vehicles in the westbound direction. The percentage of HGVs over this period was >1% in both the eastbound and westbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-56**.

ATC SITE 56 – RSI SITE 11: B4399, STRAIGHT MILE/CHAPEL ROAD ROUNDABOUT, EASTERN ARM

2.8.149 This ATC is located on the two-lane B4399, west of the Coldnose Road junction.

2.8.150 The average daily Monday to Thursday flows at this site were 3,367 vehicles in the eastbound direction and 3,310 vehicles in the westbound direction. The percentage of HGVs over this period was 2% in both the eastbound and westbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-57**.

ATC SITE 57 – RSI SITE 12: TILLINGTON ROAD BY BRONTE COTTAGES

2.8.151 This ATC is located on the two-lane Tillington Road, south of St. Marys Lane.

2.8.152 The average daily Monday to Thursday flows at this site were 1,762 vehicles in the northbound direction and 1,810 vehicles in the southbound direction. The percentage of HGVs over this period was >1% in both the northbound direction and 1% in the southbound direction. A breakdown of flows at this site for all peak periods is shown in **Figure 2-58**.

ATC SITE 58 – RSI SITE 13: A438, GREEN CRIZE

2.8.153 This ATC is located on the two-lane Green Crize road, just north of the point where the road overpasses the B4399.

2.8.154 The average daily Monday to Thursday flows at this site were 788 vehicles in the northbound direction and 765 vehicles in the southbound direction. The percentage of HGVs over this period was 1% in both the northbound and southbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-59**.

ATC SITE 59 – RSI SITE 14: A465, NORTH OF GOOSE POOL

2.8.155 This ATC is located on the two-lane A465. The RSI at this site occurs in a lay-by; where between the entrance and exit point the A465 is intersected by a T-junction (Church Road). The ATC has therefore been located just south of the Church Road junction, so as the capture the traffic originating prior to the entrance point.

2.8.156 The average daily Monday to Thursday flows at this site were 3,663 vehicles in the northbound direction and 3,862 vehicles in the southbound direction. The percentage of HGVs over this period was 5% in both the northbound and southbound directions. A breakdown of flows at this site for all peak periods is shown in **Figure 2-60**.

2.9 PEAK HOUR FLOWS

2.9.1 **Table 2-16** outlines the number of ATC directional peak hour Monday to Thursday average flows that fell within each hour period, for each peak period.

Table 2-16: Proportion of peak hour flows across all ATC Sites

HOUR PERIOD (60 MINUTE INTERVALS)	COUNT	% OF TOTAL
AM Peak Period (07:00-10:00)		
07:00-08:00	11	11%
08:00-09:00	84	82%
09:00-10:00	7	7%
Interpeak Period (10:00-16:00)		
10:00-11:00	14	14%
11:00-12:00	1	1%
12:00-13:00	2	2%
13:00-14:00	5	5%
14:00-15:00	4	4%
15:00-16:00	76	75%
PM Peak Period (16:00-19:00)		
16:00-17:00	35	34%
17:00-18:00	65	64%
18:00-19:00	2	2%

2.9.2 During the AM peak period, the largest proportion (82%) of peak hour flows across all ATC sites occurred between 08:00-09:00. 11% of peak hour flows occurred between 07:00-08:00, and 7% of peak hour flows occurred between 09:00-10:00.

2.9.3 During the Interpeak period, the largest proportion (75%) of peak hour flows across all ATC sites occurred between 15:00-16:00. The second largest proportion (14%) occurred between 10:00-11:00, with the remainder (12%) spread out between the hour periods between 11:00-15:00.

2.9.4 During the PM peak period, the largest proportion (64%) of peak hour flows across all ATC sites occurred between 17:00-18:00. 34% of peak hour flows occurred between 16:00-17:00, with the remaining 2% of peak hour flows occurring between 18:00-19:00.

2.9.5 The above analysis shows that the majority of the traffic travelling in the peak periods travel between 08:00-09:00 in the AM peak period, 15:00-16:00 in the Interpeak period, and 17:00-18:00 in the PM peak period.

2.9.6 Looking further at the peak hour periods **Table 2-17, Table 2-18,** and **Table 2-19** outlines the number of Tracsis ATC directional peak hour Monday to Thursday average flows that fell within each 15-minute period, for each peak period. No HC ATC sites have been included in these 15-minute peak hour summarises, as the resolution of the data supplied (60-minute intervals) did not allow this.

Table 2-17: Proportion of peak hour flows across all ATC Sites (15-minute intervals) – AM Peak Period (Tracsis ATC sites only)

Hour Period (15-mnute intervals)	Count	% of Total
07:00-08:00	5	5%
07:15-08:15	5	5%
07:30-08:30	22	22%
07:45-08:45	33	32%
08:00-09:00	23	23%
08:15-09:15	4	4%
08:30-09:30	4	4%
08:45-09:45	3	3%
09:00-10:00	2	2%
09:15-10:30	0	0%
09:30-10:30	1	1%

Table 2-18: Proportion of peak hour flows across all ATC Sites (15-minute intervals) – Interpeak Period (Tracsis ATC sites only)

Hour Period (15-mnute intervals)	Count	% of Total
09:45-10:45	12	12%
10:00-11:00	1	1%
10:15-11:15	0	0%
10:30-11:30	0	0%
10:45-11:45	0	0%
11:00-12:00	1	1%
11:15-12:15	1	1%
11:30-12:30	0	0%
11:45-12:45	0	0%
12:00-13:00	0	0%
12:15-13:15	1	1%

12:30-13:30	0	0%
12:45-13:45	2	2%
13:00-14:00	1	1%
13:15-14:15	0	0%
13:30-14:30	0	0%
13:45-14:45	0	0%
14:00-15:00	0	0%
14:15-15:15	3	3%
14:30-15:30	6	6%
14:45-15:45	3	3%
15:00-16:00	8	8%
15:15-16:15	63	62%

Table 2-19: Proportion of peak hour flows across all ATC Sites (15-minute intervals) – PM Peak Period (Tracsis ATC sites only)

HOUR PERIOD (15-MNUTE INTERVALS)	COUNT	% OF TOTAL
15:30-16:30	12	12%
15:45-16:45	3	3%
16:00-17:00	2	2%
16:15-17:15	11	11%
16:30-17:30	21	21%
16:45-17:45	33	32%
17:00-18:00	13	13%
17:15-18:15	2	2%
17:30-18:30	1	1%
17:45-18:45	2	2%
18:00-19:00	2	2%

2.9.7 During the AM peak period, the largest proportion (32%) of peak hour flows across all ATC sites occurred between 07:45-08:45. The next largest proportions of peak hour flows occurred between 0800-0900 and 07:30-0830 with a share of 23% and 22% respectively. All other hour periods had proportions between 0% and 5%.

2.9.8 During the Interpeak period, the largest proportion (62%) of peak hour flows across all ATC sites occurred between 15:15-16:15. The next largest proportion of peak hour flows occurred between 0945-1045 with a share of 12%. All other hour periods had proportions between 0% and 6%.

2.9.9 During the PM peak period, the largest proportion (32%) of peak hour flows across all ATC sites occurred between 16:45-17:45. The next largest proportions of peak hour flows occurred between 16:30-17:30, 17:00-18:00, 15:30-16:30 and 16:15-17:15 with a share of 21%, 13%, 12% and 11% respectively. All other hour periods had proportions between 0% and 3%.

2.9.10 The 15-minute peak hour analysis identifies that the majority of the traffic travelling in the peak periods travel between 07:45-08:45 in the AM peak period, 15:15-16:15 in the Interpeak period and 16:45-17:45 in the PM peak.

2.9.11 For the Interpeak period, it was shown that the majority of the traffic was counted between 15:00 and 16:00, and this hour was shown to be significantly different from the other hourly ranges within the period. This shows that this hour is not representative of the interpeak period and, therefore, the average of the flows observed between 10:00 and 15:00 has been chosen for the Hereford transport model.

2.9.12 **Table 2-20** identifies the peak periods that will be utilised in all SATURN modelling work.

2.9.13 These peak hour periods will be modelled as shown in **Table 2-20.** These peak hour periods have been selected on the following basis:

- → The analysis of the 15 minute period data shows there is little difference between the 60 minute periods traffic flows between 07:45-08:45 and 08:00-09:00 and 16:45-17:45 and 17:00-18:00 at the roadside interview ATC sites; and
- → The ATC data provided by HC is not available for 15 minute periods so it is not possible to match it to a 07:45-08:45 and 16:45-17:45 period.

Table 2-20 – Peak Hour Summary

PEAK PERIOD	PEAK HOUR TIME PERIOD TO BE MODELLED
AM Peak Period (07:00-10:00)	Average Monday to Thursday - 08:00 - 09:00
Interpeak Period (10:00-16:00)	Average Monday to Thursday - Average Hour 10:00-15:00
PM Peak Period (16:00-19:00)	Average Monday to Thursday - 17:00 - 18:00

2.9.14 **Appendix A-5** contains all data utilised within the ATC peak hour analysis.

2.9.15 The observed directional hourly flows that will be utilised in the model development, split by the peak hour periods shown in **Table 2-20**, can be found in **Appendix A-6**.

2.10 SUMMARY

2.10.1 In summary, ATC data was collected on 59 links. The data was able to show the most popular routes throughout the network, as well as two-way traffic flows on key screenlines in the network split by vehicle types and time interval. Analysis showed that results from the 16th June should be omitted from any summary results and modelling work due to England vs. Wales fixture affecting traffic flow. This was not an issue for the EU referendum on 23rd June.

2.10.2 The data also showed that it is appropriate to use the days and time periods shown in **Table 2-20** for the Hereford Transport Model.

3 MANUAL CLASSIFIED JUNCTION COUNT DATA

3.1 INTRODUCTION

3.1.1 The following chapter provides an overview of the process and purpose of collecting manual classified junction counts (MCJCs). The methodology is discussed, and then a summary of the location, date and who carried out the data collection process is given before presenting a summary the comparison undertaken between data collected from adjacent ATC and MCJC survey sites.

3.1.2 MCJCs were undertaken on a number of junctions within the study area, illustrated in **Figure 3-1.**

3.2 DATES / DURATION OF MCJC SURVEYS

3.2.1 Transportation data collection specialist Tracsis were commissioned to conduct 66 full-movement MCJCs at key locations within the study area. Each MCJC was undertaken over a 12-hour period on either a Tuesday or a Thursday over the period from 14th June 2016 to 7th July 2016.

3.2.2 No MCJCs were undertaken on either Thursday 16th June or Thursday 23rd June to avoid the England v Wales Euro 2016 fixture and the EU referendum which fell on these respective days and could have had an impact on usual travel patterns within the study area.

3.2.3 The surveys were undertaken using high mast video equipment and analysed in 15 minute intervals.

3.3 VEHICLE CLASSIFICATIONS

3.3.1 The vehicles were classified to the vehicle categories described in Volume 13 of the Design Manual for Roads & Bridges (DMRB Volume 13), with the Heavy Goods Vehicle category comprising of OGV1 and OGV2 vehicles combined. In addition to these categories, motorcycles and pedal cycles were also counted. The full classification was as follows:

- Cars (excluding cars with caravans);
- Light Goods Vehicles (LGV);
- Ordinary Goods Vehicles 1 - OGVs with 2 or 3 axles (OGV1);
- Ordinary Goods Vehicles 2 – OGVs with 4 or more axles (OGV2)
- Public Service Vehicles (PSV);
- Motorcycles (MCL); and
- Pedal Cycles (PCL).

3.4 LOCATION OF TRAFFIC SURVEYS

3.4.1 **Figure 3-1** contains a plan showing the locations of all MCJC sites. **Appendix B-1** contains the detailed summaries of traffic flows for the MCJC sites.

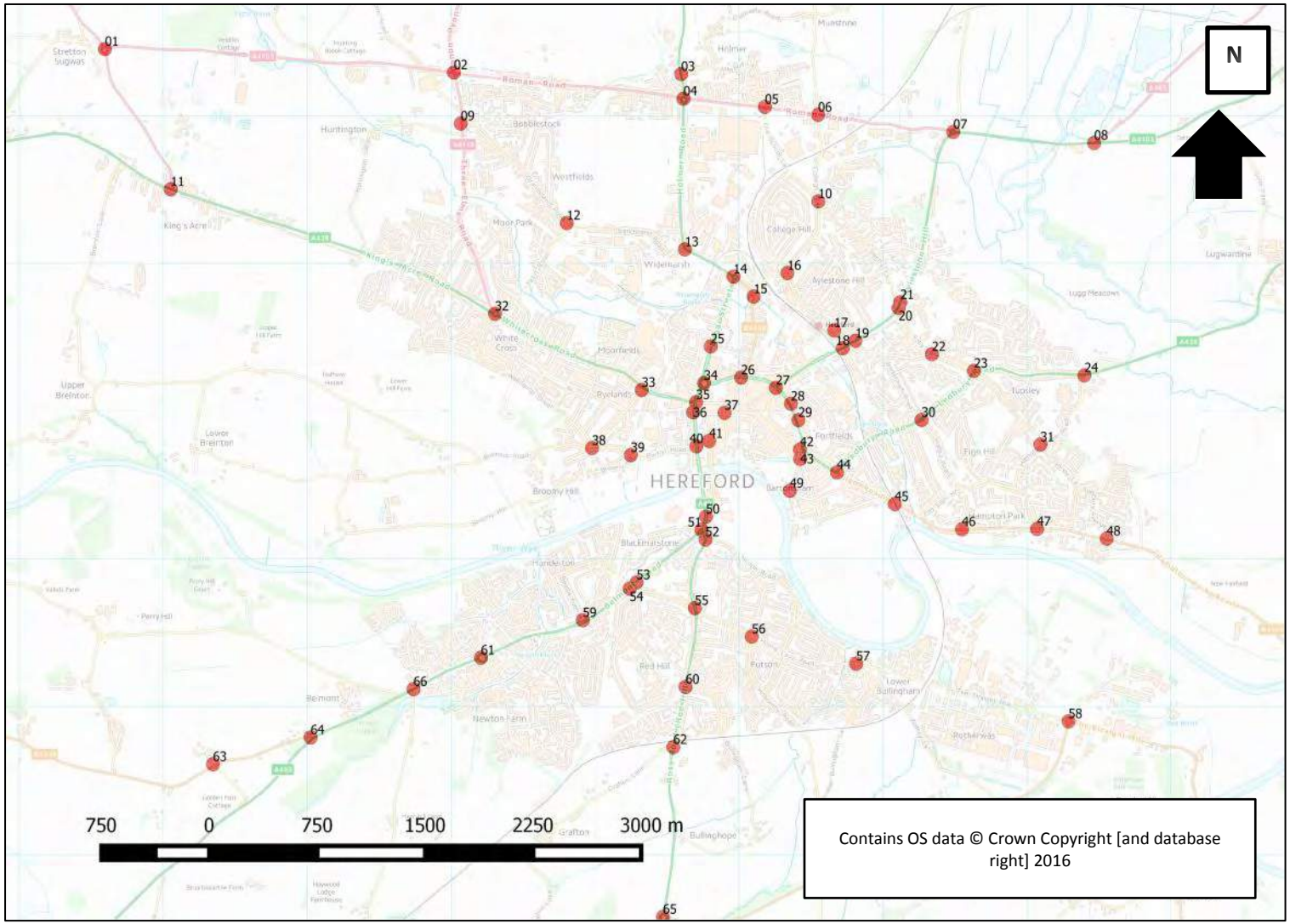
3.4.2 The location and date of all 66 sites surveyed were as follows:

- **MCJC 1** A480 Stretton Sugwas *(Tue 28th June 2016)*

MCJC 2	Roman Road / Canon Pyon Road	*(Tue 28th June 2016)*
MCJC 3	Holmer Road / Attwood Lane	*(Tue 28th June 2016)*
MCJC 4	Holmer Road / Roman Road	*(Tue 28th June 2016)*
MCJC 5	Roman Road / Old School Lane	*(Tue 21st June 2016)*
MCJC 6	Roman Road / College Road	*(Tue 21st June 2016)*
MCJC 7	Roman Road / Aylestone Road	*(Tue 21st June 2016)*
MCJC 8	A465 / A4103	*(Tue 21st June 2016)*
MCJC 9	Three Elms Road / Grandstand Road	*(Tue 21st June 2016)*
MCJC 10	College Road / Old School Lane	*(Tue 21st June 2016)*
MCJC 11	A438 / A480 by Kings Acre	*(Tue 28th June 2016)*
MCJC 12	Grandstand Road / Yazor Road	*(Tue 28th June 2016)*
MCJC 13	Granstand Road / Holmer Road	*(Tue 28th June 2016)*
MCJC 14	Edgar Street / Holmer Road	*(Tue 28th June 2016)*
MCJC 15	B459 / College Road	*(Tue 21st June 2016)*
MCJC 16	College Road by College Hill	*(Tue 21st June 2016)*
MCJC 17	Barrs Court Road by Train Station	*(Tue 21st June 2016)*
MCJC 18	Aylestone Road / Barrs Court Road	*(Tue 21st June 2016)*
MCJC 19	Aylestone Hill / Bodenham Road	*(Tue 21st June 2016)*
MCJC 20	Aylestone Hill / Folly Lane	*(Tue 21st June 2016)*
MCJC 21	Aylestone Hill / Venn's Lane	*(Tue 21st June 2016)*
MCJC 22	Folly Lane / Bodenham Road	*(Tue 21st June 2016)*
MCJC 23	Ledbury Road / Folly Lane	*(Tue 21st June 2016)*
MCJC 24	A438 / Hamptone Dean Road	*(Tue 21st June 2016)*
MCJC 25	Edgars Street near Widemarsh Brook	*(Tue 28th June 2016)*
MCJC 26	A438 / B4359	*(Tue 21st June 2016)*
MCJC 27	A438 / A465 Commercial Hill	*(Tue 21st June 2016)*
MCJC 28	A438 / Kyrle Street	*(Tue 21st June 2016)*
MCJC 29	A438 / Symonds Street	*(Tue 21st June 2016)*
MCJC 30	Ledbury Road / Hafod Road	*(Tue 21st June 2016)*
MCJC 31	Hampton Dene Road / Gorsty Lane	*(Tue 21st June 2016)*
MCJC 32	White Cross	*(Tue 28th June 2016)*
MCJC 33	White Cross by Rylands	*(Tue 28th June 2016)*
MCJC 34	Edgar Street Roundabout	*(Tue 28th June 2016)*
MCJC 35	Whitecross Road / A49	*(Tue 28th June 2016)*
MCJC 36	Victoria Street / West Street	*(Tue 28th June 2016)*
MCJC 37	West Street / Broad Street	*(Tue 21st June 2016)*
MCJC 38	Breinton Road / Westfailing Street	*(Tue 28th June 2016)*
MCJC 39	Broomy Hill / Barton Road	*(Tue 28th June 2016)*
MCJC 40	Victoria Street / Barton Road	*(Tue 28th June 2016)*
MCJC 41	St Nicholas Street / Berrington Street	*(Tue 21st June 2016)*
MCJC 42	A438 / St Owen Street	*(Tue 21st June 2016)*
MCJC 43	Green Street / Mill Street	*(Tue 21st June 2016)*
MCJC 44	Eign Road / Ledbury Road	*(Tue 21st June 2016)*
MCJC 45	Eign Road / Outfall Works Road	*(Tue 21st June 2016)*
MCJC 46	Hampton Park Road / Vineyard Road	*(Tue 21st June 2016)*
MCJC 47	Hampton Park Road / Old Eign Hill	*(Tue 21st June 2016)*
MCJC 48	Hampton Park Road / Sudbury Avenue	*(Tue 21st June 2016)*
MCJC 49	Bartonsham	*(Tue 21st June 2016)*
MCJC 50	A49 / St Martins Street	*(Thu 30th June 2016)*
MCJC 51	A49 / A465 Roundabout	*(Thu 30th June 2016)*

- **MCJC 52** Ross Road / Hinton Road *(Thu 30th June 2016)*
- **MCJC 53** Belmont Road / Walnut Tree Avenue *(Thu 30th June 2016)*
- **MCJC 54** Belmont Road / Hunderton Road *(Thu 30th June 2016)*
- **MCJC 55** Walnut Tree Avenue / A49 Ross Road *(Thu 7th July 2016)*
- **MCJC 56** Holme Lacy Road / Hoarwithy Road *(Tue 14th June 2016)*
- **MCJC 57** Holme Lacy Rd / Lower Bullingham Ln *(Tue 14th June 2016)*
- **MCJC 58** The straight Mile by Dinedor Hill *(Tue 14th June 2016)*
- **MCJC 59** Belmont Road / Beattie Avenue *(Thu 7th July 2016)*
- **MCJC 60** Ross Road by Red Hill *(Thu 7th July 2016)*
- **MCJC 61** Newton Brook Roundabout *(Tue 5th July 2016)*
- **MCJC 62** Ross Road / Grafton Lane *(Thu 7th July 2016)*
- **MCJC 63** B4349 by Golden Post Cottage *(Tue 5th July 2016)*
- **MCJC 64** B4349 / A465 by Newton Coppice *(Tue 5th July 2016)*
- **MCJC 65** Bullinghope Roundabout *(Thu 7th July 2016)*
- **MCJC 66** Haywood Lane / A465 Junction *(Tue 5th July 2016)*

Figure 3-1- Map of MCJC Locations



3.4.3 Due to the time constraints of the data collection, some MCJCs were conducted on the same days as road side interview (RSI) surveys (see **Chapter 4**). Although RSI surveys can lead to disruption in normal traffic flows through a study area, care was taken to ensure that MCJC sites surveyed on these days were located in locations that should have been unaffected by the RSI surveys in progress. **Table 3-1** below identifies which MCJC and RSI surveys were undertaken on the same days.

Table 3-1 – RSI Site Surveyed Days

SURVEY DATE	RSI SITES SURVEYED	MCJC SITES SURVEYED
Tuesday 14th June 2016	3, 4	56-58
Tuesday 21st June 2016	2, 14	5-8, 10, 15-24, 26-31, 37, 41-49
Tuesday 28th June 2016	1, 11	1-4, 9, 11-14, 25, 32-36, 38-40
Thursday 30th June 2016	6, 7	50-54
Tuesday 5th July 2016	8, 9	61, 63-64, 66
Thursday 7th July 2016	5, 12	55, 59-60, 62, 65
Tuesday 12th July 2016	10, 13	

3.5 MCJC ISSUES

3.5.1 Tracsis identified four issues that occurred during the MCJC surveys, as shown in **Table 3-2** below.

Table 3-2 – MCJC Incidents/Observations

MCJC SITE	INCIDENTS/OBSERVATIONS
15	HGV parked in front of the camera from 12:42 - 13:13 and blocked the view of arms B & C
26	Traffic prohibited from using Arm C - Widemarsh Street between 10:30-16:30
37	Traffic prohibited from using Arm A - High Street between 10:30-16:30
56	Arm D - Holme Lacy Road (W) closed at 18:31 for roadworks.

3.5.2 For MCJC site 15, the interpeak values may be slightly affected. However, as the interpeak values are derived from an average of a five-hour period, the impact is expected to be minimal.

3.5.3 MCJC site 26 is the most severely affected, as the interruption lasted for six hours during the interpeak period. The AM peak hour flow exiting Arm C is 309 vehicles, and the PM peak hour flow exiting the arm is 281. It is expected that traffic wishing to exit using this arm and travel towards Widemarsh Street would have been re-routed via MCJC sites 34 and 35.

3.5.4 For MCJC site 37, access traffic was also allowed to exit using Arm A, which is usually prohibited. However, this had almost no impact on the flows. Only one car and 10 pedal cycles utilised the as an exit from the junction between 07:00 and 19:00.

3.5.5 For MCJC site 56, vehicles travelling eastbound from Holme Lacy Road after 18:31 are likely to have re-routed onto either Hoarwithy Road or Chestnut Drive to reach the destination. This may have lessened the flows at MCJC site 55 during the PM peak and increased the flows from Hinton Road on MCJC 52.

3.5.6 As the issues only occurred sporadically, and at a minority of sites, it is not thought that these issues impinge the validity and reliability of the overall results.

3.6 ATC AND MCJC CONSISTENCY CHECK

3.6.1 An analysis was undertaken to draw a comparison between the ATC link counts and MCJC entry and exit counts. The purpose of this analysis was to validate the datasets and identify discrepancies that would potentially hinder model calibration.

3.6.2 The ATC traffic counts have been taken over a period of 6 weeks, whereas the MCJC have been collated on a single day. This difference in survey period has the potential to lead to discrepancies between traffic flows and is why this analysis has been carried out. The traffic flows utilised in the analysis have been taken from the entire peak period (E.g. AM period, 07:00 to 10:00, Interpeak period, 10:00 to 15:00, and PM peak period, 16:00 to 19:00).

3.6.3 **Table 3-3** below shows the comparisons with a difference greater than 10% in total traffic flow. The site numbers for the ATC and MCJC locations can be found in figures **Figure 2-1** and **Figure 3-1** respectively.

Table 3-3 - Comparison of ATC and MCJC Sites

MCJC Site	ATC Site	Survey Period	Total Count (Vehicles)			
			Direction	MCJC	ATC	Diff (%)
4	4	PM	Eastbound	2,576	1,972	-23.5%
34	14	IP	Eastbound	4,993	3,928	-21.3%
50	17	PM	Southbound	5,814	4,624	-20.5%
34	14	AM	Eastbound	2,636	2,101	-20.3%
34	14	IP	Southbound	6,719	5,369	-20.1%
34	14	PM	Southbound	3,178	2,551	-19.7%
40	17	PM	Southbound	5,751	4,625	-19.6%
34	14	PM	Eastbound	2,451	1,974	-19.5%
6	5	AM	Eastbound	1,371	1,123	-18.1%
34	14	AM	Southbound	2,946	2,415	-18.0%
15	11	IP	Southbound	2,465	2,034	-17.5%
40	17	AM	Southbound	4,438	3,709	-16.4%

50	**17**	AM	Southbound	4,443	3,716	-16.4%
40	**17**	IP	Southbound	9,953	8,387	-15.7%
50	**17**	AM	Northbound	5,226	4,431	-15.2%
4	**4**	IP	Eastbound	4,271	3,628	-15.1%
14	**10**	AM	Southbound	2,902	2,479	-14.6%
15	**11**	IP	Northbound	2,377	2,034	-14.4%
40	**17**	AM	Northbound	5,164	4,428	-14.3%
14	**10**	IP	Southbound	5,767	4,953	-14.1%
10	**7**	PM	Westbound	899	774	-13.9%
65	**TRADS 3**	PM	Northbound	1,637	1,413	-13.7%
6	**5**	PM	Eastbound	1,386	1,205	-13.0%
40	**17**	IP	Northbound	9,456	8,247	-12.8%
50	**17**	IP	Northbound	8,957	7,820	-12.7%
54	**19**	AM	Southbound	2,006	1,760	-12.3%
10	**7**	PM	Northbound	531	468	-11.9%
50	**17**	PM	Northbound	4,968	4,390	-11.6%
7	**6**	PM	Southbound	1,211	1,073	-11.4%
10	**7**	AM	Westbound	976	866	-11.3%
4	**4**	AM	Southbound	2,149	1,920	-10.7%
14	**10**	IP	Eastbound	5,478	4,895	-10.6%
15	**11**	IP	Westbound	2,104	1,882	-10.6%
10	**7**	AM	Northbound	496	445	-10.3%
2	**R5**	PM	Northbound	492	545	10.7%
15	**11**	AM	Southbound	683	765	12.0%
65	**31**	PM	Southbound	898	1,028	14.4%
50	**TRADS 1**	IP	Westbound	8,383	9,853	17.5%

3.6.4 The analysis has highlighted two ATC sites (site 14 and site 17) that have multiple instances where there is a significant difference between the ATC and MCJC traffic flow for a peak period. The ATC sites 14 and 17 have been shown to have less than 20% traffic flow when compared to the nearby junction count sites 40, 50 and 34. The location of the count sites is on the heavily trafficked A49 and A438 within the centre of Hereford. The possible difference can be explained by the queuing and slow moving traffic across the ATC counter loops. Analysis at other ATC locations reaffirms that this is not a network wide issue and that other ATC site locations are reliable for use in the model calibration.

3.6.5 Further analysis at the ATC site 17 has been carried out using the TRADS site at the same location on the A49 River Wye Bridge. The TRADS site was shown to be a much better fit with the junction counts at sites 40 and 50. For this reason, it is suggested that the TRADS ATC site should be utilised for the A49 River Wye Bridge location.

3.6.6 At other locations, shown in the above table where there differences have been found, the data will be normalised if the differences are found to be hindering the model calibration. In these instances the ATC site will be factored to match the MCJC entry due to the issue highlighted at ATC site 17.

3.7 SUMMARY

3.7.1 In summary, MCJC data was collected at 66 junctions. The data was able to show turning proportions on key junctions in the network, split by vehicle type and time interval. No surveys took place on either the 16th June 2016 (England vs. Wales Euro 2016 fixture) or on the 23rd June 2016 (EU Referendum).

3.7.2 The events mentioned in **Table 3-2** may have had an impact on the results, with particular reference to MCJC Site 26.

3.7.3 The results of a consistency check between the flows observed at adjacent ATC and MCJC sites concludes that the data collected at the MCJC sites shown in **Table 3-3** is considered robust for use in model calibration, as well as for the normalisation of the adjacent ATC sites, where discrepancies between the vehicular flows are found.

4 ROADSIDE INTERVIEW DATA

4.1 INTRODUCTION

4.1.1 WSP | PB commissioned Tracsis to undertake Roadside Interviews (RSIs) at 14 key sites in the study area. Each RSI was conducted on either a Tuesday or Thursday between the 14th June and 12th July.

4.1.2 The following chapter gives an overview of the RSI data collection process and the results obtained.

4.2 SURVEYS UNDERTAKEN

4.2.1 The RSIs were undertaken via a combination of both face-to-face surveys (with interviewers recording answers onto a digital tablet), and postcard surveys when traffic volumes did not permit the stopping of all vehicles. A copy of the questionnaire used for both the face-to-face and postcard surveys is included in **Appendix C-1.**

4.2.2 A Manual Classified Link Count (MCJC) was carried out for 12 hours on the day of the survey. The MCJC utilised the same classification criteria as the MCJC, as mentioned in section **3.3**. The MCJC was utilised to derive the sample rates of the RSIs.

4.2.3 An Automatic Traffic Counter (ATC) was also utilised to measure vehicular flows over the whole data collection period. The ATCs utilised the same classification as mentioned in **Section 2.1**. The ATC was utilised to develop flow factors for the RSI data at each site.

4.3 DATES / DURATION OF ROADSIDE INTERVIEW

4.3.1 Wednesday is the historical livestock market day within Hereford. Although the market moved from the city centre to a new site on the outskirts of Hereford in 2011, it was advised by HC that some people still recognise Wednesday as market day, and that journey patterns on this day may not be reflect those of a typical weekday. As such, no RSI surveys were undertaken on a Wednesday.

4.3.2 There were also no RSI surveys undertaken on a Monday or Friday, as these days can often include journeys from extended weekend activities and may again not be representative of a usual weekday.

4.3.3 No RSI surveys were undertaken on either Thursday 16th June or Thursday 23rd June, as it was anticipated that the England v Wales Euro 2016 fixture and the EU referendum which fell on these respective days could have an impact on usual travel patterns within the study area.

4.3.4 The following chapter gives an overview of the RSI data collection process and the results obtained.

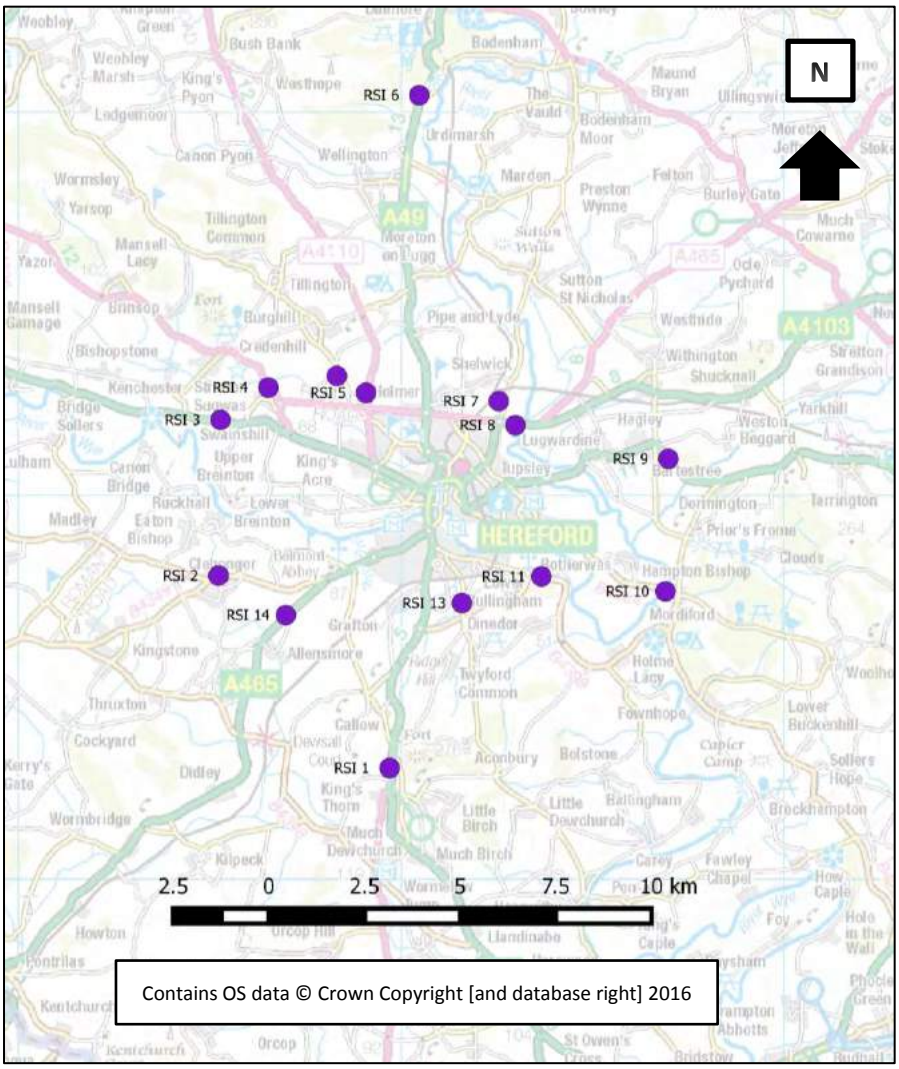
4.4 METHODOLOGY

4.4.1 The RSI surveys undertaken were carried out on the following dates and locations (as shown in **Figure 4-1**);

- → **RSI 1** A49, west of Aconbury Hill, Northbound *(Tue 28th June 2016)*
- → **RSI 2** B4349, The Bines in Clehonger, Eastbound *(Tue 21st June 2016)*

- **RSI 3** A438, Basmati restaurant lay-by, Westbound *(Tue14th June 2016)*
- **RSI 4** A480, Stretton Sugwas roundabout, Southbound *(Tue14th June 2016)*
- **RSI 5** A410, north arm of A4103/A4110 signalised jct, Southbound *(Thu 7th July 2016)*
- **RSI 6** A49, east of Dinmore, Southbound *(Thu 30th June 2016)*
- **RSI 7** A4103, north arm of Ayleston Hill roundabout, Southbound *(Thu 30th June 2016)*
- **RSI 8** A4103, east arm of Ayleston Hill roundabout, Southbound *(Tue 5th July 2016)*
- **RSI 9** A438, Frome Park bus stop, Northbound *(Tue 5th July 2016)*
- **RSI 10** B4224, lay-by near Mordiford, Westbound *(Tue 12th July 2016)*
- **RSI 11** B4399, east of Straight Mile/Chapel Rd rbt, Westbound *(Tue 28th June 2016)*
- **RSI 12** Tillington road, bus stop south of St.Mary's Ln, Southbound *(Thu 7th July 2016)*
- **RSI 13** Green Crize, Northbound *(Tue 12th July 2016)*
- **RSI 14** A465, lay-by north of Goosepool, Northbound *(Tue 21st June 2016)*

Figure 4-1 - RSI Sites



4.4.2 All surveys were conducted for the 12-hour period between the hours of 07:00 to 19:00. At each site traffic was only interviewed in the direction travelling towards Hereford.

4.4.3 Two police officers were continuously present at each RSI site in order to stop and control traffic during the surveys. Due to the differing highway layouts at each RSI location, a number of traffic management schemes were employed across the sites, as identified in **Table 4-1**.

Table 4-1 – RSI Traffic Management

SITE	TRAFFIC MANAGEMENT METHODOLOGY EMPLOYED
RSI Site 1	Surveys conducted within a lay-by off the main carriageway, with police officers directing traffic and advisory speed limit signs used to slow traffic. Five interview staff present undertaking face-to-face surveys.
RSI Site 2	All stop survey utilising temporary traffic lights and police officers to control traffic. Three interview staff present with two undertaking face-to-face interviews and one handing out postcards.
RSI Site 3	All stop survey utilising temporary traffic lights and police officers to control traffic. Four interview staff present with three undertaking face-to-face interviews and one handing out postcards.

RSI Site 4	All stop survey utilising temporary traffic lights and police officers to control traffic. Five interview staff present with four undertaking face-to-face interviews and one handing out postcards. A pedestrian barrier was used to divert pedestrians away from the census point, and cyclists were instructed to dismount.
RSI Site 5	All stop survey utilising police officers to control traffic. Four interview staff present undertaking postcard surveys. An adjacent pedestrian footpath was closed to divert pedestrians away from the census point.
RSI Site 6	Survey conducted within a lay-by off the main carriageway with police officers directing traffic. Five interview staff present undertaking face-to-face interviews. Advisory speed limit signs used to slow traffic.
RSI Site 7	All stop survey utilising temporary traffic lights and police officers to control traffic. Four interview staff present with four undertaking face-to-face interviews. In heavy flow staff handed out postcards.
RSI Site 8	All stop survey utilising temporary traffic lights and police officers to control traffic. Four interview staff present with four undertaking face-to-face interviews. In heavy flow staff handed out postcards.
RSI Site 9	All stop survey utilising temporary traffic lights and police officers to control traffic. Advisory speed limit signs used to slow traffic.. Four interview staff present with four undertaking face-to-face interviews. In heavy flow staff handed out postcards.
RSI Site 10	All stop survey utilising temporary traffic lights and police officers to control traffic. Four interview staff present with four undertaking face-to-face interviews. In heavy flow staff handed out postcards. An adjacent bus stop was closed the night before the RSI interviews were conducted.
RSI Site 11	All stop survey with police officers controlling traffics. Four interview staff present with three undertaking face-to-face interviews and one handing out postcards
RSI Site 12	All stop survey utilising temporary traffic lights and police officers to control traffic. Four interview staff present with four undertaking face-to-face interviews. In heavy flow staff handed out postcards. Advisory signage used to slow traffic.
RSI Site 13	All stop survey utilising police officers to control traffic. Four interview staff present with four undertaking face-to-face interviews.
RSI Site 14	Surveys conducted within a lay-by off the main carriageway, with police officers directing traffic and advisory signage used to slow traffic. Five interview staff present undertaking face-to-face surveys

4.4.4 The questionnaire put to surveyed drivers was designed to gain information about the following subjects:

- Origin and destination of the trip;
- Purpose of the trip at the origin and destination;
- Frequency of the trip;
- Vehicle type;
- Time of trip and estimated time of return trip;
- Number of passengers; and
- (If necessary) Parking situation.

4.4.5 The questionnaire is standard to regular Roadside Interview questions with exception to the additional questions regarding return trips and parking. The question regarding return trips aims to gain a sample rate for the outbound direction. The question regarding parking was only asked if a respondent was heading into the city centre and was utilised to make the data coalesce with the Car Park Interview data (presented in **Section 5**), and to ease the analysis of double counting when developing the trip matrices.

4.4.6 Adding in these questions may have a minor impact on the inbound sample rate, as it would take longer to administer. However, there was a net positive effect on the sample rate when considering both the inbound and outbound directions.

4.4.7 At each RSI the aim was to interview or postcard all vehicles passing through the site. During periods of heavy traffic however, it was decided that to avoid excessive queues forming (leading to distorted journey time results and potential re-routing of vehicles), after each batch of interviews were conducted, a small number of vehicles would be let through before stopping the next batch for interviewing.

4.4.8 All completed surveys (both face to face and returned postcard) were processed by Tracsis.

4.5 RSI ISSUES

4.5.1 **Table 4-2** below identifies the issues encountered during the RSI surveys

Table 4-2 – RSI Issues

SITE	ISSUE ENCOUNTERED DURING SURVEY
RSI Site 1	Due to traffic management issues surveys did not start until 07:15. Heavy rain showers throughout the day occasionally disrupted face-face surveys
RSI Site 2	Due to puncture on tyre of traffic management vehicle, surveys did not start until 07:40
RSI Site 3	Heavy rain showers throughout the day occasionally disrupted face-face surveys
RSI Site 4	Due to traffic management issues, surveys did not start until 07:20. Heavy rain showers throughout the day occasionally disrupted face-face surveys
RSI Site 5	No issues were encountered
RSI Site 6	No issues were encountered. HGVs were not surveyed due to site safety.
RSI Site 7	No issues were encountered
RSI Site 8	No issues were encountered
RSI Site 9	No issues were encountered
RSI Site 10	No issues were encountered
RSI Site 11	Heavy rain showers throughout the day occasionally disrupted face-face surveys
RSI Site 12	No issues were encountered
RSI Site 13	No issues were encountered
RSI Site 14	No issues were encountered

4.5.2 The above issues to RSI Sites 1, 2 and 4 have had a minor impact on the sample rate in the AM Peak. As a result, the data will be utilised as collected.

4.5.3 The above issues to RSI Sites 3, 4 and 11 may have had an impact on both the quantity and the quality of the data. In these conditions Tracsis had to hand out postcards due to the tablets becoming unresponsive in the rain. Postcard surveys are associated with lower sample rates and lower quality data. Furthermore it could also bias the results at these sites, as non-essential trips are less likely to be made in adverse weather conditions.

4.5.4 As the issues only occurred sporadically at a minority of sites, it is not thought that these issues impinge the validity and reliability of the overall results.

4.6 DATA CLEANING

4.6.1 As mentioned above, all completed surveys (both face to face and returned postcard) were processed by Tracsis. A further level of data cleaning was undertaken by WSP | PB so that the data coalesced with modelling requirements.

4.6.2 **Table 4-3** shows the validation checks that were performed on the data. Any changes to the original dataset by Tracsis have been recorded.

Table 4-3 - Data Cleaning Process

CRITERIA	VALIDATION CHECK	POSSIBLE SOLUTION
Vehicle Occupancy	Check vehicle occupancy against sensible threshold.	Assume vehicle was registered incorrectly, and reassign.
Postcode Check	Check that Origin and Destination postcode are different.	None, circular trips are not represented well in SATURN so must be discarded.
	Check that both Origin and Destination have a valid postcode.	If postcode is half-complete, assign to a generic location nearby.
Trip Purpose	Check that combination of origin and destination purposes is valid.	Manually check the origins / destinations land use, if still erroneous then discard.
Logical Trips	Check that the trip would pass through the RSI site, in the right direction.	If the route is inverted then the Origin and Destination can be flipped. If it is illogical then it must be discarded.

4.7 ROADSIDE INTERVIEW DATA ANALYSIS

4.7.1 **Table 4-4** provides a summary of the total number of RSIs conducted during the 12-hour period. Data is presented per site and shows a breakdown between valid surveys and those which were considered to be either void or illogical.

Table 4-4 – RSI Analysis

Site	Type of Response	Total Surveys Undertaken	Total Valid Surveys	% Valid
RSI 1	Face-to-Face	1,053	801	76.1%
RSI 2	Face-to-Face/Postcard	1,380	888	64.3%
RSI 3	Face-to-Face/Postcard	1,183	948	80.1%
RSI 4	Face-to-face/Postcard	1,163	699	60.1%
RSI 5	Postcard	489	382	78.1%
RSI 6	Face-to-Face	1,128	777	68.9%
RSI 7	Face-to-Face/Postcard	1,052	877	83.4%
RSI 8	Face-to-Face/Postcard	1,315	1114	84.7%
RSI 9	Face-to-Face/Postcard	1,790	1261	70.4%
RSI 10	Face-to-Face/Postcard	1,405	1022	72.7%
RSI 11	Face-to-Face/Postcard	998	661	66.2%
RSI 12	Face-to-Face/Postcard	1,278	903	70.7%
RSI 13	Face-to-Face	443	332	74.9%
RSI 14	Face-to-Face	654	420	64.2%
Total		**15,331**	**11,085**	**72.3%**

4.7.2 Out of a total of 15,331 RSI surveys undertaken across all fourteen sites, 11,085 (72.3%) were considered valid for use in the study. Conversely, 4,246 (27.7%) of surveys were void or illogical and subsequently discarded.

4.7.3 Both an ATC and MCJC survey were also undertaken over the 12-hour survey period at each RSI site. **Table 4-5** provides a brief summary of both the ATC and MCJC survey results, and how the counts compared at each site.

Table 4-5 – RSI ATC and MCJC Vehicle Counts

RSI Site	Survey Period	Total Vehicle Count					
		Non Interview Direction			Interview Direction		
		ATC	MCJC	Difference	ATC	MCJC	Difference
Site 1[4]	AM Peak Period	1,077	1,081	0.4%	864	885	2.4%
	Interpeak Period	2,561	2,544	0.7%	2,552	2,567	0.6%
	PM Peak Period	1,324	1,341	1.3%	1,434	1,447	0.9%
	12-hour Period	4,962	4,966	0.1%	4,850	4,899	1.0%
Site 2	AM Peak Period	722	593	19.6%	727	719	1.1%
	Interpeak Period	1,295	1,061	19.9%	1,228	1,006	19.9%
	PM Peak Period	776	657	16.6%	820	719	13.1%
	12-hour Period	2,942	2,311	24.0%	2,954	2,444	18.9%
Site 3	AM Peak Period	1,135	1,138	0.3%	599	599	0.0%
	Interpeak Period	1,551	1,561	0.6%	1,519	1,508	0.7%
	PM Peak Period	617	676	9.1%	1,024	1,020	0.4%
	12-hour Period	3,423	3,375	1.4%	3,293	3,127	5.2%
Site 4	AM Peak Period	1,097	1,089	0.7%	865	953	9.7%
	Interpeak Period	1,441	1,449	0.6%	1,348	1,387	2.9%
	PM Peak Period	911	935	2.6%	938	1,025	8.9%
	12-hour Period	3,636	3,473	4.6%	3,369	3,365	0.1%

Site 5	AM Peak Period	766	794	3.6%	466	486	4.2%
	Interpeak Period	1,001	1,008	0.7%	1,026	1,035	0.9%
	PM Peak Period	533	523	1.9%	779	770	1.2%
	12-hour Period	2,300	2,325	1.1%	2,271	2,291	0.9%
Site 6[1]	AM Peak Period	*NA*	1,516	*NA*	*NA*	1,245	*NA*
	Interpeak Period	*NA*	2,620	*NA*	*NA*	2,690	*NA*
	PM Peak Period	*NA*	1,412	*NA*	*NA*	1,653	*NA*
	12-hour Period	*NA*	5,548	*NA*	*NA*	5,588	*NA*
Site 7	AM Peak Period	540	569	5.2%	211	221	4.6%
	Interpeak Period	709	697	1.7%	894	888	0.7%
	PM Peak Period	321	321	0.0%	531	538	1.3%
	12-hour Period	1,639	1,587	3.2%	1,732	1,647	5.0%
Site 8	AM Peak Period	1,272	1,240	2.5%	1,467	1,561	6.2%
	Interpeak Period	2,481	2,430	2.1%	2,562	2,809	9.2%
	PM Peak Period	1,463	1,364	7.0%	1,659	1,770	6.5%
	12-hour Period	5,216	5,034	3.6%	5,688	6,140	7.6%
Site 9	AM Peak Period	806	811	0.6%	798	741	7.4%
	Interpeak Period	1,268	1,284	1.3%	1,219	1,188	2.6%
	PM Peak Period	860	869	1.0%	894	848	5.3%
	12-hour Period	2,934	2,964	1.0%	2,911	2,777	4.7%
Site 10	AM Peak Period	774	771	0.4%	508	522	2.7%
	Interpeak Period	1,028	1,032	0.4%	1,111	1,114	0.3%
	PM Peak Period	630	639	1.4%	816	836	2.4%
	12-hour Period	2,432	2,442	0.4%	2,435	2,472	1.5%
Site 11[2]	AM Peak Period	*NA*	690	*NA*	*NA*	908	*NA*
	Interpeak Period	*NA*	1,094	*NA*	*NA*	1,185	*NA*
	PM Peak Period	*NA*	814	*NA*	*NA*	764	*NA*
	12-hour Period	*NA*	2,598	*NA*	*NA*	2,857	*NA*
Site 12	AM Peak Period	401	414	3.2%	330	332	0.6%
	Interpeak Period	677	686	1.3%	715	751	4.9%
	PM Peak Period	332	327	1.5%	493	497	0.8%
	12-hour Period	1,410	1,427	1.2%	1,538	1,580	2.7%
Site 13	AM Peak Period	197	205	4.0%	130	125	3.9%
	Interpeak Period	276	279	1.1%	276	285	3.2%
	PM Peak Period	122	135	10.1%	195	200	2.5%
	12-hour Period	595	619	4.0%	601	610	1.5%
Site 14[3]	AM Peak Period	737	708	4.0%	736	NA	NA
	Interpeak Period	1,326	1,080	20.4%	1,399	NA	NA
	PM Peak Period	789	564	33.3%	886	887	0.1%
	12-hour Period	2,852	2,352	19.2%	3,021	1,614	60.7%

Note: *AM peak period = 0700-1000, Interpeak period = 1000-1600, PM peak period = 1600-1900*

[1] *AM Period comparison for 0800-1000 as MCJC surveys did not commence until 0745*

[2] *ATC fault during survey period, no data available for comparison*

[3] *Issue experience with MCJC in non-interview direction during both AM and Interpeak periods, no data available for comparison*

[4] *AM Period missing data from 0700-0800.*

4.7.4 **Table 4-6** identifies that all ATC and MCJC vehicle count totals matched each other by at least 95% across all three RSI sites. The greatest discrepancies in values (5%) were recorded in the interview flow directions at both site 1 in the PM peak period, and site 3 in the AM peak period.

4.7.5 Comparing the total number of valid surveys at each site, and the total vehicle flows (in the interview direction only) at each site, **Table 4-6** identifies the proportion of traffic successfully interviewed at each RSI site, during each peak period.

Table 4-6 – RSI Sample Rates

RSI Site	Survey Period	Total Valid RSI surveys	Proportion of Total 12 - Hour ATC Count	Proportion of Total 12 - Hour MCJC Count
Site 1[1]	AM Peak Period	198	18.4%	18.3%
	Interpeak Period	409	16.0%	16.1%
	PM Peak Period	194	14.7%	14.5%
	12-hour Period	801	16.1%	16.1%
Site 2	AM Peak Period	192	26.6%	32.4%
	Interpeak Period	444	34.3%	41.8%
	PM Peak Period	252	32.5%	38.4%
	12-hour Period	888	30.2%	38.4%
Site 3	AM Peak Period	308	27.1%	27.1%
	Interpeak Period	416	26.8%	26.6%
	PM Peak Period	224	36.3%	33.1%
	12-hour Period	948	27.7%	28.1%
Site 4	AM Peak Period	202	18.4%	18.5%
	Interpeak Period	295	20.5%	20.4%
	PM Peak Period	202	22.2%	21.6%
	12-hour Period	699	19.2%	20.1%
Site 5	AM Peak Period	168	21.9%	21.2%
	Interpeak Period	148	14.8%	14.7%
	PM Peak Period	66	12.4%	12.6%
	12-hour Period	382	16.6%	16.4%
Site 6[1]	AM Peak Period	200	NA	13.2%
	Interpeak Period	375	NA	14.3%
	PM Peak Period	202	NA	14.3%
	12-hour Period	777	NA	14.0%
Site 7	AM Peak Period	331	61.3%	58.2%
	Interpeak Period	388	54.7%	55.7%
	PM Peak Period	158	49.2%	49.2%
	12-hour Period	877	53.5%	55.3%
Site 8	AM Peak Period	320	25.2%	25.8%
	Interpeak Period	543	21.9%	22.3%
	PM Peak Period	250	17.1%	18.3%
	12-hour Period	1,113	21.3%	22.1%
Site 9	AM Peak Period	351	43.5%	43.3%
	Interpeak Period	618	48.7%	48.1%
	PM Peak Period	292	34.0%	33.6%
	12-hour Period	1,261	43.0%	42.5%
Site 10	AM Peak Period	252	32.6%	32.7%
	Interpeak Period	558	54.3%	54.1%
	PM Peak Period	212	33.7%	33.2%

	12-hour Period	1,022	42.0%	41.9%
Site 11[2]	AM Peak Period	166	NA	24.1%
	Interpeak Period	320	NA	29.3%
	PM Peak Period	175	NA	21.5%
	12-hour Period	661	NA	25.4%
Site 12	AM Peak Period	273	68.1%	65.9%
	Interpeak Period	435	64.3%	63.4%
	PM Peak Period	195	58.7%	59.6%
	12-hour Period	903	64.0%	63.3%
Site 13	AM Peak Period	124	62.9%	60.5%
	Interpeak Period	154	55.8%	55.2%
	PM Peak Period	54	44.3%	40.0%
	12-hour Period	332	55.8%	53.6%
Site 14[3]	AM Peak Period	107	14.5%	NA
	Interpeak Period	238	17.9%	NA
	PM Peak Period	75	9.5%	13.3%
	12-hour Period	420	14.7%	NA

Note: *AM peak period = 0700-1000, Interpeak period = 1000-1600, PM peak period = 1600-1900*
[1] *AM Period comparison for 0800-1000 as MCJC surveys did not commence until 0745*
[2] *ATC fault during survey period, no data available for comparison*
[3] *Issue experience with MCJC in non-interview direction during both AM and Interpeak periods, no data available for comparison*

4.7.6 In total for all 14 RSI sites, approximately 27% of vehicles travelling in the interview directions were successfully surveyed over the 12 hour periods.

4.8 ORIGIN AND DESTINATION REVIEW

4.8.1 A sector system has been created in order to analyse the patterns of travel observed at the roadside interview survey. The boundaries of each sector are shown in **Figure 4-2** and **Figure 4-3**. The sector system represents the following areas:

- **Sector 1** - South West Hereford (Belmont)
- **Sector 2** - South East Hereford (Rotherwas and Green Crize)
- **Sector 3** - North East Hereford (Tupsley)
- **Sector 4** - North West Hereford (Broomy Hill and King's Acre)
- **Sector 5** - North Herefordshire
- **Sector 6** - South Herefordshire
- **Sector 7** - Wales
- **Sector 8** - South England
- **Sector 9** - The Midlands (Worcester and Birmingham)
- **Sector 10** - Mid to North England and Scotland

Figure 4-2 - Origin-Destination Sector Boundaries

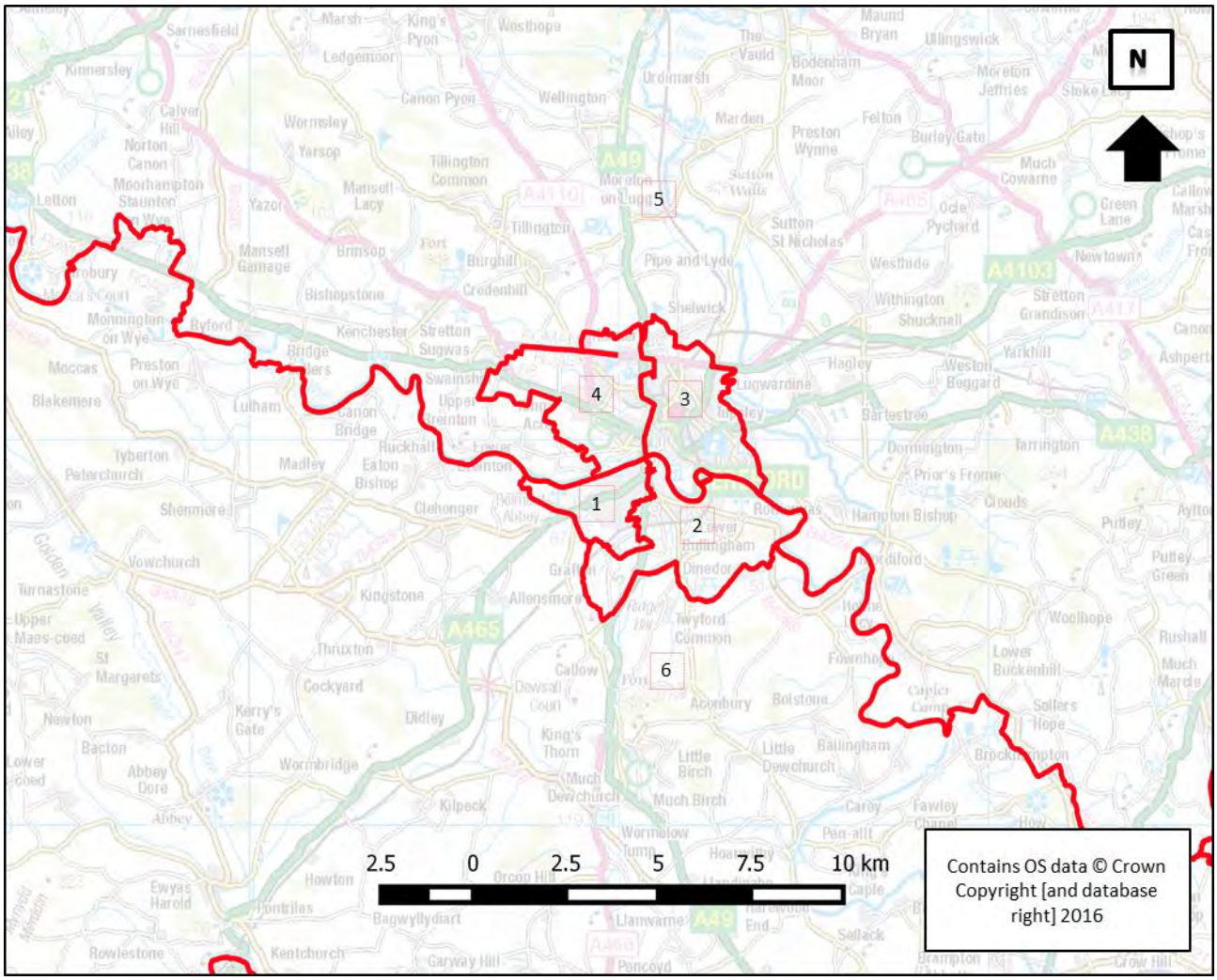
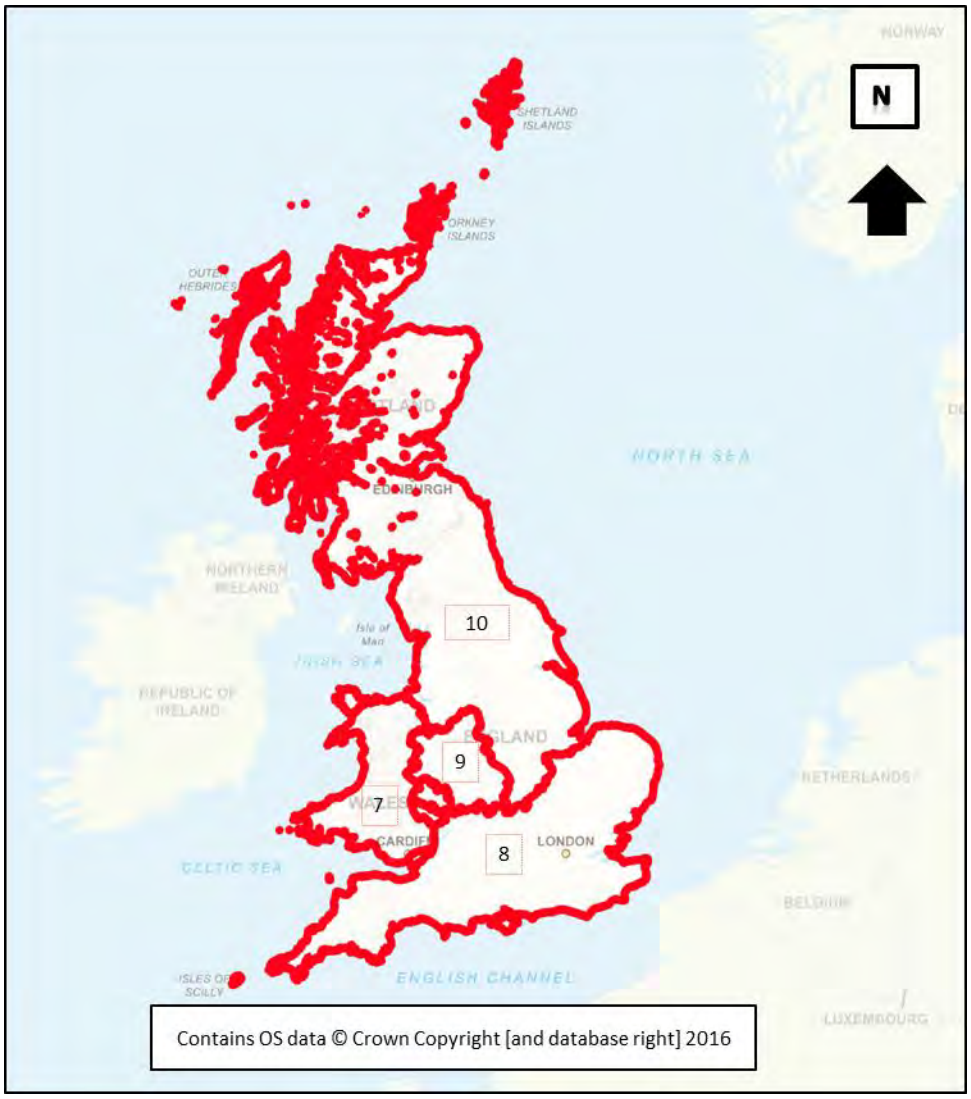


Figure 4-3 - Origin-Destination Sector Boundaries



4.8.2 These sectors are based on entry points into Hereford. Sectors 1 to 4 represent the internal sectors within Hereford with Sector 1 representing the A465 entry route, Sector 2 representing the A49(S) entry route, Sector 3 representing the A438(E) and A4103 entry routes, and Sector 4 representing the A438(W) and A49(N) entry routes. Sectors 5 to 10 represent the external sectors which are divided across the main routes into Hereford from further afield.

4.8.3 The sectors were assigned based on Google Maps routing software to determine what route (road) a trip (car trip only) would take on its approach to Hereford. For example a trip travelling from Abergavenny (represented in Sector 7) would approach Hereford on the A465, representing as a sector movement from Sector 7 to Sector 1.

4.8.4 A basic analysis of the RSI surveys werecarried out and sector-to-sector movements of origins and destinations were generated in order to understand the surveyed vehicle movements.

12-HOUR PERIOD (07:00 – 19:00)

4.8.5 **Table 4-7** presents the distribution of traffic movements by sector, during the 12-hour survey period, for all RSI sites. The traffic movements presented are calculated based on incoming trips only. Note that the data shown in **Table 4-7** includes data from all RSI sites and has not been factored to observed traffic flows, so the data should be treated accordingly.

Table 4-7 – RSI Sector Analysis (07:00 – 19:00)

		Destination Sector										
		1	2	3	4	5	6	7	8	9	10	Total
Origin Sector	1	0 (0.0%)	0 (0.0%)	1 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.0%)
	2	20 (0.2%)	48 (0.4%)	89 (0.8%)	19 (0.2%)	56 (0.5%)	18 (0.2%)	9 (0.1%)	5 (0.0%)	6 (0.1%)	0 (0.0%)	270 (2.4%)
	3	4 (0.0%)	17 (0.2%)	1 (0.0%)	0 (0.0%)	1 (0.0%)	3 (0.0%)	0 (0.0%)	1 (0.0%)	0 (0.0%)	0 (0.0%)	27 (0.2%)
	4	0 (0.0%)	1 (0.0%)	7 (0.1%)	2 (0.0%)	2 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.0%)	1 (0.0%)	0 (0.0%)	14 (0.1%)
	5	245 (2.2%)	345 (3.1%)	2,967 (26.8%)	950 (8.6%)	703 (6.3%)	276 (2.5%)	102 (0.9%)	90 (0.8%)	74 (0.7%)	7 (0.1%)	5759 (52%)
	6	351 (3.2%)	286 (2.6%)	1,083 (9.8%)	281 (2.5%)	276 (2.5%)	126 (1.1%)	22 (0.2%)	15 (0.1%)	41 (0.4%)	12 (0.1%)	2,493 (22.5%)
	7	35 (0.3%)	49 (0.4%)	383 (3.5%)	113 (1%)	97 (0.9%)	38 (0.3%)	42 (0.4%)	35 (0.3%)	40 (0.4%)	21 (0.2%)	853 (7.7%)
	8	43 (0.4%)	84 (0.8%)	364 (3.3%)	104 (0.9%)	131 (1.2%)	18 (0.2%)	15 (0.1%)	0 (0.0%)	13 (0.1%)	6 (0.1%)	778 (7%)
	9	38 (0.3%)	58 (0.5%)	365 (3.3%)	145 (1.3%)	79 (0.7%)	55 (0.5%)	54 (0.5%)	8 (0.1%)	1 (0.0%)	0 (0.0%)	803 (7.2%)
	10	3 (0.0%)	11 (0.1%)	29 (0.3%)	10 (0.1%)	8 (0.1%)	3 (0.0%)	19 (0.2%)	4 (0.0%)	0 (0.0%)	0 (0.0%)	87 (0.8%)
	Total	739 (6.7%)	899 (8.1%)	5,289 (47.7%)	1,624 (14.7%)	1,353 (12.2%)	537 (4.8%)	263 (2.4%)	159 (1.4%)	176 (1.6%)	46 (0.4%)	11,085 (100%)

4.8.6 Based on the RSI data, **Table 4-7** shows that over the 12-hour survey period, the percentage of the total movements for internal to internal sector trips (highlighted by blue cells) was 1.9%. These movements are for trips with origins and destinations within the town, and we would expect these values to be low as they are within the RSI cordons. The amount of trips travelling to Hereford over the 12-hour period (represented by trips originating from sectors 5-10, and travelling to sectors 1-4) equates to 77.2%. The percentage of through traffic (represented by trips originating from sectors 5-10, and travelling to sectors 5-10) is 22.8%.

4.8.7 The largest traffic movement over the 12-hour survey period is between Sector 5 and Sector 3 (26.8% of trips). These trips represent traffic travelling from North Herefordshire to North East Hereford (Tupsley).

AM PEAK PERIOD (07:00 – 10:00)

4.8.8 **Table 4-8** presents the distribution of traffic movements by sector, during the AM peak period, for all RSI sites. The traffic movements presented are calculated based on incoming trips only. Note that the data shown in **Table 4-8** includes data from all RSI sites and has not been factored to observed traffic flows, so the data should be treated accordingly.

Table 4-8 – RSI Sector Analysis (07:00 – 10:00)

		Destination Sector										
		1	2	3	4	5	6	7	8	9	10	Total
Origin Sector	1	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	2	4 (0.1%)	10 (0.3%)	17 (0.5%)	4 (0.1%)	6 (0.2%)	2 (0.1%)	1 (0.0%)	2 (0.1%)	1 (0.0%)	0 (0.0%)	47 (1.5%)
	3	0 (0.0%)	7 (0.2%)	1 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	9 (0.3%)
	4	0 (0.0%)	1 (0.0%)	4 (0.1%)	1 (0.0%)	1 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.0%)	0 (0.0%)	0 (0.0%)	8 (0.3%)
	5	48 (1.5%)	119 (3.7%)	905 (28.4%)	300 (9.4%)	208 (6.5%)	78 (2.4%)	26 (0.8%)	28 (0.9%)	29 (0.9%)	2 (0.1%)	1743 (54.6%)
	6	67 (2.1%)	85 (2.7%)	328 (10.3%)	85 (2.7%)	76 (2.4%)	41 (1.3%)	3 (0.1%)	5 (0.2%)	17 (0.5%)	6 (0.2%)	713 (22.3%)
	7	7 (0.2%)	14 (0.4%)	116 (3.6%)	27 (0.8%)	29 (0.9%)	15 (0.5%)	4 (0.1%)	6 (0.2%)	5 (0.2%)	5 (0.2%)	228 (7.1%)
	8	9 (0.3%)	16 (0.5%)	117 (3.7%)	32 (1.0%)	26 (0.8%)	3 (0.1%)	2 (0.1%)	0 (0.0%)	1 (0.0%)	0 (0.0%)	206 (6.5%)
	9	9 (0.3%)	18 (0.6%)	106 (3.3%)	42 (1.3%)	23 (0.7%)	12 (0.4%)	14 (0.4%)	1 (0.0%)	0 (0.0%)	0 (0.0%)	225 (7%)
	10	0 (0.0%)	3 (0.1%)	4 (0.1%)	1 (0.0%)	1 (0.0%)	0 (0.0%)	4 (0.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	13 (0.4%)
	Total	144 (4.5%)	273 (8.6%)	1598 (50.1%)	492 (15.4%)	370 (11.6%)	152 (4.8%)	54 (1.7%)	43 (1.3%)	53 (1.7%)	13 (0.4%)	3192 (100%)

4.8.9 Based on the RSI data, **Table 4-8** shows that over the AM peak period, the percentage of the total movements for internal to internal sector trips (highlighted by blue cells) was 1.5%. These movements are for trips with origins and destinations within the town, and we would expect these values to be low as they are within the RSI cordons. The amount of trips travelling to Hereford over the 12-hour period (represented by trips originating from sectors 5-10, and travelling to sectors 1-4) equates to 78.5%. The percentage of through traffic (represented by trips originating from sectors 5-10, and travelling to sectors 5-10) is 21.5%.

4.8.10 The largest traffic movement over the AM peak period is between Sector 5 and Sector 3 (28.4% of AM peak trips). These trips represent traffic travelling from North Herefordshire to North East Hereford (Tupsley).

INTERPEAK PERIOD (10:00 – 16:00)

4.8.11 **Table 4-9** presents the distribution of traffic movements by sector, during the Interpeak period, for all RSI sites. The traffic movements presented are calculated based on incoming trips only. Note that the data shown in **Table 4-9** includes data from all RSI sites and has not been factored to observed traffic flows, so the data should be treated accordingly.

Table 4-9 – RSI Sector Analysis (10:00 – 16:00)

		Destination Sector										
		1	2	3	4	5	6	7	8	9	10	Total
Origin Sector	1	0 (0.0%)	0 (0.0%)	1 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0%)
	2	10 (0.2%)	27 (0.5%)	42 (0.8%)	7 (0.1%)	33 (0.6%)	10 (0.2%)	4 (0.1%)	3 (0.1%)	3 (0.1%)	0 (0.0%)	139 (2.6%)
	3	3 (0.1%)	6 (0.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.0%)	0 (0.0%)	1 (0.0%)	0 (0.0%)	0 (0.0%)	11 (0.2%)
	4	0 (0.0%)	0 (0.0%)	2 (0.0%)	1 (0.0%)	1 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.0%)	0 (0.0%)	5 (0.1%)
	5	115 (2.2%)	130 (2.4%)	1516 (28.4%)	413 (7.7%)	317 (5.9%)	122 (2.3%)	54 (1%)	45 (0.8%)	28 (0.5%)	4 (0.1%)	2,744 (51.4%)
	6	179 (3.4%)	144 (2.7%)	571 (10.7%)	127 (2.4%)	113 (2.1%)	55 (1.0%)	14 (0.3%)	8 (0.1%)	11 (0.2%)	4 (0.1%)	1,226 (23%)
	7	15 (0.3%)	27 (0.5%)	207 (3.9%)	46 (0.9%)	35 (0.7%)	16 (0.3%)	24 (0.4%)	22 (0.4%)	24 (0.4%)	9 (0.2%)	425 (8%)
	8	15 (0.3%)	37 (0.7%)	163 (3.1%)	45 (0.8%)	71 (1.3%)	13 (0.2%)	11 (0.2%)	0 (0.0%)	10 (0.2%)	5 (0.1%)	370 (6.9%)
	9	16 (0.3%)	29 (0.5%)	172 (3.2%)	58 (1.1%)	30 (0.6%)	24 (0.4%)	29 (0.5%)	4 (0.1%)	1 (0.0%)	0 (0.0%)	363 (6.8%)
	10	2 (0.0%)	5 (0.1%)	19 (0.4%)	6 (0.1%)	5 (0.1%)	3 (0.1%)	13 (0.2%)	4 (0.1%)	0 (0.0%)	0 (0.0%)	57 (1.1%)
	Total	355 (6.6%)	405 (7.6%)	2,693 (50.4%)	703 (13.2%)	605 (11.3%)	244 (4.6%)	149 (2.8%)	87 (1.6%)	78 (1.5%)	22 (0.4%)	5,341 (100%)

4.8.12 Based on the RSI data, **Table 4-9** shows that over the Interpeak period, the percentage of the total movements for internal to internal sector trips (highlighted by blue cells) was 1.9%. These movements are for trips with origins and destinations within the town, and we would expect these values to be low as they are within the RSI cordons. The amount of trips travelling to Hereford over the 12-hour period (represented by trips originating from sectors 5-10, and travelling to sectors 1-4) equates to 77.8%. The percentage of through traffic (represented by trips originating from sectors 5-10, and travelling to sectors 5-10) is 22.2%.

4.8.13 The largest traffic movement over the Interpeak period is between Sector 5 and Sector 3 (28.4% of Interpeak trips). These trips represent traffic travelling from North Herefordshire to North East Hereford (Tupsley).

PM PEAK PERIOD (16:00 – 19:00)

4.8.14 **Table 4-10** presents the distribution of traffic movements by sector, during the PM peak period, for all RSI sites. The traffic movements presented are calculated based on incoming trips only. Note that the data shown in **Table 4-10** includes data from all RSI sites and has not been factored to observed traffic flows, so the data should be treated accordingly.

Table 4-10 – RSI Sector Analysis (16:00 – 19:00)

		Destination Sector										
		1	2	3	4	5	6	7	8	9	10	Total
Origin Sector	1	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	2	6 (0.2%)	11 (0.4%)	30 (1.2%)	8 (0.3%)	17 (0.7%)	6 (0.2%)	4 (0.2%)	0 (0.0%)	2 (0.1%)	0 (0.0%)	84 (3.3%)
	3	1 (0.0%)	4 (0.2%)	0 (0.0%)	0 (0.0%)	1 (0.0%)	1 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	7 (0.3%)
	4	0 (0.0%)	0 (0.0%)	1 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.0%)
	5	82 (3.2%)	96 (3.8%)	545 (21.4%)	237 (9.3%)	178 (7.0%)	76 (3.0%)	22 (0.9%)	17 (0.7%)	17 (0.7%)	1 (0.0%)	1,271 (49.8%)
	6	105 (4.1%)	57 (2.2%)	184 (7.2%)	69 (2.7%)	87 (3.4%)	30 (1.2%)	5 (0.2%)	2 (0.1%)	13 (0.5%)	2 (0.1%)	554 (21.7%)
	7	13 (0.5%)	8 (0.3%)	60 (2.4%)	40 (1.6%)	33 (1.3%)	7 (0.3%)	14 (0.5%)	7 (0.3%)	11 (0.4%)	7 (0.3%)	200 (7.8%)
	8	19 (0.7%)	31 (1.2%)	84 (3.3%)	27 (1.1%)	34 (1.3%)	2 (0.1%)	2 (0.1%)	0 (0.0%)	2 (0.1%)	1 (0.0%)	202 (7.9%)
	9	13 (0.5%)	11 (0.4%)	87 (3.4%)	45 (1.8%)	26 (1%)	19 (0.7%)	11 (0.4%)	3 (0.1%)	0 (0.0%)	0 (0.0%)	215 (8.4%)
	10	1 (0.0%)	3 (0.1%)	6 (0.2%)	3 (0.1%)	2 (0.1%)	0 (0.0%)	2 (0.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	17 (0.7%)
	Total	240 (9.4%)	221 (8.7%)	997 (39.1%)	429 (16.8%)	378 (14.8%)	141 (5.5%)	60 (2.4%)	29 (1.1%)	45 (1.8%)	11 (0.4%)	2,551 (100%)

4.8.15 Based on the RSI data, **Table 4-10** shows that over the PM peak period, the percentage of the total movements for internal to internal sector trips (highlighted in by blue cells) was 2.4%. These movements are for trips with origins and destinations within the town, and we would expect these values to be low as they are within the RSI cordons. The amount of trips travelling to Hereford over the 12-hour period (represented by trips originating from sectors 5-10, and travelling to sectors 1-4) equates to 74.0%. The percentage of through traffic (represented by trips originating from sectors 5-10, and travelling to sectors 5-10) is 26.0%.

4.8.16 The largest traffic movement over the PM peak period is between Sector 5 and Sector 3 (21.4% of PM peak trips). These trips represent traffic travelling from North Herefordshire to North East Hereford (Tupsley).

4.9 CONCLUSIONS

4.9.1 WSP | PB commissioned Tracsis to undertake RSIs at 14 key sites in the study area. RSIs were conducted on Tuesdays or Thursdays between 14th June and 12th July. Days that may cause anomalous travel patterns, such as the date of the England v Wales Euro 2016 fixture, were avoided. The surveys were undertaken via a combination of face-to-face interviews (recorded onto a digital tablet) and postcard surveys.

4.9.2 Out of a total of 15,331 surveys, 11,085 (72.3%) are considered valid for use in the model build. 27% of vehicles travelling through all RSI Sites were successfully surveyed over the 12-hour interview periods.

4.9.3 Over the 12-hour interview period, the highest movement recorded across all RSI sites was from Sector 5 to Sector 3, which accounted for 26.8% of trips. Through traffic accounted for 22.8% of recorded trips across all RSI Sites, while 77.2% of trips were recorded as an external-internal movement. The RSIs were not designed to capture internal-internal trips.

4.9.4 Due to the high sample rate, and the methodology which restricted the presence of anomalous results, WSP | PB are satisfied that the RSI surveys are representative of travel patterns within the study area.

5 CAR PARK INTERVIEW SURVEYS

5.1 INTRODUCTION

5.1.1 WSP | PB commissioned Tracsis to undertake Car Park Interviews (CPIs) at 14 public car park sites and 6 private car park sites within Hereford. Each CPI was conducted on either a Tuesday or Thursday between the 7th June and 19th July.

5.1.2 As with the RSIs (**Section 4**), no surveys were undertaken on Monday's, Wednesday's or Friday's, and no surveys were undertaken on either Thursday 16th June or Thursday 23rd June (due to the Wales v England Euro 2016 fixture, and the EU referendum).

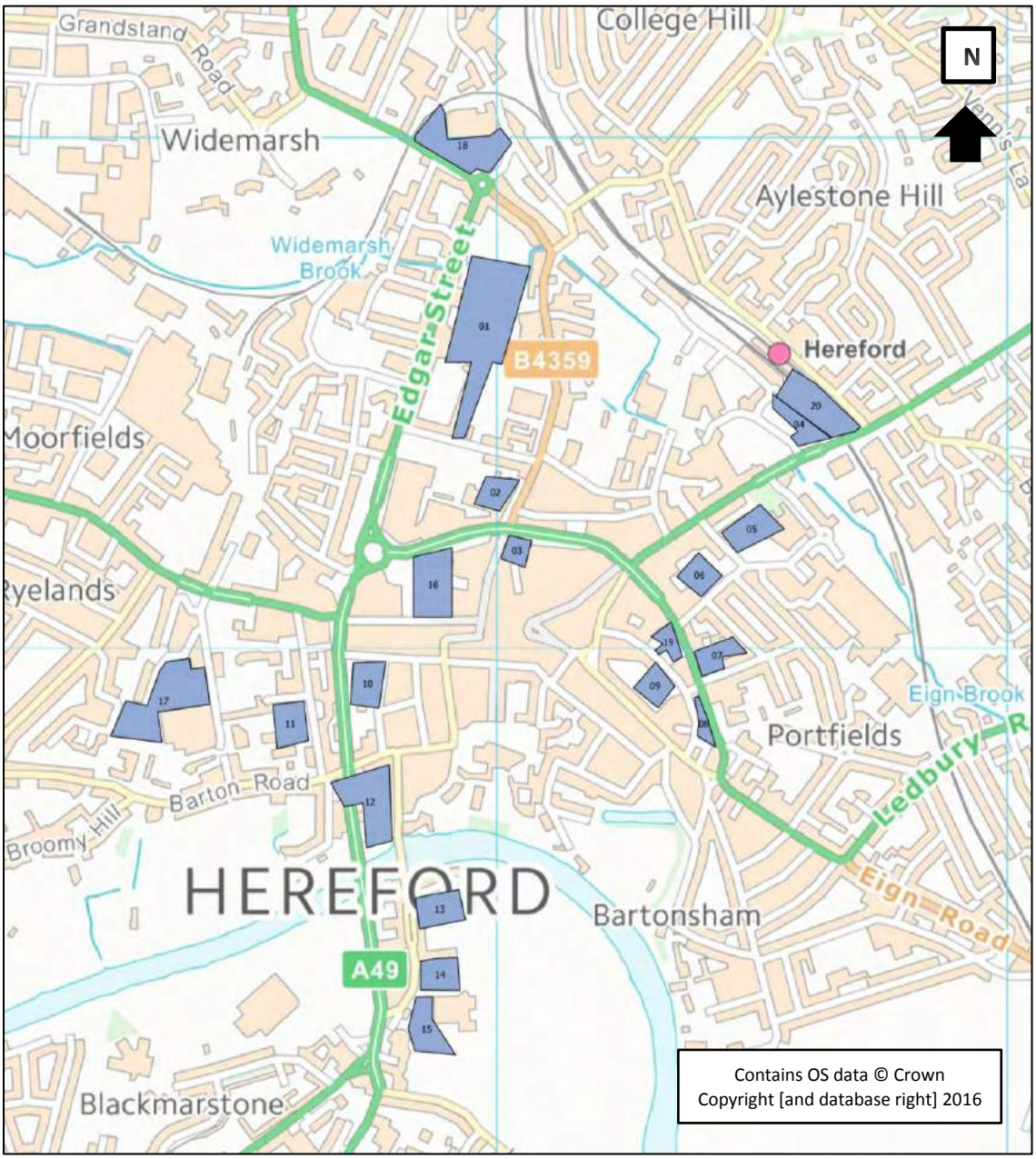
5.1.3 The following chapter gives an overview of the RSI data collection process and the results obtained.

5.2 METHODOLOGY

5.2.1 The CPI surveys undertaken were carried out on the following dates and locations (as shown in **Figure 5-1**);

- **CPI 1** Merton Meadow *(Tue 19th July 2016)*
- **CPI 2** Garric Multi-Storey *(Thu 9th June 2016)*
- **CPI 3** Maylord Orchards Shopping Centre *(Thu 9th June 2016)*
- **CPI 4** Station Approach *(Thu 9th June 2016)*
- **CPI 5** Bus Station – Commercial Road *(Thu 9th June 2016)*
- **CPI 6** Kyrle Street *(Thu 9th June 2016)*
- **CPI 7** Venns Close / Symonds Street *(Tue 7th June 2016)*
- **CPI 8** Bath Street *(Tue 7th June 2016)*
- **CPI 9** Gaol Street *(Tue 7th June 2016)*
- **CPI 10** West Street *(Tue 7th June 2016)*
- **CPI 11** Friars Street *(Tue 7th June 2016)*
- **CPI 12** Greyfriars *(Tue 7th June 2016)*
- **CPI 13** Wye Street *(Tue 7th June 2016)*
- **CPI 14** St Martins Avenue *(Tue 7th June 2016)*
- **CPI 15** St Martins Avenue (overflow) *(Tue 7th June 2016)*
- **CPI 16** Tesco (Bewell Street superstore) *(Thu 9th June 2016)*
- **CPI 17** Sainsbury's (Grimmer Road) *(Tue 14th June 2016)*
- **CPI 18** Newton Road Retail Park *(Tue 5th July 2016)*
- **CPI 19** City Walls (Bath Street) *(Tue 7th June 2016)*
- **CPI 20** Hereford Station (Commercial Road) *(Thu 9th June 2016)*

Figure 5-1 - Location of Car Park Surveys



5.2.2 The surveys were undertaken via a combination of both face-to-face surveys (with interviewers recording answers onto a digital tablet), and postcard surveys when a face-to-face survey was not possible. A copy of the questionnaire utilised for both the face-to-face and postcard surveys is included at **Appendix D-1.**

5.2.3 The questionnaire was designed to gain information about the following subjects, for both the inbound and outbound trips:

- Origin and destination of the trip;
- Purpose of the trip at the origin and destination;
- Vehicle type;
- Time of trip and estimated time of return trip; and
- Number of passengers.

5.2.4 The questionnaire is standardised with exception to the questions regarding outbound trips. This was deemed necessary as it enabled a sample rate for flows exiting the car park to be gathered. Adding in this question is unlikely to have had any appreciable impact on sample rates.

5.2.5 At each site, surveys were conducted for the 12-hour period between the hours of 07:00 to 19:00, and interviews were only undertaken upon entry to the car parks.

5.2.6 All completed surveys (both face to face and returned postcard) were processed by Tracsis.

5.2.7 In line with Hereford Council's health and safety regulations, all staff present at each CPI site were given an on-site health and safety induction (prior to the commencement of each survey), and were equipped with full personal protection equipment (PPE).

5.2.8 Manual classified counts (undertaken by video) were also carried out at each CPI site over the 12-hour survey period to monitor the number of vehicles entering and exiting each car park.

5.3 CPI ISSUES

CPI SURVEYS

5.3.1 Tracsis noted the following issues with regard to the car park interviews:

- **CPI 7 Venns Close / Symonds Street** - Due to the car park being open on two sides, as well as the presence of a rear access lane for pedestrians, not all drivers could be approached upon leaving their vehicles. This resulted in lower sample rate than expected.
- **CPI 19 City Walls (Bath Street) –** There was only one enumerator whilst there were two separate pay and display machines. This meant that not all drivers could be approached upon leaving their vehicles. This resulted in lower sample rate than expected.
- **CPI 4 Station Approach & CPI 20 Hereford Station (Commercial Road) –** The nature of these car parks (adjacent to one another and with a high amount of footfall) may have meant that the enumerators incorrectly interviewed pedestrians whom he thought had parked in this car park. Tracsis are currently investigating the issue.

CAR PARK ENTRY / EXIT COUNTS

5.3.2 Tracsis noted the following late starts with regard to video coverage for the manual classified counts:

- **CPI 9 Gaol Street –** Video footage did not start until 07:08
- **CPI 13 Wye Street –** Video footage did not start until 07:26

→ **CPI 14 & 15 St Martins Avenue –** Video footage did not start until 07:19

5.3.3 The above late starts in video coverage are not seen as a major issue in the validity of the survey results, and data from these will be utilised in all summary results and model building data.

5.4 CPI ANALYSIS

5.4.1 **Table 5-1** provides a summary of the total number of responses received at each of the CPI survey locations.

5.4.2 The data in **Table 5-1** relates to journeys from the respondents' origins to their destinations within Hereford, and is presented per site, including a breakdown between valid surveys and those which were considered to be either invalid (void or illogical) during analysis.

Table 5-1 - CPI Analysis of Valid Surveys

Parking Site	Interview Type	Total CPI Surveys Undertaken	Total Valid CPI Surveys	Total Invalid CPI Surveys	% Valid
Car Park 1	Face-to-face	142	136	6	95.77%
	Postcards	0	0	0	0.00%
	Total	**142**	**136**	**6**	**95.77%**
Car Park 2	Face-to-face	49	48	1	97.96%
	Postcards	1	1	0	100.00%
	Total	**50**	**49**	**1**	**98.00%**
Car Park 3	Face-to-face	87	81	6	93.10%
	Postcards	1	1	0	100.00%
	Total	**88**	**82**	**6**	**93.18%**
Car Park 4	Face-to-face	49	47	2	95.92%
	Postcards	0	0	0	0.00%
	Total	**49**	**47**	**2**	**95.92%**
Car Park 5	Face-to-face	46	42	4	91.30%
	Postcards	3	3	0	100.00%
	Total	**49**	**45**	**4**	**91.84%**
Car Park 6	Face-to-face	41	35	6	85.37%
	Postcards	6	6	0	100.00%
	Total	**47**	**41**	**6**	**87.23%**
Car Park 7	Face-to-face	8	4	4	50.00%
	Postcards	3	0	3	0.00%
	Total	**11**	**4**	**7**	**36.36%**

Car Park 8	Face-to-face	29	24	5	82.76%
	Postcards	0	0	0	0.00%
	Total	**29**	**24**	**5**	**82.76%**
Car Park 9	Face-to-face	42	38	4	90.48%
	Postcards	5	2	3	40.00%
	Total	**47**	**40**	**7**	**85.11%**
Car Park 10	Face-to-face	43	30	13	69.77%
	Postcards	4	4	0	100.00%
	Total	**47**	**34**	**13**	**72.34%**
Car Park 11	Face-to-face	37	35	2	94.59%
	Postcards	0	0	0	0.00%
	Total	**37**	**35**	**2**	**94.59%**
Car Park 12	Face-to-face	32	24	8	75.00%
	Postcards	7	0	7	0.00%
	Total	**39**	**24**	**15**	**61.54%**
Car Park 13	Face-to-face	71	48	23	67.61%
	Postcards	0	0	0	0.00%
	Total	**71**	**48**	**23**	**67.61%**
Car Park 14	Face-to-face	94	84	10	89.36%
	Postcards	0	0	0	0.00%
	Total	**94**	**84**	**10**	**89.36%**
Car Park 15	Face-to-face	62	41	21	66.13%
	Postcards	0	0	0	0.00%
	Total	**62**	**41**	**21**	**66.13%**
Car Park 16	Face-to-face	160	147	13	91.88%
	Postcards	31	3	28	9.68%
	Total	**191**	**150**	**41**	**78.53%**
Car Park 17	Face-to-face	149	143	6	95.97%
	Postcards	18	5	13	27.78%
	Total	**167**	**148**	**19**	**88.62%**
Car Park 18	Face-to-face	91	88	3	96.70%
	Postcards	4	0	4	0.00%
	Total	**95**	**88**	**7**	**92.63%**

Car Park 19	Face-to-face	21	13	8	61.90%
	Postcards	0	0	0	0.00%
	Total	**21**	**13**	**8**	**61.90%**
Car Park 20	Face-to-face	50	36	14	72.00%
	Postcards	2	0	2	0.00%
	Total	**52**	**36**	**16**	**69.23%**
TOTAL	Face-to-face	1303	1144	159	87.80%
	Postcards	85	25	60	29.41%
	Total	**1388**	**1169**	**219**	**84.22%**

5.4.3 **Table 5-1** identifies that, out of the 1,388 responses, a total of 1,169 (84.22%) responses were deemed to be valid journeys, and 219 (15.78%) responses were deemed to be invalid. **Table 5-1** shows that the percentage of useable responses at each survey site ranged from 36.36% at CPI site 7 to 98% at CPI site 2.

5.4.4 Analysis of the invalid surveys identified that a number of the invalid survey responses identified in **Table 5-1** were marked as void due to the lack of a valid destination postcode. These destination postcodes refer to the final onward destination of the driver within Hereford, after arriving at the car park. For the purpose of the SATURN model, these onward destinations are not required, as the destination trip location utilised within the model will be the car park. As such, any CPI survey which was originally voided by Tracsis, but which has a valid origin location, has been considered suitable for the SATURN model, and has been re-categorised as valid for the model build and utilised in **Table 5-1** above.

5.4.5 Of the 1,388 useable surveys, 488 were undertaken during the AM peak period (07:00-10:00), 708 were undertaken during the Interpeak period (10:00-16:00), and 192 were undertaken during the PM peak period.

5.4.6 The surveys were designed so that they could gain information on both the inbound trip (to the car park) and the outbound trip (from the car park). The 1,388 useable surveys ended generating 1,169 inbound and 1,065 outbound trips, meaning of total of 2,234 trips were generated from the surveys.

5.4.7 Of these 2,234 trips, 492 were during the AM peak (07:00---10:00), 1,220 were during the IP peak (10:00-16:00), and 552 were during the PM peak (16:00-19:00).

5.4.8 Comparing the total number of valid surveys at each site, and the total vehicle flows (arrivals only) at each site, **Table 5-2** identifies the proportion of traffic successfully interviewed at each CPI site.

Table 5-2 - Proportion of Traffic Successfully Interviewed at Each CPI Site

CPI Site	Total Valid Surveys	Total Vehicle Arrivals	% of Total Arrivals Surveyed Successfully
CPI 1	136	849	16.02%
CPI 2	49	498	9.84%
CPI 3	82	491	16.70%

CPI 4	47	171	27.49%
CPI 5	45	670	6.72%
CPI 6	41	227	18.06%
CPI 7	4	190	2.11%
CPI 8	24	208	11.54%
CPI 9	40	593	6.75%
CPI 10	34	296	11.49%
CPI 11	35	57	61.40%
CPI 12	24	157	15.29%
CPI 13	48	230	20.87%
CPI 14	84	570	14.74%
CPI 15	41	57	71.93%
CPI 16	150	2,214	6.78%
CPI 17	148	2,513	5.89%
CPI 18	88	553	15.91%
CPI 19	13	420	3.10%
CPI 20	36	52	69.23%
Total	1,169	10,996	10.63%

5.4.9 Table 5-2 identifies that the overall sample rate for the car park interviews was 10.63%, with 1169 valid and useable surveys garnered from 10996 vehicles entering the CPI sites. The highest sample rate of valid surveys was at CPI site 15, with 71.93% of vehicles which entered the site being successfully interviewed. The lowest was at CPI site 7, with only 2.11% of vehicles which entered the site being successfully interviewed. This was due to the issues mentioned in 5.3, as well as a high proportion of invalid/illogical surveys.

5.5 SECTOR MAPPING

5.5.1 As with the RSI surveys (Chapter **4**), the CPI surveys have been broken down and summarised into sector to sector movements.

5.5.2 As all the CPI sites are located within Hereford, all will be located within the internal sectors (Sectors 1 to 4). The location sector of each CPI site is as follows:

- **Car Park 1** – Sector 3
- **Car Park 2** – Sector 3
- **Car Park 3** – Sector 3
- **Car Park 4** – Sector 3
- **Car Park 5** – Sector 3
- **Car Park 6** – Sector 3
- **Car Park 7** – Sector 3
- **Car Park 8** – Sector 3
- **Car Park 9** – Sector 3
- **Car Park 10** – Sector 3
- **Car Park 11** – Sector 4

- **Car Park 12** – Sector 3
- **Car Park 13** – Sector 2
- **Car Park 14** – Sector 2
- **Car Park 15** – Sector 2
- **Car Park 16** – Sector 3
- **Car Park 17** – Sector 4
- **Car Park 18** – Sector 3
- **Car Park 19** – Sector 3
- **Car Park 20** – Sector 3

5.5.3 As none of the CPI sites are located within sectors 1, 5, 6, 7, 8, 9, or 10, there will be no trips recorded with these sectors as a destination. These destination sectors have therefore been omitted from the CPI sector to sector summary movement tables.

12-HOUR PERIOD (07:00 – 19:00)

5.5.4 **Table 5-3** presents the distribution of traffic movements by sector, during the 12-hour survey period, for all CPI sites. The traffic movements presented are calculated based on arriving vehicles only.

Table 5-3 - Distribution of Traffic Movements for CPI Sites over 12-Hour Period

		Destination Sector			
		2	3	4	Total
Origin Sector	1	23 (2.0%)	42 (3.6%)	9 (0.8%)	74 (6.3%)
	2	24 (2.1%)	44 (3.8%)	14 (1.2%)	82 (7.0%)
	3	25 (2.1%)	141 (12.1%)	24 (2.1%)	190 (16.3%)
	4	15 (1.3%)	80 (6.8%)	70 (5.98%)	165 (14.1%)
	5	30 (2.6%)	270 (23.1%)	45 (3.8%)	345 (29.5%)
	6	31 (2.7%)	119 (10.2%)	12 (1.0%)	162 (13.9%)
	7	9 (0.8%)	61 (5.2%)	5 (0.4%)	75 (6.4%)
	8	9 (0.8%)	11 (0.9%)	0 (0.0%)	20 (1.7%)
	9	7 (0.6%)	42 (3.6%)	4 (0.3%)	53 (4.5%)
	10	0 (0.0%)	3 (0.3%)	0 (0.0%)	3 (0.3%)
	Total	173 (14.8%)	813 (69.5%)	183 (15.7%)	1169 (100.0%)

5.5.5 Based on the CPI data, **Table 5-3** shows that over the 12-hour survey period, the percentage of the total movements for internal to internal sector trips (highlighted by blue cells) was 43.7%. The remaining 56.3% of trips represent the external to internal trips.

5.5.6 The largest traffic movement over the 12-hour survey period is between Sector 5 and Sector 3 (23.1% of trips). These trips represent traffic travelling from North Herefordshire to car parks within North East Hereford (Tupsley).

AM PERIOD (07:00 – 10:00)

5.5.8 **Table 5-4** presents the distribution of traffic movements by sector, during the AM peak period, for all CPI sites. The traffic movements presented are calculated based on arriving vehicles only.

Table 5-4 - Distribution of Traffic Movements for CPI Sites in AM Peak

		Destination Sector			
		2	3	4	Total
Origin Sector	1	7 (1.6%)	16 (3.6%)	1 (0.2%)	24 (5.4%)
	2	4 (0.9%)	17 (3.9%)	4 (0.9%)	25 (5.7%)
	3	3 (0.7%)	55 (12.5%)	7 (1.6%)	65 (14.7%)
	4	6 (1.4%)	30 (6.8%)	25 (5.7%)	61 (13.8%)
	5	6 (1.4%)	108 (24.5%)	12 (2.7%)	126 (28.6%)
	6	9 (2.0%)	59 (13.4%)	9 (2.0%)	77 (17.5%)
	7	2 (0.5%)	30 (6.8%)	2 (0.5%)	34 (7.7%)
	8	2 (0.5%)	3 (0.7%)	0 (0.0%)	5 (1.1%)
	9	1 (0.2%)	20 (4.5%)	2 (0.5%)	23 (5.2%)
	10	0 (0.0%)	1 (0.2%)	0 (0.0%)	1 (0.2%)
	Total	40 (9.1%)	339 (76.9%)	62 (14.1%)	441 (100.0%)

5.5.9 Based on the CPI data, **Table 5-4** shows that over the AM peak period, the percentage of the total movements for internal to internal sector trips (highlighted by blue cells) was 40%. The remaining 60% of trips represent the external to internal trips.

5.5.10 The largest traffic movement over the 12-hour survey period is between Sector 5 and Sector 3 (24.5% of trips). These trips represent traffic travelling from North Herefordshire to car parks within North East Hereford (Tupsley).

INTER PERIOD (10:00 – 16:00)

5.5.11 **Table 5-5** presents the distribution of traffic movements by sector, during the Interpeak period, for all CPI sites. The traffic movements presented are calculated based on arriving vehicles only.

Table 5-5 - Distribution of Traffic Movements for CPI Sites in Interpeak Period

		Destination Sector			
		2	3	4	Total
Origin Sector	1	11 (1.8%)	24 (4.0%)	6 (1.0%)	41 (6.8%)
	2	16 (2.6%)	26 (4.3%)	7 (1.2%)	49 (8.1%)
	3	18 (3.0%)	71 (11.7%)	7 (1.2%)	96 (15.9%)
	4	5 (0.8%)	40 (6.6%)	36 (6.0%)	81 (13.4%)
	5	17 (2.8%)	139 (23.0%)	29 (4.8%)	185 (30.6%)
	6	20 (3.3%)	51 (8.4%)	3 (0.5%)	74 (12.2%)
	7	5 (0.8%)	27 (4.4%)	3 (0.5%)	35 (5.8%)
	8	7 (1.2%)	7 (1.2%)	0 (0.0%)	14 (2.3%)
	9	6 (1.0%)	20 (3.3%)	2 (0.3%)	28 (4.6%)
	10	0 (0.0%)	2 (0.3%)	0 (0.0%)	2 (0.3%)
	Total	105 (17.4%)	407 (67.2%)	93 (15.4%)	605 (100.0%)

5.5.12 Based on the CPI data, **Table 5-5** shows that over the Interpeak period, the percentage of the total movements for internal to internal sector trips (highlighted by blue cells) was 44%. The remaining 56% of trips represent the external to internal trips.

5.5.13 The largest traffic movement over the 12-hour survey period is between Sector 5 and Sector 3 (23.0% of trips). These trips represent traffic travelling from North Herefordshire to car parks within North East Hereford (Tupsley).

PM PERIOD (16:00 – 19:00)

5.5.14 **Table 5-6** presents the distribution of traffic movements by sector, during the PM peak period, for all CPI sites. The traffic movements presented are calculated based on arriving vehicles only.

Table 5-6 - Distribution of Traffic Movements for CPI Sites in PM Peak

		Destination Sector			
		2	3	4	Total
Origin Sector	1	5 (4.1%)	2 (1.6%)	2 (1.6%)	9 (7.3%)
	2	4 (3.3%)	1 (0.8%)	3 (2.4%)	8 (6.5%)
	3	4 (3.3%)	15 (12.2%)	10 (8.1%)	29 (23.6%)
	4	4 (3.3%)	10 (8.1%)	9 (7.3%)	23 (18.7%)
	5	7 (5.7%)	23 (18.7%)	4 (3.3%)	34 (27.6%)
	6	2 (1.6%)	9 (7.3%)	0 (0.0%)	11 (8.9%)
	7	2 (1.6%)	4 (3.3%)	0 (0.0%)	6 (4.9%)
	8	0 (0.0%)	1 (0.8%)	0 (0.0%)	1 (0.8%)
	9	0 (0.0%)	2 (1.6%)	0 (0.0%)	2 (1.6%)
	10	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	Total	28 (22.8%)	67 (54.4%)	28 (22.8%)	123 (100.0%)

5.5.15 Based on the CPI data, **Table 5-6**Table 5-6 shows that over the PM peak period, the percentage of the total movements for internal to internal sector trips (highlighted by blue cells) was 56%. The remaining 44% of trips represent the external to internal trips.

5.5.16 The largest traffic movement over the 12-hour survey period is between Sector 5 and Sector 3 (18.7% of trips). These trips represent traffic travelling from North Herefordshire to car parks within North East Hereford (Tupsley).

5.6 CAR PARK ENTRY AND EXIT SURVEYS

CPI SITE 1 – MERTON MEADOW

5.6.1 CPI site 1 is a public car park operated by Herefordshire Council, and has a maximum capacity of 763 vehicles (although it has a reduced capacity on weekdays as a large number of spaces act as an overflow on Hereford FC match days). **Table 5-7** summarises the entry and exit surveys undertaken during the CPI surveys at this site.

Table 5-7 – Daily Arrivals and Departures at CPI Site 1

HOUR PERIOD	TOTAL VEHICLES IN	TOTAL VEHICLES OUT
07:00 - 08:00	46	24
08:00 - 09:00	112	54
09:00 - 10:00	80	36
10:00 - 11:00	67	43

11:00 - 12:00	87	77
12:00 - 13:00	78	66
13:00 - 14:00	53	72
14:00 - 15:00	78	103
15:00 - 16:00	62	91
16:00 - 17:00	70	91
17:00 - 18:00	69	113
18:00 - 19:00	47	59

5.6.2 **Table 5-7 i**dentifies that the peak hour for vehicles entering car park 1 occurred at 08:00-09:00 with a total of 112 arrivals. The peak hour for outgoing movements occurred at 17:00-18:00 with a total of 113 departures.

CPI SITE 2 – GARRIC MULTI-STOREY

5.6.3 CPI site 2 is a 5-storey public car park operated by Herefordshire Council, and has a maximum capacity of 399 vehicles. **Table 5-8** summarises the entry and exit surveys undertaken during the CPI surveys at this site.

Table 5-8 – Daily Arrivals and Departures at CPI Site 2

HOUR PERIOD	TOTAL VEHICLES IN	TOTAL VEHICLES OUT
07:00 - 08:00	45	5
08:00 - 09:00	70	4
09:00 - 10:00	69	20
10:00 - 11:00	53	20
11:00 - 12:00	62	30
12:00 - 13:00	46	50
13:00 - 14:00	50	61
14:00 - 15:00	27	60
15:00 - 16:00	31	65
16:00 - 17:00	21	63
17:00 - 18:00	13	71
18:00 - 19:00	11	28

5.6.4 **Table 5-8** identifies that the peak hour for vehicles entering car park 2 occurred at 08:00-09:00 with a total of 70 arrivals. The peak hour for outgoing movements occurred at 17:00-18:00 with a total of 71 departures.

CPI SITE 3 – MAYLORD ORCHARDS SHOPPING CENTRE

5.6.5 CPI site 3 is an underground public car park situated at Maylords Orchards shopping centre. The car park is operated by Herefordshire Council, and has a maximum capacity of 213 vehicles. **Table 5-9** summarises the entry and exit surveys undertaken during the CPI surveys at this site.

Table 5-9 – Daily Arrivals and Departures at CPI Site 3

HOUR PERIOD	TOTAL VEHICLES IN	TOTAL VEHICLES OUT
07:00 - 08:00	0	0
08:00 - 09:00	20	0
09:00 - 10:00	85	22
10:00 - 11:00	82	39

11:00 - 12:00	72	68
12:00 - 13:00	66	82
13:00 - 14:00	64	71
14:00 - 15:00	40	65
15:00 - 16:00	33	53
16:00 - 17:00	27	57
17:00 - 18:00	2	28
18:00 - 19:00	0	2

5.6.6 **Table 5-9** identifies that the peak hour for vehicles entering car park 3 occurred at 09:00-10:00 with a total of 85 arrivals. The peak hour for outgoing movements occurred at 12:00-13:00 with a total of 82 departures.

CPI SITE 4 – STATION APPROACH

5.6.7 CPI site 4 is a public car park situated at Hereford train station. The site is operated by Herefordshire Council, and has a maximum capacity of 186 vehicles. **Table 5-10** summarises the entry and exit surveys undertaken during the CPI surveys at this site.

Table 5-10 – Daily Arrivals and Departures at CPI Site 4

HOUR PERIOD	TOTAL VEHICLES IN	TOTAL VEHICLES OUT
07:00 - 08:00	52	5
08:00 - 09:00	43	2
09:00 - 10:00	16	1
10:00 - 11:00	6	1
11:00 - 12:00	9	9
12:00 - 13:00	11	10
13:00 - 14:00	10	7
14:00 - 15:00	8	21
15:00 - 16:00	7	10
16:00 - 17:00	2	34
17:00 - 18:00	3	27
18:00 - 19:00	4	32

5.6.8 **Table 5-10** identifies that the peak hour for vehicles entering car park 4 occurred at 07:00-08:00 with a total of 52 arrivals. The peak hour for outgoing movements occurred at 16:00-17:00 with a total of 34 departures.

CPI SITE 5 – BUS STATION, COMMERCIAL ROAD

5.6.9 CPI site 5 is a public car park situated at Hereford Country bus station. The site is operated by Herefordshire Council, and has a maximum capacity of 99 vehicles. **Table 5-11** summarises the entry and exit surveys undertaken during the CPI surveys at this site.

Table 5-11 – Daily Arrivals and Departures at CPI Site 5

HOUR PERIOD	TOTAL VEHICLES IN	TOTAL VEHICLES OUT
07:00 - 08:00	51	28
08:00 - 09:00	94	39
09:00 - 10:00	63	52
10:00 - 11:00	67	59

11:00 - 12:00	57	62
12:00 - 13:00	50	53
13:00 - 14:00	52	48
14:00 - 15:00	60	64
15:00 - 16:00	73	76
16:00 - 17:00	34	63
17:00 - 18:00	28	63
18:00 - 19:00	41	33

5.6.10 **Table 5-11** identifies that the peak hour for vehicles entering car park 5 occurred at 08:00-09:00 with a total of 94 arrivals. The peak hour for outgoing movements occurred at 15:00-16:00 with a total of 76 departures.

CPI SITE 6 – KYRLE STREET

5.6.11 CPI site 6 is a public car park operated by Herefordshire Council, and has a maximum capacity of approximately 50 vehicles. **Table 5-12** summarises the entry and exit surveys undertaken during the CPI surveys at this site.

Table 5-12 – Daily Arrivals and Departures at CPI Site 6

HOUR PERIOD	TOTAL VEHICLES IN	TOTAL VEHICLES OUT
07:00 - 08:00	3	2
08:00 - 09:00	27	8
09:00 - 10:00	43	22
10:00 - 11:00	29	32
11:00 - 12:00	24	27
12:00 - 13:00	18	28
13:00 - 14:00	20	15
14:00 - 15:00	26	20
15:00 - 16:00	17	23
16:00 - 17:00	10	26
17:00 - 18:00	6	18
18:00 - 19:00	4	1

5.6.12 **Table 5-12** identifies that the peak hour for vehicles entering car park 6 occurred at 09:00-10:00 with a total of 43 arrivals. The peak hour for outgoing movements occurred at 10:00-11:00 with a total of 32 departures.

CPI SITE 7 – VENNS CLOSE / SYMONDS STREET

5.6.13 CPI site 7 is a public car park operated by Herefordshire Council, and has a maximum capacity of 75 vehicles. **Table 5-13** summarises the entry and exit surveys undertaken during the CPI surveys at this site.

Table 5-13 – Daily Arrivals and Departures at CPI Site 7

HOUR PERIOD	TOTAL VEHICLES IN	TOTAL VEHICLES OUT
07:00 - 08:00	11	0
08:00 - 09:00	48	12
09:00 - 10:00	40	13
10:00 - 11:00	23	18

11:00 - 12:00	17	21
12:00 - 13:00	10	15
13:00 - 14:00	7	16
14:00 - 15:00	5	10
15:00 - 16:00	14	22
16:00 - 17:00	7	21
17:00 - 18:00	7	28
18:00 - 19:00	1	8

5.6.14 **Table 5-13** identifies that the peak hour for vehicles entering car park 7 occurred at 08:00-09:00 with a total of 48 arrivals. The peak hour for outgoing movements occurred at 17:00-18:00 with a total of 28 departures.

CPI SITE 8 – BATH STREET

5.6.15 CPI site 8 is a public car park operated by Herefordshire Council, and has a maximum capacity of 76 vehicles. **Table 5-14** summarises the entry and exit surveys undertaken during the CPI surveys at this site.

Table 5-14 – Daily Arrivals and Departures at CPI Site 8

HOUR PERIOD	TOTAL VEHICLES IN	TOTAL VEHICLES OUT
07:00 - 08:00	18	4
08:00 - 09:00	48	9
09:00 - 10:00	25	11
10:00 - 11:00	21	20
11:00 - 12:00	12	17
12:00 - 13:00	10	13
13:00 - 14:00	12	19
14:00 - 15:00	22	15
15:00 - 16:00	11	22
16:00 - 17:00	10	29
17:00 - 18:00	13	29
18:00 - 19:00	6	12

5.6.16 **Table 5-14** identifies that the peak hour for vehicles entering car park 8 occurred at 08:00-09:00 with a total of 48 arrivals. The peak hour for outgoing movements occurred at both 16:00-17:00 and 1700-1800 with a total of 29 departures each.

CPI SITE 9 – GAOL STREET

5.6.17 CPI site 9 is a privately owned car park (open for public use), and has a maximum capacity of 130 vehicles. **Table 5-15** summarises the entry and exit surveys undertaken during the CPI surveys at this site.

Table 5-15 – Daily Arrivals and Departures at CPI Site 9

HOUR PERIOD	TOTAL VEHICLES IN	TOTAL VEHICLES OUT
07:00 - 08:00	14	4
08:00 - 09:00	46	8
09:00 - 10:00	88	37
10:00 - 11:00	86	66

11:00 - 12:00	72	77
12:00 - 13:00	64	86
13:00 - 14:00	58	59
14:00 - 15:00	50	72
15:00 - 16:00	46	63
16:00 - 17:00	42	59
17:00 - 18:00	16	42
18:00 - 19:00	11	14

5.6.18 **Table 5-15** identifies that the peak hour for vehicles entering car park 9 occurred at 09:00-10:00 with a total of 88 arrivals. The peak hour for outgoing movements occurred at 12:00-13:00 with a total of 86 departures.

CPI SITE 10 – WEST STREET

5.6.19 CPI site 10 is a public car park operated by Herefordshire Council, and has a maximum capacity of 73 vehicles. **Table 5-16** summarises the entry and exit surveys undertaken during the CPI surveys at this site.

Table 5-16 – Daily Arrivals and Departures at CPI Site 10

HOUR PERIOD	TOTAL VEHICLES IN	TOTAL VEHICLES OUT
07:00 - 08:00	4	0
08:00 - 09:00	12	5
09:00 - 10:00	40	12
10:00 - 11:00	40	25
11:00 - 12:00	34	37
12:00 - 13:00	26	40
13:00 - 14:00	30	30
14:00 - 15:00	31	26
15:00 - 16:00	25	33
16:00 - 17:00	28	40
17:00 - 18:00	15	27
18:00 - 19:00	11	10

5.6.20 **Table 5-16** identifies that the peak hour for vehicles entering car park 10 occurred at both 09:00-10:00 and 10:00-11:00 with a total of 40 arrivals each hour. The peak hour for outgoing movements occurred at both 12:00-13:00 and 16:00-17:00 with a total of 40 departures each.

CPI SITE 11 – FRIARS STREET

5.6.21 CPI site 11 is a public car park operated by Herefordshire Council, and has a maximum capacity of 55 vehicles. **Table 5-17** summarises the entry and exit surveys undertaken during the CPI surveys at this site.

Table 5-17 – Daily Arrivals and Departures at CPI Site 11

HOUR PERIOD	TOTAL VEHICLES IN	TOTAL VEHICLES OUT
07:00 - 08:00	3	2
08:00 - 09:00	11	7
09:00 - 10:00	8	4
10:00 - 11:00	9	7

11:00 - 12:00	2	6
12:00 - 13:00	2	2
13:00 - 14:00	5	3
14:00 - 15:00	7	5
15:00 - 16:00	0	6
16:00 - 17:00	0	8
17:00 - 18:00	3	1
18:00 - 19:00	7	1

5.6.22 **Table 5-17** identifies that the peak hour for vehicles entering car park 11 occurred at 08:00-09:00 with a total of 11 arrivals. The peak hour for outgoing movements occurred at 16:00-17:00 with a total of 8 departures.

CPI SITE 12 – GREYFRIARS

5.6.23 CPI site 12 is a public car park operated by Herefordshire Council, and has a maximum capacity of 69 vehicles. **Table 5-18** summarises the entry and exit surveys undertaken during the CPI surveys at this site.

Table 5-18 – Daily Arrivals and Departures at CPI Site 12

HOUR PERIOD	TOTAL VEHICLES IN	TOTAL VEHICLES OUT
07:00 - 08:00	12	3
08:00 - 09:00	27	4
09:00 - 10:00	20	16
10:00 - 11:00	11	13
11:00 - 12:00	17	11
12:00 - 13:00	8	13
13:00 - 14:00	13	9
14:00 - 15:00	12	10
15:00 - 16:00	14	18
16:00 - 17:00	16	25
17:00 - 18:00	4	25
18:00 - 19:00	3	6

5.6.24 **Table 5-18** identifies that the peak hour for vehicles entering car park 12 occurred at 08:00-09:00 with a total of 27 arrivals. The peak hour for outgoing movements occurred at both 16:00-17:00 & 17:00-18:00 with a total of 25 departures each hour.

CPI SITE 13 – WYE STREET

5.6.25 CPI site 13 is a public car park operated by Herefordshire Council, and has a maximum capacity of 74 vehicles. **Table 5-19** summarises the entry and exit surveys undertaken during the CPI surveys at this site.

Table 5-19 – Daily Arrivals and Departures at CPI Site 13

HOUR PERIOD	TOTAL VEHICLES IN	TOTAL VEHICLES OUT
07:00 - 08:00	19	3
08:00 - 09:00	20	7
09:00 - 10:00	41	30
10:00 - 11:00	29	22

11:00 - 12:00	27	29
12:00 - 13:00	16	18
13:00 - 14:00	18	17
14:00 - 15:00	13	31
15:00 - 16:00	15	22
16:00 - 17:00	6	24
17:00 - 18:00	13	29
18:00 - 19:00	13	16

5.6.26 **Table 5-19** identifies that the peak hour for vehicles entering car park 13 occurred at 09:00-10:00 with a total of 41 arrivals. The peak hour for outgoing movements occurred at 14:00-15:00 with a total of 31 departures.

CPI SITE 14 – ST MARTINS AVENUE

5.6.27 CPI site 14 is a public car park situated at the Halo Leisure Pool. The site is operated by Herefordshire Council, and has a maximum capacity of 134 vehicles. **Table 5-20** summarises the entry and exit surveys undertaken during the CPI surveys at this site.

Table 5-20 – Daily Arrivals and Departures at CPI Site 14

HOUR PERIOD	TOTAL VEHICLES IN	TOTAL VEHICLES OUT
07:00 - 08:00	25	46
08:00 - 09:00	33	35
09:00 - 10:00	50	35
10:00 - 11:00	36	35
11:00 - 12:00	54	38
12:00 - 13:00	37	41
13:00 - 14:00	26	35
14:00 - 15:00	26	47
15:00 - 16:00	75	29
16:00 - 17:00	76	71
17:00 - 18:00	72	93
18:00 - 19:00	60	64

5.6.28 **Table 5-20** identifies that the peak hour for vehicles entering car park 14 occurred at 16:00-17:00 with a total of 76 arrivals. The peak hour for outgoing movements occurred at 17:00-18:00 with a total of 93 departures.

CPI SITE 15 – ST MARTINS AVENUE (OVERFLOW)

5.6.29 CPI site 15 is the overflow car park for the Halo Leisure Pool (CPI site 14). It is a public car park operated by Herefordshire Council, with a maximum capacity of 61 vehicles. **Table 5-21** summarises the entry and exit surveys undertaken during the CPI surveys at this site.

Table 5-21 – Daily Arrivals and Departures at CPI Site 15

HOUR PERIOD	TOTAL VEHICLES IN	TOTAL VEHICLES OUT
07:00 - 08:00	3	1
08:00 - 09:00	14	2
09:00 - 10:00	7	3
10:00 - 11:00	5	4

11:00 - 12:00	6	6
12:00 - 13:00	1	2
13:00 - 14:00	6	5
14:00 - 15:00	5	5
15:00 - 16:00	5	4
16:00 - 17:00	1	8
17:00 - 18:00	2	9
18:00 - 19:00	2	2

Table 5-21 identifies that the peak hour for vehicles entering car park 15 occurred at 08:00-09:00 with a total of 14 arrivals. The peak hour for outgoing movements occurred at 17:00-18:00 with a total of 9 departures.

CPI SITE 16 – TESCO (BEWELL STREET SUPERSTORE)

5.6.30 CPI site 16 is a customer car park for the Tesco store on Bewell Street, and has a maximum capacity of approximately 150 vehicles. **Table 5-22** summarises the entry and exit surveys undertaken during the CPI surveys at this site.

Table 5-22 – Daily Arrivals and Departures at CPI Site 16

HOUR PERIOD	TOTAL VEHICLES IN	TOTAL VEHICLES OUT
07:00 - 08:00	36	26
08:00 - 09:00	147	39
09:00 - 10:00	297	126
10:00 - 11:00	263	246
11:00 - 12:00	276	273
12:00 - 13:00	230	229
13:00 - 14:00	233	229
14:00 - 15:00	183	259
15:00 - 16:00	206	198
16:00 - 17:00	168	209
17:00 - 18:00	92	196
18:00 - 19:00	83	111

Table 5-22 identifies that the peak hour for vehicles entering car park 16 occurred at 09:00-10:00 with a total of 297 arrivals. The peak hour for outgoing movements occurred at 11:00-12:00 with a total of 273 departures.

CPI SITE 17 – SAINSBURY'S (GRIMMER ROAD)

5.6.31 CPI site 17 is a customer car park for the Sainsbury's store on Grimmer Road, and has a maximum capacity of 351 vehicles. **Table 5-23** summarises the entry and exit surveys undertaken during the CPI surveys at this site.

Table 5-23 – Daily Arrivals and Departures at CPI Site 17

HOUR PERIOD	TOTAL VEHICLES IN	TOTAL VEHICLES OUT
07:00 - 08:00	57	39
08:00 - 09:00	184	137
09:00 - 10:00	211	148
10:00 - 11:00	256	207

11:00 - 12:00	247	256
12:00 - 13:00	226	236
13:00 - 14:00	246	252
14:00 - 15:00	319	253
15:00 - 16:00	183	310
16:00 - 17:00	177	189
17:00 - 18:00	207	208
18:00 - 19:00	200	234

Table 5-23 identifies that the peak hour for vehicles entering car park 17 occurred at 14:00-15:00 with a total of 319 arrivals. The peak hour for outgoing movements occurred at 15:00-16:00 with a total of 310 departures.

CPI SITE 18 – NEWTON ROAD RETAIL PARK

5.6.32 CPI site 18 is a customer car park for the Newton Road retail park, and has a maximum capacity of approximately 150 vehicles. **Table 5-24** summarises the entry and exit surveys undertaken during the CPI surveys at this site.

Table 5-24 – Daily Arrivals and Departures at CPI Site 18

HOUR PERIOD	TOTAL VEHICLES IN	TOTAL VEHICLES OUT
07:00 - 08:00	10	3
08:00 - 09:00	10	5
09:00 - 10:00	50	30
10:00 - 11:00	46	35
11:00 - 12:00	54	57
12:00 - 13:00	64	57
13:00 - 14:00	62	53
14:00 - 15:00	80	75
15:00 - 16:00	57	65
16:00 - 17:00	40	47
17:00 - 18:00	44	44
18:00 - 19:00	36	44

Table 5-24 identifies that the peak hour for vehicles entering car park 18 occurred at 14:00-15:00 with a total of 80 arrivals. The peak hour for outgoing movements occurred at 14:00-15:00 with a total of 75 departures.

CPI SITE 19 – CITY WALLS (BATH STREET)

5.6.33 CPI site 19 is a public car park operated by Herefordshire Council, and has a maximum capacity of approximately 100 vehicles. **Table 5-25** summarises the entry and exit surveys undertaken during the CPI surveys at this site.

Table 5-25 – Daily Arrivals and Departures at CPI Site 19

HOUR PERIOD	TOTAL VEHICLES IN	TOTAL VEHICLES OUT
07:00 - 08:00	6	6
08:00 - 09:00	20	7
09:00 - 10:00	48	21
10:00 - 11:00	51	37

11:00 - 12:00	60	60
12:00 - 13:00	43	51
13:00 - 14:00	52	47
14:00 - 15:00	37	42
15:00 - 16:00	30	46
16:00 - 17:00	34	41
17:00 - 18:00	25	31
18:00 - 19:00	14	16

Table 5-25 identifies that the peak hour for vehicles entering car park 19 occurred at 11:00-12:00 with a total of 60 arrivals. The peak hour for outgoing movements also occurred at 11:00-12:00 with a total of 60 departures.

CPI SITE 20 – HEREFORD STATION, COMMERCIAL ROAD

5.6.34 CPI site 20 is a private car park (open for public use) situated at Hereford train station. The site is operated by NCP/Arriva and has a maximum capacity of 200 vehicles. **Table 5-26** summarises the entry and exit surveys undertaken during the CPI surveys at this site.

Table 5-26 – Daily Arrivals and Departures at CPI Site 20

HOUR PERIOD	TOTAL VEHICLES IN	TOTAL VEHICLES OUT
07:00 - 08:00	9	2
08:00 - 09:00	12	1
09:00 - 10:00	4	4
10:00 - 11:00	3	1
11:00 - 12:00	3	3
12:00 - 13:00	2	1
13:00 - 14:00	3	6
14:00 - 15:00	10	5
15:00 - 16:00	2	9
16:00 - 17:00	1	8
17:00 - 18:00	3	7
18:00 - 19:00	0	10

Table 5-26 identifies that the peak hour for vehicles entering car park 20 occurred at 08:00-09:00 with a total of 12 arrivals. The peak hour for outgoing movements also occurred at 18:00-19:00 with a total of 10 departures.

5.7 CONCLUSION

5.7.1 WSP | PB commissioned Tracsis to undertake CPIs at 20 key sites in the study area. CPIs were conducted on Tuesdays or Thursdays between 7th June and 19th July. Days that may cause anomalous travel patterns, such as the date of the England v Wales Euro 2016 fixture, were avoided. The surveys were undertaken via a combination of face-to-face interviews (recorded onto a digital tablet) and postcard surveys.

5.7.2 Out of a total of 1,388 responses, a total of 1,169 (84.22%) responses were deemed to be valid journeys, and 219 (15.78%) responses were deemed to be invalid. The overall sample rate for the car park interviews was 10.63%, with 1169 valid and useable surveys garnered from 10996 vehicles entering the CPI sites.

5.7.3 Over the 12-hour survey period, the percentage of the total movements for internal to internal sector trips was 43.7%. The remaining 56.3% of trips represent the external to internal trips. The largest movement over the 12-hour survey period is between Sector 5 and Sector 3 (23.1% of trips). These trips represent traffic travelling from North Herefordshire to car parks within North East Hereford (Tupsley).

5.7.4 Due to the sample rate achieved, and the methodology which restricted the presence of anomalous results, WSP | PB are satisfied that the CPI surveys are representative of travel patterns within the study area.

5.7.5 The data collected for CPI Site 7 and CPI Site 19 will be treated with caution to account for the low sample rate at these sites due to the issues mentioned earlier in the report.

6 TRAFFICMASTER ORIGIN-DESTINATION DATA

6.1 GENERAL

6.1.1 Trafficmaster origin-destination data has been obtained from the HC and Department for Transport (DfT). This dataset provides information on vehicle movements between Census Output areas.

6.2 PURPOSE

6.2.1 The purpose of the data is to provide information on traffic movements within the model that have otherwise been unobserved by RSI and Car Park surveys interviews. It will essentially form the basis of the trip matrix that contains the external to external movements that do not travel through Hereford.

6.2.2 In addition to this, the data can supplement interview data where interviews were unable to be conducted with HGV drivers. For example only a small number of interviews were conducted with HGV drivers at RSI Site 6 on the A49 north of Hereford. The data will be utilised at further RSI sites where sample rates have been found to be insufficient for HGVs.

6.3 ANALYSIS

DATASET

6.3.1 The dataset received from the DfT contains data for all trips associated with the Trafficmaster fleet of vehicles that either started or ended within the Herefordshire boundary during the 2014-15 academic year (1 Sept 2014 to 31 Aug 2015). Each record in the OD data is associated to a single trip, which is registered as the point from when the vehicle ignition is turned on to the point the ignition of the vehicles is turned off. The records contain information on various aspects of each trip, including:

- The origin and destination Lower Super Output Area (Census 2011);
- The journey start and end time;
- The class of the vehicle;
- The total time taken;
- The straight line distance between the start and end points;
- The total distance travelled by the vehicle; and
- The proportion of trip time and trip distance completed on various road types (Motorways, Trunk Roads and Other Roads).

SUMMARY TABLES

6.3.2 A summary of the Trafficmaster records for each vehicle class is shown in **Table 6-1**

6.3.3 A significant number of records appear in the Trafficmaster data with ‘0’ in the vehicle class field, though only classes 1 to 9 are defined in the lookup table supplied with the data.

Table 6-1 – Trafficmaster Observed Vehicle Split

TRAFFICMASTER VEHICLE CLASS	DESCRIPTION	NO. OF RECORDS	PROPORTION
1	Cars	248,377	30.7%
2	LGVs (up to 3500kg)	471,368	58.3%
3	HGVs (up to 7500kg)	8,124	1.0%
4	HGVs (over 7500kg)	1,354	0.2%
5	Buses (including minibuses)	82	0.0%
6	Taxis	0	0.0%
7	Motorised caravans	1,069	0.1%
8	Other vehicles	169	0.0%
9	Unknown	18,479	2.3%
0	Not listed in Lookup table	58,847	7.3%
	Total	807,869	

6.3.4 The proportion of light goods vehicles within the dataset is higher than would be expected from a survey of general traffic. This suggests the sample provided by the Trafficmaster data may be biased towards the commercial and fleet vehicles.

SUITABILITY

6.3.5 Around 15% of the trips have a straight line distance between the start and end points of less than 500m, possibly due to the stop-start trip pattern of the collection and delivery activities that LGVs are commonly employed in. Trips below this threshold will be excluded from the matrix building process to avoid including trips which should be internal to the modelled zones or are fractions of a complete trip within the study area.

6.4 SECTOR TO SECTOR MOVEMENTS

6.4.1 The sector to sector movements from the Trafficmaster data are summarised in **Table 6-2** for all vehicle classes with the short trips (less than 500m) removed.

Table 6-2 – Trafficmaster Sector Analysis – All Vehicles

		Destination Sector									
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Origin Sector	**1**	13,223	5,358	11,997	4,325	3,064	5,904	1,339	732	1,023	66
	2	4,394	5,774	6,754	1,676	2,081	3,745	766	654	804	83
	3	13,275	7,042	52,823	15,596	24,001	8,093	2,733	2,197	4,537	343
	4	4,352	1,773	15,519	11,079	8,186	2,616	949	676	953	98
	5	2,783	2,270	22,817	7,440	116,830	5,084	7,106	9,774	35,404	1,055
	6	5,285	2,560	7,978	2,495	5,115	55,478	16,761	12,379	6,035	1,198
	7	1,079	982	3,846	935	6,742	14,716	0	0	0	0
	8	635	612	2,762	771	9,566	12,332	0	0	0	0
	9	1,091	759	5,686	1,098	35,123	6,483	0	0	0	0
	10	56	87	378	113	1,099	1,314	0	0	0	0
	Total	46,173	27,217	130,560	45,528	211,807	115,765	29,654	26,412	48,756	2,843

6.4.2 The HGV trips recorded by Trafficmaster are shown in **Table 6-3**.

Table 6-3 – Trafficmaster Sector Analysis – Heavy Goods Vehicles (above 3,500kg)

		Destination Sector									
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Origin Sector	**1**	2	7	14	3	3	14	1	4	2	2
	2	10	13	9	0	25	80	6	17	12	0
	3	16	20	236	45	197	48	55	33	63	10
	4	0	12	86	27	16	12	22	12	18	1
	5	4	12	206	88	1,333	153	125	168	368	25
	6	6	35	22	3	131	359	691	259	531	107
	7	1	2	25	4	165	634	0	0	0	0
	8	1	5	44	5	128	289	0	0	0	0
	9	4	20	82	20	466	518	0	0	0	0
	10	2	1	11	1	20	100	0	0	0	0
	Total	46	127	735	196	2,484	2,207	900	493	994	145

6.5 CONCLUSIONS

6.5.1 Trafficmaster data for HGVs will be utilised in the model development process to check the observed HGV data collected at the RSI sites and as an in-fill method where it was not possible to collect observed HGV data.

7 JOURNEY TIME DATA

7.1 GENERAL

7.1.1 Journey time data will be utilised for validation purposes in the SATURN model.

7.1.2 Journey time data has been obtained from HC and the DfT. The HC journey time data is collected as a part of the monitoring for Local Transport Plan 2 and the DfT data is a part of the journey information dataset provided by Trafficmaster. The following chapter details the collection and suitability of that data for model development.

7.2 DATA COLLECTION METHODOLOGY

HEREFORDSHIRE COUNCIL JOURNEY TIME DATA

7.2.1 Journey time survey data has been supplied by HC as part of Local Transport Plan 2 (LTP2). HC undertake journey time surveys in June and October each year (between Tuesday and Thursday in a 2-week period), along four routes (in both directions) through Hereford.

7.2.2 The surveys are undertaken using the Simple Moving Observed Method, and journey time data is recorded using GPS units fitted to the survey vehicles. On each survey day, 2 journeys are made along each surveyed route, with one starting in the AM period (between 0745-0900), and one starting in the PM period (between 1630-1745).

7.2.3 The journey time data provided to us covers the period for surveys undertaken in June 2016, and the **7.4** provides a summary of this data.

7.2.4 It should be noted that the HC surveys were, on occasion, undertaken at the same time as the RSIs. Both surveys were arranged so that the journey time surveys would not run through an operating RSI site. However, the effects of traffic re-routing, and associated restructuring of the networks delays and speeds, may mean that the reliability of the journey time surveys is impacted upon. However, as discussed in Section 4**,** the effects of traffic rerouting on the day is not thought to be significant.

TRAFFICMASTER DATA

7.2.5 Trafficmaster data is generated via in-vehicle GPS units (utilised in some vehicles for satellite navigation, or stolen vehicle tracking devices), which provide a GPS location of a vehicle every 10 seconds. The Trafficmaster database is an extensive dataset (4 billion+ records) containing journey time information for road links within the Ordnance Survey Integrated Transport Network (ITN). Trafficmaster data covering each surveyed journey time route has been obtained from HC. The data supplied covers the period between 1st December 2014 to 31st August 2015. For the purposes of the Hereford Transport Model journey time validation the June 2015 dataset will be extracted to provide the best fit with other data types being utilised in the calibration and validation of model.

7.2.6 The HC journey time data will be utilised to validate that the Trafficmaster data is representative of existing journey times along each route. **7.5** provides a summary of the HC journey time routes and the comparison with the corresponding Trafficmaster data.

7.2.7 A limitation to the reliability of the Trafficmaster data is that speed (and therefore delay) are identified across a specified route by aggregating the attributes of individual links together. Trafficmaster data averages out the individual turning movements across a whole link. Therefore the delays on right hand turns, in particular opposed right hand turns, are often an underestimation of the true delay.

7.3 ROUTES

7.3.1 HC undertake journey time surveys in both directions along the following four routes through Hereford. These routes are utilised by HC for the LTP2 and form a good distribution across the city centre. As such these routes will be utilised as the journey time validation routes in the Hereford Transport Model and the Trafficmaster data collected has been analysed on these routes.

7.3.2 Trafficmaster data has been analysed for these routes, and the journey times are summarised in Tables 7-1 to 7-8.

- **Route 1 (Red Route)** – Running between the A49 (at junction for Herefordshire Golf Academy) in the north of Hereford to the A49 / Grafton Lane junction in the south of Hereford
- **Route 2 (Blue Route)** – Running between the A465 / Ruckhall Lane junction in the west of Hereford to the A4103 / Roman Road roundabout junction to the east of Hereford
- **Route 3 (Green Route)** – Running between the A438 / A480 junction in the west of Hereford to the A438 / Rhystone Lane junction in the east of Hereford
- **Route 4 (Orange Route)** – Running from Tillington Road (just north of the junction with the A4103) in the north of Hereford to the B4224 near Hampton Bishop to the south of Hereford

7.3.3 A plan showing the path of each route is included in **Figure 7-1** below.

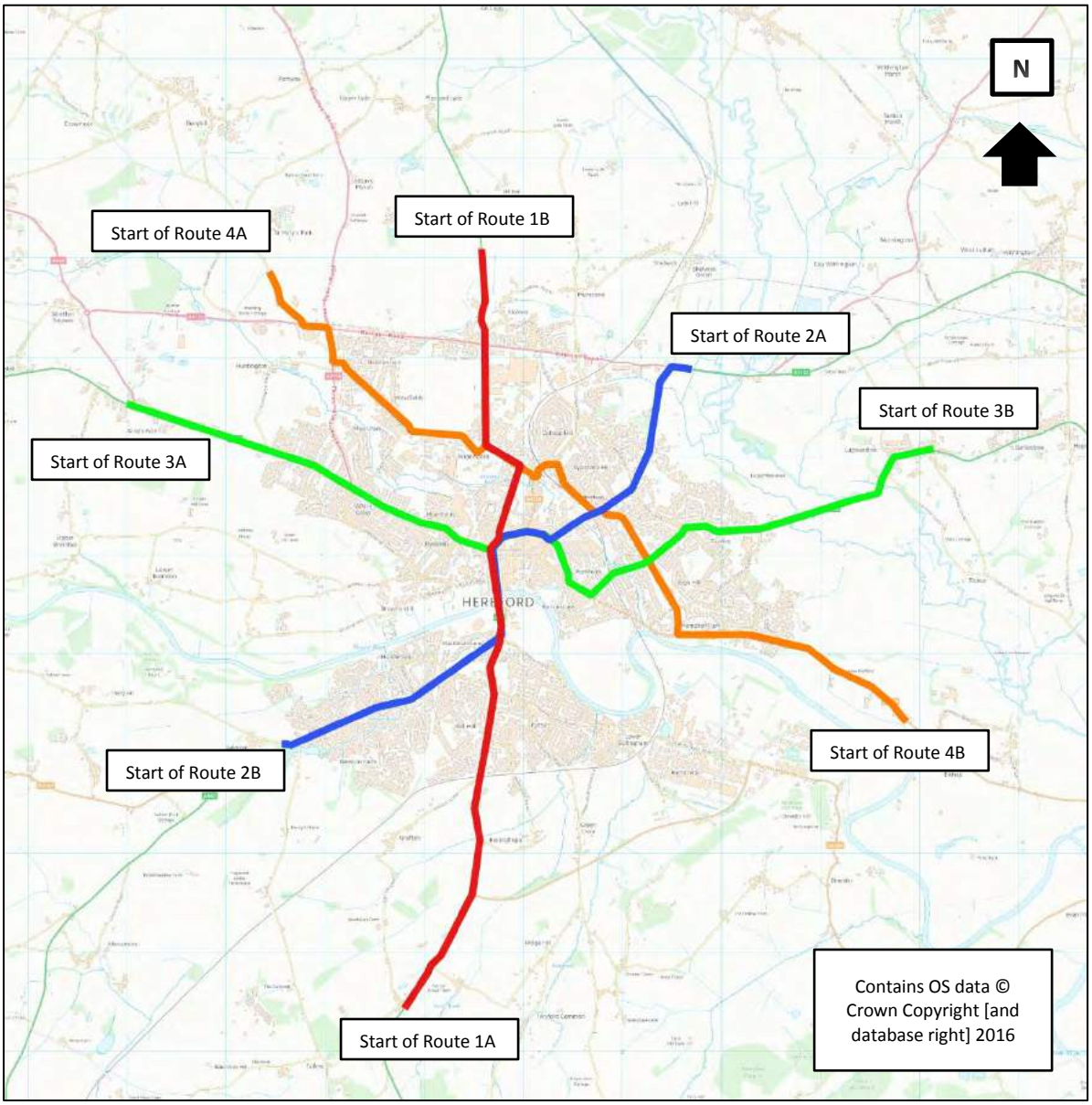


Figure 7-1 - Journey Time Analysis Routes

7.4 JOURNEY TIME ANALYSIS

ROUTE 1A (RED ROUTE) - NORTHBOUND

7.4.1 Route 1A represents the journey along the A49, beginning at the Grafton Lane junction on to the A49, running northbound through Hereford City centre and ending at the junction adjacent to Herefordshire Golf Academy near the Village of Pipe and Lyde.

7.4.2 The surveyed journey times for route 1A are summarised within **Table 7-1**Error! Reference source not found. below.

Table 7-1 - Average Journey Time - Route 1A

Day	Average Journey Time (Hrs : Mins : Secs)					
	AM Peak Period			PM Peak Period		
	07:00-09:00	07:00-08:00	08:00-09:00	16:00-18:00	16:00-17:00	17:00-18:00
Tuesday	00:21:37	00:18:48	00:27:13	00:20:31	00:20:10	00:21:12
Wednesday	00:25:41	00:17:50	00:33:32	00:19:22	00:18:35	00:20:10
Thursday	00:21:43	00:20:17	00:23:10	00:18:09	00:14:11	00:22:08
Weekday Average	00:22:48	00:18:56	00:27:58	00:19:31	00:18:17	00:21:10

7.4.3 The results show that the route has an average weekday journey time of 1,368 seconds during the AM period between 07:00-09:00 and 1,171 seconds during the PM period between 16:00-18:00.

7.4.4 During the AM peak period, weekday average journey times were greater between 08:00-09:00 (1,678 seconds) than between 07:00-08:00 (1,136 seconds). The longest journey time (2,012 seconds) occurred on a Wednesday between 08:00-09:00, with the quickest (1,070 seconds) occurring on a Wednesday between 07:00-08:00.

7.4.5 During the PM peak period, weekday average journey times were greater between 17:00-18:00 (1,270 seconds) than between 16:00-17:00 (1,097 seconds). The longest journey time (1,328 seconds) occurred on a Thursday between 17:00-18:00, with the quickest (851 seconds) occurring on a Thursday between 16:00-17:00.

ROUTE 1B (RED ROUTE) - SOUTHBOUND

7.4.6 Route 1B represents the journey along the A49, beginning at the junction adjacent to Herefordshire Golf Academy near the Village of Pipe and Lyde, running southbound through Hereford City centre and ending at the Grafton Lane junction on to the A49.

7.4.7 The surveyed journey times for route 1B are summarised within **Table 7-2** below.

Table 7-2 - Average Journey Time - Route 1B

Day	Average Journey Time (Hrs : Mins : Secs)					
	AM Peak Period			PM Peak Period		
	07:00-09:00	07:00-08:00	08:00-09:00	16:00-18:00	16:00-17:00	17:00-18:00
Tuesday	00:22:19	00:22:46	00:22:05	00:22:58	00:27:21	00:20:47
Wednesday	00:23:37	00:19:10	00:28:04	00:21:09	00:21:55	00:20:23
Thursday	00:24:19	00:15:11	00:33:26	00:15:33	00:16:03	00:15:04
Weekday Average	00:23:15	00:19:02	00:26:25	00:20:20	00:21:47	00:19:15

7.4.8 The results show that the route has an average weekday journey time of 1,395 seconds during the AM period between 07:00-09:00 and 1,220 seconds during the PM period between 16:00-18:00.

7.4.9 During the AM peak period, weekday average journey times were greater between 08:00-09:00 (1,585 seconds) than between 07:00-08:00 (1,142 seconds). The longest journey time (2,006 seconds) occurred on a Thursday between 08:00-09:00, with the quickest (911 seconds) occurring on a Thursday between 07:00-08:00.

7.4.10 During the PM peak period, weekday average journey times were greater between 16:00-17:00 (1,307 seconds) than between 17:00-18:00 (1,155 seconds). The longest journey time (1,641 seconds) occurred on a Tuesday between 16:00-17:00, with the quickest (904 seconds) occurring on a Thursday between 17:00-18:00.

ROUTE 2A (BLUE ROUTE) - SOUTHBOUND

7.4.11 Route 2A represents the journey beginning at the A465 junction on to the A4103 running south through Hereford City centre and ending at the Ruckhall Lane/A465 junction.

7.4.12 The surveyed journey times for route 2A are summarised within **Table 7-3** below.

Table 7-3 - Average Journey Time - Route 2A

Day	Average Journey Time (Hrs : Mins : Secs)					
	AM Peak Period			PM Peak Period		
	07:00-09:00	07:00-08:00	08:00-09:00	16:00-18:00	16:00-17:00	17:00-18:00
Tuesday	00:17:43	00:15:15	00:20:12	00:19:41	00:20:16	00:19:06
Wednesday	00:15:36	00:15:36	No Survey	00:19:24	00:19:24	No Survey
Thursday	00:21:03	00:16:31	00:25:35	00:19:46	No Survey	00:19:46
Weekday Average	00:18:08	00:15:45	00:22:54	00:19:37	00:19:41	00:19:33

7.4.13 The results show that the route has an average weekday journey time of 1,088 seconds during the AM period between 07:00-09:00 and 1,177 seconds during the PM period between 16:00-18:00.

7.4.14 During the AM peak period, weekday average journey times were greater between 08:00-09:00 (1,374 seconds) than between 07:00-08:00 (945 seconds). The longest journey time (1,545 seconds) occurred on a Thursday between 08:00-09:00, with the quickest (915 seconds) occurring on a Tuesday between 07:00-08:00. No surveys were undertaken for Wednesday between 08:00-09:00

7.4.15 During the PM peak period, weekday average journey times were greater between 16:00-17:00 (1,181 seconds) than between 17:00-18:00 (1,173 seconds). The longest journey time (1,216 seconds) occurred on a Tuesday between 16:00-17:00, with the quickest (1,146 seconds) occurring on a Tuesday between 17:00-18:00. No surveys were undertaken for Thursday between 16:00-17:00 and Wednesday between 17:00-18:00

ROUTE 2B (BLUE ROUTE) - NORTHBOUND

7.4.16 Route 2B represents the journey beginning at the Ruckhall Lane/A465 junction running north through Hereford city centre and ending at the A465 junction off the A4103.

7.4.17 The surveyed journey times for route 2B are summarised within **Table 7-4** below.

Table 7-4 - Average Journey Time – Route 2B

Day	Average Journey Time (Hrs : Mins : Secs)					
	AM Peak Period			PM Peak Period		
	07:00-09:00	07:00-08:00	08:00-09:00	16:00-18:00	16:00-17:00	17:00-18:00
Tuesday	00:33:30	00:32:33	00:34:28	00:19:42	00:23:06	00:16:19
Wednesday	00:34:13	No Survey	00:34:13	00:16:58	No Survey	00:16:58
Thursday	00:33:19	00:27:16	00:39:21	00:19:26	00:15:59	00:22:54
Weekday Average	00:33:41	00:29:55	00:35:34	00:18:42	00:19:32	00:18:17

7.4.18 The results show that the route has an average weekday journey time of 2,021 seconds during the AM period between 07:00-09:00 and 1,122 seconds during the PM period between 16:00-18:00.

7.4.19 During the AM peak period, weekday average journey times were greater between 08:00-09:00 (2,134 seconds) than between 07:00-08:00 (1,795 seconds). The longest journey time (2,361 seconds) occurred on a Thursday between 08:00-09:00, with the quickest (1,636 seconds) occurring on a Thursday between 07:00-08:00. No surveys were undertaken for Wednesday between 07:00-08:00.

7.4.20 During the PM peak period, weekday average journey times were greater between 16:00-17:00 (1,172 seconds) than between 17:00-18:00 (1,097 seconds). The longest journey time (1,386 seconds) occurred on a Tuesday between 16:00-17:00, with the quickest (959 seconds) occurring on a Thursday between 16:00-17:00. No surveys were undertaken for Wednesday between 16:00-17:00.

ROUTE 3A (GREEN ROUTE) - EASTBOUND

7.4.21 Route 3A represents the journey along the A438, beginning at the A480/Kings Acre Road junction running eastbound through Hereford City centre and ending at the Rhystone lane/A438 junction in Lugwardine.

7.4.22 The surveyed journey times for route 3A are summarised within **Table 7-5** below.

Table 7-5 - Average Journey Time – Route 3A

Day	Average Journey Time (Hrs : Mins : Secs)					
	AM Peak Period			PM Peak Period		
	07:00-09:00	07:00-08:00	08:00-09:00	16:00-18:00	16:00-17:00	17:00-18:00
Tuesday	00:17:22	00:17:22	No Survey	00:19:11	00:19:11	No Survey
Wednesday	00:20:02	00:16:50	00:23:14	00:21:14	00:21:27	00:21:01
Thursday	00:21:38	00:15:11	00:28:05	00:21:34	00:23:17	00:19:51
Weekday Average	00:19:41	00:16:41	00:25:40	00:20:40	00:20:47	00:20:26

7.4.23 The results show that the route has an average weekday journey time of 1,181 seconds during the AM period between 07:00-09:00, and 1,240 seconds during the PM period between 16:00-18:00.

7.4.24 During the AM peak period, weekday average journey times were greater between 08:00-09:00 (1,540 seconds) than between 07:00-08:00 (1,001 seconds). The longest journey time (1,685 seconds) occurred on a Thursday between 08:00-09:00, with the quickest (911 seconds) occurring on a Thursday between 07:00-08:00. No surveys were undertaken for Tuesday between 08:00-09:00.

7.4.25 During the PM peak period, weekday average journey times were greater between 16:00-17:00 (1,247 seconds) than between 17:00-18:00 (1,226 seconds). The longest journey time (1,397 seconds) occurred on a Thursday between 16:00-17:00, with the quickest (1,151 seconds) occurring on a Tuesday between 16:00-17:00. No surveys were undertaken for Tuesday between 17:00-18:00.

ROUTE 3B (GREEN ROUTE) - WESTBOUND

7.4.26 Route 3B represents the journey along the A438, beginning at Rhystone lane/A438 junction in Lugwardine and travelling westbound through Hereford City centre, ending at the A480/Kings Acre Road junction.

7.4.27 The surveyed journey times for route 3B are summarised within **Table 7-6** below.

Table 7-6 - Average Journey Time – Route 3B

Day	Average Journey Time (Hrs : Mins : Secs)					
	AM Peak Period			PM Peak Period		
	07:00-09:00	07:00-08:00	08:00-09:00	16:00-18:00	16:00-17:00	17:00-18:00
Tuesday	00:21:52	No Survey	00:21:52	00:21:56	No Survey	00:21:56
Wednesday	00:20:23	00:19:18	00:21:27	00:18:54	00:18:40	00:19:08
Thursday	00:18:30	00:14:48	00:22:12	00:18:25	00:19:20	00:17:31
Weekday Average	00:20:15	00:17:03	00:21:51	00:19:45	00:19:00	00:20:08

7.4.28 The results show that the route has an average weekday journey time of 1,215 seconds during the AM period between 07:00-09:00, and 1,185 seconds during the PM period between 16:00-18:00.

7.4.29 During the AM peak period, weekday average journey times were greater between 08:00-09:00 (1,311 seconds) than between 07:00-08:00 (1,023 seconds). The longest journey time (1,332 seconds) occurred on a Wednesday between 08:00-09:00, with the quickest (888 seconds) occurring on a Thursday between 07:00-08:00. No surveys were undertaken for Tuesday between 07:00-08:00.

7.4.30 During the PM peak period, weekday average journey times were greater between 17:00-18:00 (1,208 seconds) than between 16:00-17:00 (1,140 seconds). The longest journey time (1,316 seconds) occurred on a Tuesday between 17:00-18:00, with the quickest (1,051 seconds) occurring on a Thursday between 17:00-18:00. No surveys were undertaken for Tuesday between 16:00-17:00.

ROUTE 4A (ORANGE ROUTE) - SOUTHBOUND

7.4.31 Route 4A represents the journey starting at Tillington Road, running southbound through Hereford City centre, ending on the B4224 near the Bunch of Carrots pub.

7.4.32 The surveyed journey times for route 4A are summarised within **Table 7-7** below.

Table 7-7 - Average Journey Time – Route 4A

Day	Average Journey Time (Hrs : Mins : Secs)					
	AM Peak Period			PM Peak Period		
	07:00-09:00	07:00-08:00	08:00-09:00	16:00-18:00	16:00-17:00	17:00-18:00
Tuesday	00:19:25	00:19:25	No Survey	00:18:19	00:18:19	No Survey
Wednesday	00:17:52	00:14:35	00:21:10	00:19:24	00:17:23	00:21:26
Thursday	00:19:23	00:19:28	00:19:19	00:16:55	00:17:49	00:16:02
Weekday Average	00:18:58	00:18:27	00:20:14	00:18:14	00:18:02	00:18:44

7.4.33 The results show that the route has an average weekday journey time of 1,138 seconds during the AM period between 07:00-09:00, and 1,094 seconds during the PM period between 16:00-18:00.

7.4.34 During the AM peak period, weekday average journey times were greater between 08:00-09:00 (1,214 seconds) than between 07:00-08:00 (1,107 seconds). The longest journey time (1,270 seconds) occurred on a Wednesday between 08:00-09:00, with the quickest (875 seconds) occurring on a Wednesday between 07:00-08:00. No surveys were undertaken for Tuesday between 08:00-09:00.

7.4.35 During the PM peak period, weekday average journey times were greater between 17:00-18:00 (1,124 seconds) than between 16:00-17:00 (1,082 seconds). The longest journey time (1,286 seconds) occurred on a Wednesday between 17:00-18:00, with the quickest (962 seconds) occurring on a Thursday between 17:00-18:00. No surveys were undertaken for Tuesday between 17:00-18:00.

ROUTE 4B- NORTHBOUND

7.4.36 Route 4A represents the journey starting on the B4224 (near the Bunch of Carrots pub) running northbound through Hereford City centre, and ending at Tillington Road.

7.4.37 The surveyed journey times for route 4B are summarised within Table 7-8 below.

Table 7-8 - Average Journey Time – Route 4B

Day	Average Journey Time (Hrs : Mins : Secs)					
	AM Peak Period			PM Peak Period		
	07:00-09:00	07:00-08:00	08:00-09:00	16:00-18:00	16:00-17:00	17:00-18:00
Tuesday	00:26:32	No Survey	00:26:32	00:22:13	No Survey	00:22:13
Wednesday	00:23:55	00:24:57	00:22:53	00:23:20	00:27:29	00:19:12
Thursday	00:21:18	00:16:00	00:26:37	00:17:54	00:18:31	00:17:18
Weekday Average	00:24:17	00:20:28	00:25:49	00:21:18	00:23:00	00:20:38

7.4.38 The results show that the route has an average weekday journey time of 1,457 seconds during the AM period between 07:00-09:00, and 1,278 seconds during the PM period between 16:00-18:00.

7.4.39 During the AM peak period, weekday average journey times were greater between 08:00-09:00 (1,549 seconds) than between 07:00-08:00 (1,228 seconds). The longest journey time (1,597 seconds) occurred on a Thursday between 08:00-09:00, with the quickest (960 seconds) occurring on a Thursday between 07:00-08:00. No surveys were undertaken for Tuesday between 07:00-08:00.

7.4.40 During the PM peak period, weekday average journey times were greater between 16:00-17:00 (1,380 seconds) than between 17:00-18:00 (1,238 seconds). The longest journey time (1,649 seconds) occurred on a Wednesday between 16:00-17:00, with the quickest (1,038 seconds) occurring on a Thursday between 17:00-18:00. No surveys were undertaken for Tuesday between 16:00-17:00.

7.5 TRAFFICMASTER DATA SUITABILITY

Table 7-9 - Journey Time Comparison – Herefordshire Council with Trafficmaster

Route	Description	Average Journey Time (Hrs : Mins : Secs)					
		AM Peak Period			PM Peak Period		
		HC	TM	% Diff	HC	TM	% Diff
Route 1A	**A49 Northbound**	00:17:39	00:21:07	20%	00:17:46	00:15:51	-11%
Route 1B	**A49 Southbound**	00:26:19	00:16:13	-38%	00:22:32	00:13:54	-38%
Route 2A	**A465 Southbound**	00:17:31	00:17:29	0%	00:23:55	00:16:04	-33%
Route 2B	**A465 Northbound**	00:24:47	00:20:38	-17%	00:17:55	00:14:52	-17%
Route 3A	**A480 - A438 Eastbound**	00:21:13	00:19:17	-9%	00:21:24	00:16:55	-21%
Route 3B	**A480 - A438 Westbound**	00:18:26	00:18:46	2%	00:24:03	00:18:04	-25%
Route 4A	**Southbound - Tillington Rd to the Bunch of Carrots**	00:16:23	00:15:59	-2%	00:16:09	00:13:57	-14%

Route 4B	**Northbound - Bunch of Carrots to Tillington Rd**	00:20:25	00:16:08	-21%	00:18:04	00:15:27	-14%

7.5.1 **Table 7-9** shows a comparison between Herefordshire Council and Trafficmaster journey times extracted. The June 2015 datasets were chosen for the comparison because they were the equivalent datasets from both sources that were the most up to date. They show that there are significant differences between the two datasets and they are not comparable. The Trafficmaster journey time has been calculated using a greater number of observations than the Herefordshire Council journey time surveys and therefore the reliability of this dataset has been assumed to be a lot better.

7.6 JOURNEY TIME DATA CONCLUSION

7.6.1 After review of the two datasets provided by HC and Trafficmaster it is proposed the Trafficmaster data will be utilised for the journey time validation for the Hereford Transport Model.

7.6.2 The journey time surveys undertaken by HC were limited to just a few runs along each route, and provided no information as to a vehicles progress along each route (i.e. no timing point splits in the journey times). In order to provide a more robust analysis of the journey times, and to offer the opportunity to add timing points along routes, Trafficmaster data will be utilised in the SATURN model validation process.

8 CONCLUSIONS

8.1 SUMMARY

8.1.1 The data collected will assist in the development of the Herford SATURN model and will allow the model to be validated and calibrated against the DMRB guidelines.

8.2 AUTOMATIC TRAFFIC COUNTS

8.2.1 Automatic Traffic Counts (ATCs) counts were undertaken at 59 key sites across the study area.

8.2.2 ATC data was utilised to derive local flow profiles and to monitor traffic patterns during the survey period. ATC data was collected at each of the RSI sites, which will be utilised to assist in the validation of the peak period models within the Hereford SATURN model.

8.3 MANUAL CLASSIFIED JUNCTION COUNTS

8.3.1 Manual Classified Counts (MCJCs) were undertaken at 66 key junctions within the study area. At each site vehicles were classified into those recommended in the DMRB guidelines. The turning count data will be utilised to validate the Hereford SATURN model.

8.4 ROAD SIDE INTERVIEWS

8.4.1 Road Side Interviews (RSIs) were undertaken at 14 key locations in the Hereford study area. The RSI data allowed the origin, destination and trip purpose to be identified for a split of cars, HGV's and OGVs. These vehicle classifications were those recommended in the DMRB guidelines. The information will be utilised to build the Hereford SATURN model matrices.

8.5 CAR PARK INTERVIEWS

8.5.1 Car Park Interviews (CPIs) were undertaken at 20 key public car park sites in the Hereford study area. Car park interviews allowed the origin, destination (onward journey) and trip purpose to be identified for a split of cars, HGV's and OGVs, for vehicles parking within a Hereford town centre public car park. These vehicles classifications were those recommended in the DMRB guidelines. This information will be utilised to build the Hereford SATURN model matrices.

8.6 JOURNEY TIME SURVEYS

8.6.1 Journey time survey data was provided by HC for 4 routes within the study area. This data was utilised to validate that the Trafficmaster data (intended for use in validating journey times within the Hereford SATURN model) is representative of the current situation within Hereford.

8.7 CONCLUSION

8.7.1 All data collected has been shown to be reliable and will provide sufficient information with which to build the Hereford SATURN model. We conclude that no further traffic and travel data is required and the model development should proceed.

Appendix A

APPENDICES FOR SECTION 2 – ATC DATA

APPENDIX A-1

ATC – SITE INCURRED ERRORS

- Full Day of Erroneous Data

xx:xx - Partial Day of Erroneous Data (starting or ending on identified time)

xx:xx - Flows appear unusual / inconsistent (during period identified)

Site No	Location Name	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Incomplete Days	Complete Days
		06-Jun	07-Jun	08-Jun	09-Jun	10-Jun	11-Jun	12-Jun	13-Jun	14-Jun	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun	20-Jun	21-Jun	22-Jun	23-Jun	24-Jun	25-Jun	26-Jun	27-Jun	28-Jun	29-Jun	30-Jun	01-Jul	02-Jul	03-Jul	04-Jul	05-Jul	06-Jul	07-Jul	08-Jul	09-Jul	10-Jul	11-Jul	12-Jul	13-Jul	14-Jul	15-Jul	16-Jul	17-Jul		
1	Unamed Road	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	42
2	A4110 Three Elms Road				13:00	1	1	1	1	19:00																	11:30	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	23	19
3	A49 Holmer Road	1	1	1	1	1	1	1	1	1	1	1	1	1	15:30									13:00	1	1	1	1	1	1	1	1	1	1	1	1	1000-1500	1	1	1100-1500	1	1	1	12	30
4	Roman Road			22:30														1200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	17	25
5	Roman Road	UNABLE TO INSTALL DUE TO ROADWORKS														11:30	1	1	1	1	1	1	1	16:30		19:00	1	1	1	1	1	09:00			12:45	1	1	1	1	1	1	1	1	22	20
6	Aylestone Hill	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	42
7	Collage Road	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	42
8	Old School Lane	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	42
9	A483 Kings Acre Road	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	42
10	Newtown Road	1	1	1	1	1	1	1	1	03:00																						10:30	1	1	1	1	1	1	1	1	1	1	1	1	24	18
11	Newtown Road	1	1	1	1130-1145	1	1030-1100	1	1	10:30							21:00	1	1	1	1	1	1	1	1	1130-1700	0930-1015	1	1	1900-1915	1200-1215	1	1	1	1	1	1	1530-1545	1	1	1	1	1	1	15	27
12	Burcott Road	1	1	1	1145-1200	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	41
13	A438				15:00	1	1	1	1	21:15														21:00	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	19	23
14a	A438 Eastbound	1	1	1	1115-1130	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13:30							09:45	1	1	1	1	1	1	1	1	9	33
14b	A438 Westbound	1	1	1745-1830	1100-1130	1530-1800	1	1	1	1	1	1400-1515	1445-1600	1	1	1	1	1	1	1	1	1	1	1	1	1100-1330	1	13:30							09:45	1	1	1	1	1	1	1	1	14	28
15	A438 Ledbury Road	1	1	1	1	1	1	1	1	1	1345-1400	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14:30		00:00	1	1	1	1	1	1	4	38
16	B4224 Eign Road	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	42
17a	A49 Northbound	1	1	1	1	1	1	1	1	12:00-15:00	06:00													12:00	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1245-1300	1	1	1	16	26
17b	A49 Southbound	1	1	1	1	1	1	1	1	1	1	08:30												11:00	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13	29
18	Hunderton Road		11:00	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	40
19	A465 Belmont Road	1	11:00-12:00	1	1	1	1	1	1	1	12:00-13:00	1	1	1	1	1	1	1	1	07:30							15:00	1	1	1	1	1	1	1	11:30			17:00	1	1	1	1	1	14	28
20	A465	1	11:00								13:00	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12:00	15:00	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11	31
21	Holme Lacey Road	1	1	1	1	1	02:30	DATA IS EITHER MISSING FOR PERIODS OR APPEARS INCONSISTENT																			15:00	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	22	20
22	Holme Lacey Road	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	00:00							00:00	1	1	1	1	1	1	1	1	13:30					13	29
23	The Straight Mile	1	1	1	1	1	1	1	1	1	13:00-13:30	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	41
24	Watery Lane	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	42
25	Lower Bullingham Lane	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	42
26	Hoarwithy Road	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	42
27	Bullingham Lane	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	42
28	Ross Road	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	07:00				15:00	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	37
29	Unamed Road	1	1	16:00-17:30	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	41
30	A49	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10:00					09:30	1	1	1	1	1	1	10:00						16:00	1	1	1	1	1	1	1	14	28
31	B4399	1	1	1	1	1	1	1	08:00		17:00	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	39
32	B4399	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	42
33	A49 - Ross Road	1	1	1	1	1	1	1	1	1	1	1	1	18:30										14:30	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	32
34	A49	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12:30					15:30	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6	36
35	A465	1	13:30								12:30	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	9	33
36	Grafton Lane	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	42
37	Grafton Lane	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	42
38	Unamed Road	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	42
47	A49	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	18:00				08:00	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	37
48	B4349	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12:30								00:00	1	1	1	1	1	1	1	1	1	1	1	1	1	1	9	33
49	A438	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	18:00							09:30	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8	34
50	A480	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	42
51	A4110 Canon Pyon Road	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	42
52	A49	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11:00						10:00	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	7	35
53	A4103	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	42
54	A4103	1	1	1	13:00-14:00	1	1	1	1	1	1	1	1	1	1	1	1	1	1	17:45						17:30	1	1	1	1	1	1	1	1	1	1	09:00							14	28
55	A438	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12:00			13:30	1	1	1	1	1	4	38
56	B4224	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12:00		00:00	1	1	1	1	1	1	3	39
57	B4399 Straight Mile	1	1	1	1	1	1	1	1	1	1	1	16:30														12:30	1	1	1	1	1	1	1	11:30	00:00	1	1	1	1	1	1	1	1	17	25
58	Tillington Road	1	1	1	12:30				00:00	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13:30		00:00	1	1	1	1	1	1	8	34
59	A438, Green Crize	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	42
60	A465										12:00	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	32

APPENDIX A-2

ATC – VARIATION IN WEEKDAY FLOW

Hereford Bypass Report of Surveys - Weekday Flow Variations Analysis Data

Monday to Friday Analysis- 12-Hour Period (0700-1900)

Tracsis ATC Sites	Survey Period Average Two-Way Flow					
	Monday	Tuesday	Wednesday	Thursday	Friday	Weekday Average
ATC 17	33,788	34,004	34,443	33,745	35,193	34,234
ATC 19	20,224	20,616	20,596	20,608	21,235	20,656
ATC 10	19,512	20,820	21,101	19,285	21,280	20,400
ATC 14	18,695	18,644	18,850	18,770	18,950	18,782
ATC 3	16,955	16,930	17,551	16,511	17,784	17,146
ATC 33	15,585	15,497	15,649	15,587	16,298	15,723
ATC 4	15,385	15,018	15,845	15,686	15,778	15,543
ATC R8	13,660	12,933	13,969	13,833	14,359	13,751
ATC 20	12,975	13,180	13,232	13,293	13,760	13,288
ATC 21	12,284	12,224	12,163	12,260	12,393	12,265
ATC 30	12,750	12,901	13,112	12,862	13,508	13,026
ATC 34	12,805	12,876	13,144	12,898	13,530	13,051
ATC 12	12,132	12,251	12,390	12,512	12,840	12,425
ATC 35	11,552	11,727	11,834	11,862	12,305	11,856
ATC 28	11,476	11,617	11,830	11,618	12,118	11,732
ATC R1	10,913	10,983	11,245	11,218	11,807	11,233
ATC R6	10,904	10,939	11,381	11,049	11,881	11,231
ATC 9	10,519	10,606	10,573	10,425	10,700	10,565
ATC 6	9,293	9,194	9,416	9,502	9,685	9,418
ATC 15	8,928	9,051	9,194	9,259	9,532	9,193
ATC 22	9,221	9,356	9,081	8,906	9,088	9,130
ATC 23	8,681	8,793	8,590	8,502	8,792	8,672
ATC 11	8,294	8,499	8,688	7,954	8,569	8,401
ATC 5	7,586	7,481	7,271	6,955	7,764	7,411
ATC 13	7,109	7,651	7,407	7,609	7,596	7,475
ATC R4	6,926	6,969	7,194	7,165	7,273	7,105
ATC 2	6,884	6,715	7,080	7,330	7,325	7,067
ATC R3	6,512	6,375	6,697	6,575	6,876	6,607
ATC R14	5,950	6,055	6,186	6,163	6,470	6,165
ATC R9	6,126	6,144	6,343	6,352	6,414	6,276
ATC 16	5,932	6,078	5,999	6,005	6,208	6,045
ATC R2	5,685	5,826	5,831	5,927	6,162	5,886
ATC 8	5,777	5,874	5,934	6,234	5,985	5,961
ATC R11	5,774	5,913	5,787	5,836	5,955	5,853
ATC R10	5,449	5,475	5,540	5,742	5,670	5,575
ATC 32	5,065	5,086	5,093	5,220	5,246	5,142
ATC 7	4,800	4,816	4,892	5,162	5,080	4,950
ATC R5	4,382	4,555	4,657	4,745	4,654	4,598
ATC 31	4,720	4,810	4,817	4,893	4,717	4,791
ATC R7	3,015	3,008	3,085	3,178	3,181	3,093
ATC R12	2,921	3,020	3,026	3,012	3,093	3,014
ATC 29	2,214	2,235	2,293	2,370	2,371	2,297
ATC 18	2,007	1,976	2,034	1,977	2,133	2,026
ATC 1	1,920	2,023	2,067	2,145	2,124	2,056
ATC 26	1,290	1,285	1,329	1,347	1,369	1,324
ATC R13	1,266	1,256	1,310	1,329	1,345	1,301
ATC 27	369	363	348	350	358	358
ATC 37	369	351	376	359	348	361
ATC 24	321	316	313	317	317	317
ATC 36	258	266	285	266	255	266
ATC 25	151	152	159	147	165	155

Daily Difference from weekday average				
Monday	Tuesday	Wednesday	Thursday	Friday
-1.3%	-0.7%	0.6%	-1.4%	2.8%
-2.1%	-0.2%	-0.3%	-0.2%	2.8%
-4.4%	2.1%	3.4%	-5.5%	4.3%
-0.5%	-0.7%	0.4%	-0.1%	0.9%
-1.1%	-1.3%	2.4%	-3.7%	3.7%
-0.9%	-1.4%	-0.5%	-0.9%	3.7%
-1.0%	-3.4%	1.9%	0.9%	1.5%
-0.7%	-5.9%	1.6%	0.6%	4.4%
-2.4%	-0.8%	-0.4%	0.0%	3.6%
0.2%	-0.3%	-0.8%	0.0%	1.0%
-2.1%	-1.0%	0.7%	-1.3%	3.7%
-1.9%	-1.3%	0.7%	-1.2%	3.7%
-2.4%	-1.4%	-0.3%	0.7%	3.3%
-2.6%	-1.1%	-0.2%	0.0%	3.8%
-2.2%	-1.0%	0.8%	-1.0%	3.3%
-2.8%	-2.2%	0.1%	-0.1%	5.1%
-2.9%	-2.6%	1.3%	-1.6%	5.8%
-0.4%	0.4%	0.1%	-1.3%	1.3%
-1.3%	-2.4%	0.0%	0.9%	2.8%
-2.9%	-1.5%	0.0%	0.7%	3.7%
1.0%	2.5%	-0.5%	-2.5%	-0.5%
0.1%	1.4%	-0.9%	-2.0%	1.4%
-1.3%	1.2%	3.4%	-5.3%	2.0%
2.3%	0.9%	-1.9%	-6.2%	4.8%
-4.9%	2.4%	-0.9%	1.8%	1.6%
-2.5%	-1.9%	1.2%	0.8%	2.4%
-2.6%	-5.0%	0.2%	3.7%	3.7%
-1.4%	-3.5%	1.4%	-0.5%	4.1%
-3.5%	-1.8%	0.3%	0.0%	5.0%
-2.4%	-2.1%	1.1%	1.2%	2.2%
-1.9%	0.6%	-0.8%	-0.7%	2.7%
-3.4%	-1.0%	-0.9%	0.7%	4.7%
-3.1%	-1.5%	-0.5%	4.6%	0.4%
-1.3%	1.0%	-1.1%	-0.3%	1.8%
-2.3%	-1.8%	-0.6%	3.0%	1.7%
-1.5%	-1.1%	-0.9%	1.5%	2.0%
-3.0%	-2.7%	-1.2%	4.3%	2.6%
-4.7%	-0.9%	1.3%	3.2%	1.2%
-1.5%	0.4%	0.5%	2.1%	-1.6%
-2.5%	-2.8%	-0.3%	2.7%	2.8%
-3.1%	0.2%	0.4%	-0.1%	2.6%
-3.6%	-2.7%	-0.2%	3.2%	3.2%
-0.9%	-2.4%	0.4%	-2.4%	5.3%
-6.6%	-1.6%	0.6%	4.3%	3.3%
-2.5%	-3.0%	0.4%	1.8%	3.4%
-2.7%	-3.5%	0.7%	2.1%	3.3%
3.3%	1.4%	-2.7%	-2.1%	0.2%
2.3%	-2.7%	4.1%	-0.4%	-3.4%
1.3%	-0.2%	-1.2%	0.1%	0.1%
-2.9%	0.0%	7.1%	-0.1%	-4.1%
-2.4%	-1.9%	2.6%	-5.0%	6.6%

Monday to Friday Analysis- 24-Hour Period

Tracsis ATC Sites	Survey Period Average Two-Way Flow					
	Monday	Tuesday	Wednesday	Thursday	Friday	Weekday Average
ATC 17	43,171	43,533	44,295	44,039	46,443	44,296
ATC 19	26,011	26,588	26,716	26,954	28,132	26,880
ATC 10	23,788	25,567	26,202	24,361	26,662	25,316
ATC 14	23,509	23,585	23,971	24,175	25,149	24,078
ATC 3	20,610	20,817	21,459	20,560	22,121	21,113
ATC 33	19,449	19,299	19,562	19,707	20,768	19,757
ATC 4	18,226	18,221	18,947	18,807	19,005	18,641
ATC R8	16,432	15,710	16,865	16,862	17,586	16,691
ATC 20	15,759	16,067	16,234	16,415	17,010	16,297
ATC 21	15,378	15,526	15,543	15,723	15,889	15,612
ATC 30	15,180	15,310	15,633	15,395	16,329	15,569
ATC 34	15,183	15,208	15,584	15,380	16,305	15,532
ATC 12	14,262	14,542	14,762	14,981	15,450	14,799
ATC 35	14,002	14,329	14,515	14,640	15,253	14,548
ATC 28	13,888	13,987	14,281	14,134	14,975	14,253
ATC R1	13,141	13,181	13,555	13,605	14,458	13,588
ATC R6	12,912	13,071	13,582	13,265	14,319	13,430
ATC 9	12,735	12,899	12,950	12,878	13,378	12,968
ATC 6	11,136	11,136	11,403	11,575	11,947	11,439
ATC 15	10,623	10,855	11,042	11,170	11,675	11,073
ATC 22	10,882	11,221	10,903	10,805	10,941	10,950
ATC 23	10,180	10,481	10,190	10,200	10,431	10,296
ATC 11	9,598	9,836	10,094	9,465	10,287	9,856
ATC 5	9,136	9,067	8,776	8,602	9,470	9,010
ATC 13	8,456	9,057	8,931	9,230	9,309	8,997
ATC R4	8,300	8,382	8,619	8,690	8,803	8,559
ATC 2	7,959	7,897	8,336	8,612	8,602	8,281
ATC R3	7,563	7,465	7,822	7,727	8,184	7,752
ATC R14	7,303	7,441	7,633	7,654	8,007	7,607
ATC R9	7,259	7,351	7,563	7,631	7,779	7,517
ATC 16	7,128	7,311	7,211	7,258	7,600	7,301
ATC R2	6,811	7,033	7,107	7,259	7,561	7,154
ATC 8	6,873	7,072	7,082	7,448	7,195	7,134
ATC R11	6,566	6,762	6,610	6,695	6,781	6,683
ATC R10	6,246	6,359	6,386	6,642	6,608	6,448
ATC 32	5,716	5,795	5,797	5,931	5,936	5,835
ATC 7	5,324	5,405	5,464	5,780	5,736	5,542
ATC R5	5,115	5,397	5,573	5,654	5,547	5,457
ATC 31	5,133	5,254	5,361	5,460	5,266	5,295
ATC R7	3,493	3,536	3,637	3,752	3,783	3,640
ATC R12	3,449	3,559	3,600	3,593	3,731	3,587
ATC 29	2,538	2,587	2,645	2,745	2,748	2,653
ATC 18	2,582	2,540	2,596	2,567	2,834	2,624
ATC 1	2,157	2,266	2,335	2,399	2,401	2,312
ATC 26	1,551	1,544	1,600	1,631	1,673	1,600
ATC R13	1,513	1,501	1,567	1,605	1,640	1,565
ATC 27	459	449	445	442	472	453
ATC 37	426	412	420	411	403	414
ATC 24	375	375	366	371	374	372
ATC 36	304	318	334	314	314	317
ATC 25	177	178	176	178	190	180

Daily Difference from weekday average				
Monday	Tuesday	Wednesday	Thursday	Friday
-2.5%	-1.7%	0.0%	-0.6%	4.8%
-3.2%	-1.1%	-0.6%	0.3%	4.7%
-6.0%	1.0%	3.5%	-3.8%	5.3%
-2.4%	-2.0%	-0.4%	0.4%	4.4%
-2.4%	-1.4%	1.6%	-2.6%	4.8%
-1.6%	-2.3%	-1.0%	-0.3%	5.1%
-2.2%	-2.3%	1.6%	0.9%	1.9%
-1.6%	-5.9%	1.0%	1.0%	5.4%
-3.3%	-1.4%	-0.4%	0.7%	4.4%
-1.5%	-0.5%	-0.4%	0.7%	1.8%
-2.5%	-1.7%	0.4%	-1.1%	4.9%
-2.2%	-2.1%	0.3%	-1.0%	5.0%
-3.6%	-1.7%	-0.3%	1.2%	4.4%
-3.8%	-1.5%	-0.2%	0.6%	4.9%
-2.6%	-1.9%	0.2%	-0.8%	5.1%
-3.3%	-3.0%	-0.2%	0.1%	6.4%
-3.9%	-2.7%	1.1%	-1.2%	6.6%
-1.8%	-0.5%	-0.1%	-0.7%	3.2%
-2.6%	-2.7%	-0.3%	1.2%	4.4%
-4.1%	-2.0%	-0.3%	0.9%	5.4%
-0.6%	2.5%	-0.4%	-1.3%	-0.1%
-1.1%	1.8%	-1.0%	-0.9%	1.3%
-2.6%	-0.2%	2.4%	-4.0%	4.4%
1.4%	0.6%	-2.6%	-4.5%	5.1%
-6.0%	0.7%	-0.7%	2.6%	3.5%
-3.0%	-2.1%	0.7%	1.5%	2.9%
-3.9%	-4.6%	0.7%	4.0%	3.9%
-2.4%	-3.7%	0.9%	-0.3%	5.6%
-4.0%	-2.2%	0.3%	0.6%	5.3%
-3.4%	-2.2%	0.6%	1.5%	3.5%
-2.4%	0.1%	-1.2%	-0.6%	4.1%
-4.8%	-1.7%	-0.7%	1.5%	5.7%
-3.7%	-0.9%	-0.7%	4.4%	0.9%
-1.8%	1.2%	-1.1%	0.2%	1.5%
-3.1%	-1.4%	-1.0%	3.0%	2.5%
-2.0%	-0.7%	-0.6%	1.6%	1.7%
-3.9%	-2.5%	-1.4%	4.3%	3.5%
-6.3%	-1.1%	2.1%	3.6%	1.7%
-3.1%	-0.8%	1.3%	3.1%	-0.5%
-4.0%	-2.9%	-0.1%	3.1%	3.9%
-3.8%	-0.8%	0.4%	0.2%	4.0%
-4.3%	-2.5%	-0.3%	3.5%	3.6%
-1.6%	-3.2%	-1.1%	-2.2%	8.0%
-6.7%	-2.0%	1.0%	3.8%	3.9%
-3.1%	-3.5%	0.0%	2.0%	4.6%
-3.3%	-4.1%	0.1%	2.5%	4.8%
1.3%	-1.0%	-1.9%	-2.4%	4.1%
2.7%	-0.5%	1.4%	-0.8%	-2.8%
0.7%	0.7%	-1.7%	-0.4%	0.6%
-4.0%	0.4%	5.5%	-0.9%	-0.9%
-1.6%	-1.0%	-2.0%	-1.2%	5.8%

Monday to Thursday Analysis- 12-Hour Period (0700-1900)

Tracsis ATC Sites	Survey Period Average Two-Way Flow						Daily Difference from weekday average				
	Monday	Tuesday	Wednesday	Thursday	Friday	Weekday Average	Monday	Tuesday	Wednesday	Thursday	Friday
ATC 17	33,788	34,004	34,443	33,745		33,995	-0.6%	0.0%	1.3%	-0.7%	
ATC 19	20,224	20,616	20,596	20,608		20,511	-1.4%	0.5%	0.4%	0.5%	
ATC 10	19,512	20,820	21,101	19,285		20,179	-3.3%	3.2%	4.6%	-4.4%	
ATC 14	18,695	18,644	18,850	18,770		18,740	-0.2%	-0.5%	0.6%	0.2%	
ATC 3	16,955	16,930	17,551	16,511		16,987	-0.2%	-0.3%	3.3%	-2.8%	
ATC 33	15,585	15,497	15,649	15,587		15,580	0.0%	-0.5%	0.4%	0.0%	
ATC 4	15,385	15,018	15,845	15,686		15,484	-0.6%	-3.0%	2.3%	1.3%	
ATC R8	13,660	12,933	13,969	13,833		13,599	0.5%	-4.9%	2.7%	1.7%	
ATC 20	12,975	13,180	13,232	13,293		13,170	-1.5%	0.1%	0.5%	0.9%	
ATC 21	12,284	12,224	12,163	12,260		12,233	0.4%	-0.1%	-0.6%	0.2%	
ATC 30	12,750	12,901	13,112	12,862		12,906	-1.2%	0.0%	1.6%	-0.3%	
ATC 34	12,805	12,876	13,144	12,898		12,931	-1.0%	-0.4%	1.7%	-0.3%	
ATC 12	12,132	12,251	12,390	12,512		12,321	-1.5%	-0.6%	0.6%	1.6%	
ATC 35	11,552	11,727	11,834	11,862		11,744	-1.6%	-0.1%	0.8%	1.0%	
ATC 28	11,476	11,617	11,830	11,618		11,635	-1.4%	-0.2%	1.7%	-0.1%	
ATC R1	10,913	10,983	11,245	11,218		11,090	-1.6%	-1.0%	1.4%	1.2%	
ATC R6	10,904	10,939	11,381	11,049		11,068	-1.5%	-1.2%	2.8%	-0.2%	
ATC 9	10,519	10,606	10,573	10,425		10,531	-0.1%	0.7%	0.4%	-1.0%	
ATC 6	9,293	9,194	9,416	9,502		9,351	-0.6%	-1.7%	0.7%	1.6%	
ATC 15	8,928	9,051	9,194	9,259		9,108	-2.0%	-0.6%	0.9%	1.7%	
ATC 22	9,221	9,356	9,081	8,906		9,141	0.9%	2.4%	-0.7%	-2.6%	
ATC 23	8,681	8,793	8,590	8,502		8,642	0.5%	1.8%	-0.6%	-1.6%	
ATC 11	8,294	8,499	8,688	7,954		8,359	-0.8%	1.7%	3.9%	-4.8%	
ATC 5	7,586	7,481	7,271	6,955		7,323	3.6%	2.2%	-0.7%	-5.0%	
ATC 13	7,109	7,651	7,407	7,609		7,444	-4.5%	2.8%	-0.5%	2.2%	
ATC R4	6,926	6,969	7,194	7,165		7,063	-1.9%	-1.3%	1.8%	1.4%	
ATC 2	6,884	6,715	7,080	7,330		7,002	-1.7%	-4.1%	1.1%	4.7%	
ATC R3	6,512	6,375	6,697	6,575		6,540	-0.4%	-2.5%	2.4%	0.5%	
ATC R14	5,950	6,055	6,186	6,163		6,088	-2.3%	-0.5%	1.6%	1.2%	
ATC R9	6,126	6,144	6,343	6,352		6,241	-1.8%	-1.6%	1.6%	1.8%	
ATC 16	5,932	6,078	5,999	6,005		6,004	-1.2%	1.2%	-0.1%	0.0%	
ATC R2	5,685	5,826	5,831	5,927		5,817	-2.3%	0.2%	0.2%	1.9%	
ATC 8	5,777	5,874	5,934	6,234		5,955	-3.0%	-1.4%	-0.3%	4.7%	
ATC R11	5,774	5,913	5,787	5,836		5,827	-0.9%	1.5%	-0.7%	0.1%	
ATC R10	5,449	5,475	5,540	5,742		5,552	-1.8%	-1.4%	-0.2%	3.4%	
ATC 32	5,065	5,086	5,093	5,220		5,116	-1.0%	-0.6%	-0.4%	2.0%	
ATC 7	4,800	4,816	4,892	5,162		4,917	-2.4%	-2.1%	-0.5%	5.0%	
ATC R5	4,382	4,555	4,657	4,745		4,585	-4.4%	-0.6%	1.6%	3.5%	
ATC 31	4,720	4,810	4,817	4,893		4,810	-1.9%	0.0%	0.2%	1.7%	
ATC R7	3,015	3,008	3,085	3,178		3,071	-1.9%	-2.1%	0.4%	3.5%	
ATC R12	2,921	3,020	3,026	3,012		2,995	-2.5%	0.9%	1.0%	0.6%	
ATC 29	2,214	2,235	2,293	2,370		2,278	-2.8%	-1.9%	0.6%	4.0%	
ATC 18	2,007	1,976	2,034	1,977		1,999	0.4%	-1.1%	1.8%	-1.1%	
ATC 1	1,920	2,023	2,067	2,145		2,039	-5.8%	-0.8%	1.4%	5.2%	
ATC 26	1,290	1,285	1,329	1,347		1,313	-1.7%	-2.1%	1.2%	2.6%	
ATC R13	1,266	1,256	1,310	1,329		1,290	-1.9%	-2.7%	1.5%	3.0%	
ATC 27	369	363	348	350		357	3.3%	1.4%	-2.7%	-2.1%	
ATC 37	369	351	376	359		364	1.4%	-3.5%	3.3%	-1.2%	
ATC 24	321	316	313	317		317	1.3%	-0.1%	-1.2%	0.1%	
ATC 36	258	266	285	266		269	-3.9%	-1.0%	6.0%	-1.1%	
ATC 25	151	152	159	147		152	-0.8%	-0.2%	4.4%	-3.4%	

Monday to Thursday Analysis- 24-Hour Period

Tracsis ATC Sites	Survey Period Average Two-Way Flow						Daily Difference from weekday average				
	Monday	Tuesday	Wednesday	Thursday	Friday	Weekday Average	Monday	Tuesday	Wednesday	Thursday	Friday
ATC 17	43,171	43,533	44,295	44,039		43,759	-1.3%	-0.5%	1.2%	0.6%	
ATC 19	26,011	26,588	26,716	26,954		26,567	-2.1%	0.1%	0.6%	1.5%	
ATC 10	23,788	25,567	26,202	24,361		24,979	-4.8%	2.4%	4.9%	-2.5%	
ATC 14	23,509	23,585	23,971	24,175		23,810	-1.3%	-0.9%	0.7%	1.5%	
ATC 3	20,610	20,817	21,459	20,560		20,861	-1.2%	-0.2%	2.9%	-1.4%	
ATC 33	19,449	19,299	19,562	19,707		19,504	-0.3%	-1.1%	0.3%	1.0%	
ATC 4	18,226	18,221	18,947	18,807		18,550	-1.7%	-1.8%	2.1%	1.4%	
ATC R8	16,432	15,710	16,865	16,862		16,467	-0.2%	-4.6%	2.4%	2.4%	
ATC 20	15,759	16,067	16,234	16,415		16,119	-2.2%	-0.3%	0.7%	1.8%	
ATC 21	15,378	15,526	15,543	15,723		15,543	-1.1%	-0.1%	0.0%	1.2%	
ATC 30	15,180	15,310	15,633	15,395		15,379	-1.3%	-0.5%	1.6%	0.1%	
ATC 34	15,183	15,208	15,584	15,380		15,339	-1.0%	-0.9%	1.6%	0.3%	
ATC 12	14,262	14,542	14,762	14,981		14,637	-2.6%	-0.6%	0.9%	2.4%	
ATC 35	14,002	14,329	14,515	14,640		14,371	-2.6%	-0.3%	1.0%	1.9%	
ATC 28	13,888	13,987	14,281	14,134		14,072	-1.3%	-0.6%	1.5%	0.4%	
ATC R1	13,141	13,181	13,555	13,605		13,370	-1.7%	-1.4%	1.4%	1.8%	
ATC R6	12,912	13,071	13,582	13,265		13,208	-2.2%	-1.0%	2.8%	0.4%	
ATC 9	12,735	12,899	12,950	12,878		12,865	-1.0%	0.3%	0.7%	0.1%	
ATC 6	11,136	11,136	11,403	11,575		11,312	-1.6%	-1.6%	0.8%	2.3%	
ATC 15	10,623	10,855	11,042	11,170		10,923	-2.7%	-0.6%	1.1%	2.3%	
ATC 22	10,882	11,221	10,903	10,805		10,953	-0.6%	2.5%	-0.5%	-1.4%	
ATC 23	10,180	10,481	10,190	10,200		10,263	-0.8%	2.1%	-0.7%	-0.6%	
ATC 11	9,598	9,836	10,094	9,465		9,748	-1.5%	0.9%	3.5%	-2.9%	
ATC 5	9,136	9,067	8,776	8,602		8,895	2.7%	1.9%	-1.3%	-3.3%	
ATC 13	8,456	9,057	8,931	9,230		8,919	-5.2%	1.6%	0.1%	3.5%	
ATC R4	8,300	8,382	8,619	8,690		8,498	-2.3%	-1.4%	1.4%	2.3%	
ATC 2	7,959	7,897	8,336	8,612		8,201	-2.9%	-3.7%	1.6%	5.0%	
ATC R3	7,563	7,465	7,822	7,727		7,644	-1.1%	-2.3%	2.3%	1.1%	
ATC R14	7,303	7,441	7,633	7,654		7,508	-2.7%	-0.9%	1.7%	1.9%	
ATC R9	7,259	7,351	7,563	7,631		7,451	-2.6%	-1.3%	1.5%	2.4%	
ATC 16	7,128	7,311	7,211	7,258		7,227	-1.4%	1.2%	-0.2%	0.4%	
ATC R2	6,811	7,033	7,107	7,259		7,053	-3.4%	-0.3%	0.8%	2.9%	
ATC 8	6,873	7,072	7,082	7,448		7,119	-3.5%	-0.7%	-0.5%	4.6%	
ATC R11	6,566	6,762	6,610	6,695		6,658	-1.4%	1.6%	-0.7%	0.5%	
ATC R10	6,246	6,359	6,386	6,642		6,408	-2.5%	-0.8%	-0.3%	3.6%	
ATC 32	5,716	5,795	5,797	5,931		5,810	-1.6%	-0.3%	-0.2%	2.1%	
ATC 7	5,324	5,405	5,464	5,780		5,493	-3.1%	-1.6%	-0.5%	5.2%	
ATC R5	5,115	5,397	5,573	5,654		5,434	-5.9%	-0.7%	2.5%	4.0%	
ATC 31	5,133	5,254	5,361	5,460		5,302	-3.2%	-0.9%	1.1%	3.0%	
ATC R7	3,493	3,536	3,637	3,752		3,605	-3.1%	-1.9%	0.9%	4.1%	
ATC R12	3,449	3,559	3,600	3,593		3,550	-2.9%	0.2%	1.4%	1.2%	
ATC 29	2,538	2,587	2,645	2,745		2,629	-3.4%	-1.6%	0.6%	4.4%	
ATC 18	2,582	2,540	2,596	2,567		2,571	0.4%	-1.2%	0.9%	-0.2%	
ATC 1	2,157	2,266	2,335	2,399		2,289	-5.8%	-1.0%	2.0%	4.8%	
ATC 26	1,551	1,544	1,600	1,631		1,581	-1.9%	-2.4%	1.2%	3.2%	
ATC R13	1,513	1,501	1,567	1,605		1,546	-2.2%	-3.0%	1.3%	3.8%	
ATC 27	459	449	445	442		449	2.3%	0.0%	-0.9%	-1.4%	
ATC 37	426	412	420	411		417	2.0%	-1.2%	0.7%	-1.5%	
ATC 24	375	375	366	371		371	0.9%	0.9%	-1.5%	-0.2%	
ATC 36	304	318	334	314		318	-4.2%	0.1%	5.2%	-1.1%	
ATC 25	177	178	176	178		177	-0.1%	0.4%	-0.6%	0.3%	

APPENDIX A-3

ATC – ANALYSIS OF EXTERNAL EVENTS

Hereford Bypass Report of Survey - Events During the Survey Period Analysis Data

June 16th 2016 - Wales v England Euro 2016 Fixture

June 16th Flow Difference From Survey Period Average (excluding June 16th and June 23rd)

Time Period	ATC 1	ATC 2	ATC 3	ATC 4	ATC 5	ATC 6	ATC 7	ATC 8	ATC 9	ATC 10	ATC 11	ATC 12	ATC 13	ATC 14	ATC 15	ATC 16	ATC 17	ATC 18	ATC 19	ATC 20	ATC 21
00:00 - 01:00	+0.0%		-13.23%			+20.5%	+41.2%	-26.76%	-12.93%			+23.6%		-7.51%	+32.1%	-9.68%	-53.16%	+5.3%	-13.73%	-18.87%	
01:00 - 02:00	+0.0%		+27.6%			-21.65%	+0.0%	+4.3%	+27.8%			-19.23%		-2.86%	-26.32%	-26.32%	-30.30%	-3.45%	+19.3%	+7.6%	
02:00 - 03:00	+33.3%		+11.3%			-42.17%	+26.3%	-51.22%	+15.7%			+5.9%		+1.0%	+46.9%	+18.9%	-36.64%	-42.86%	-3.36%	-15.38%	
03:00 - 04:00	+53.8%		+35.5%			+6.9%	+100.0%	-37.50%	-3.30%			+29.0%		+13.3%	+2.1%	+3.7%	-42.39%	+20.0%	+23.5%	+24.1%	
04:00 - 05:00	+115.4%		+4.7%			-1.03%	-45.45%	+95.9%	+9.5%			+0.0%		-1.72%	+0.0%	+23.1%	-49.90%	+33.3%	-4.44%	-1.72%	
05:00 - 06:00	+23.1%		+6.1%			+4.4%	-3.91%	+2.9%	+9.0%			-2.66%		+0.4%	+32.8%	+28.0%	-52.28%	+28.2%	+14.1%	+24.3%	
06:00 - 07:00	-3.53%		-6.29%			+0.7%	-6.51%	+0.7%	-5.87%			+12.0%		-5.58%	+1.9%	+4.0%	-55.15%	-12.00%	-2.50%	+2.0%	
07:00 - 08:00	+10.1%		-3.60%			+0.3%	-8.76%	+6.1%	+7.4%			+0.3%		-2.81%	-7.71%	-3.34%	-57.23%	+3.1%	-6.72%	-7.95%	
08:00 - 09:00	-3.97%		-6.41%			+2.3%	+4.3%	+14.8%	-19.04%			-5.42%		-5.81%	+2.4%	-0.94%		+5.6%	-0.43%	-1.65%	
09:00 - 10:00	+16.5%		-8.18%			+6.7%	+19.9%	+30.7%	+1.5%			+10.8%		-8.38%	+8.6%	-0.26%		+15.4%	+4.9%	-0.63%	
10:00 - 11:00	+4.4%		-0.94%			-0.25%	+2.8%	+6.4%	-4.58%			+2.2%		+2.5%	+2.7%	+5.6%		+10.3%	+3.2%	+2.9%	
11:00 - 12:00	-2.70%		-1.06%			-1.34%	-2.01%	+2.8%	+4.8%			-6.80%		+0.7%	+9.3%	+4.7%		+11.1%	-4.93%	+1.2%	
12:00 - 13:00	-4.42%		+10.6%			+4.6%	-19.00%	-1.54%	+2.4%			+2.6%		+3.7%	+12.3%	-6.57%		+3.9%	+4.3%	+3.2%	
13:00 - 14:00	+0.0%		+11.0%			+12.3%	-16.29%	+12.9%	+10.3%			+7.9%		+2.0%	+19.7%	+12.2%		+20.0%	+2.4%	+9.9%	
14:00 - 15:00	+13.6%		-18.08%			-6.53%	-15.49%	-11.86%	-11.95%			-5.13%		-65.93%	+5.9%	-8.88%		-20.94%	-20.44%	-20.22%	
15:00 - 16:00	-3.40%		-22.58%			-6.31%	-18.70%	+19.7%	-11.16%			+3.4%		-64.79%	+1.1%	-3.07%		-3.37%	-9.28%	-8.94%	
16:00 - 17:00	-1.87%		-2.21%			-0.92%	+0.6%	+12.6%	-3.22%			+2.1%		+2.6%	+1.6%	-9.94%		+11.6%	-4.72%	-6.67%	
17:00 - 18:00	-10.22%		-5.14%			-0.27%	-6.79%	-9.92%	-4.40%			-12.18%		-2.84%	-4.60%	-0.81%		-1.02%	-8.09%	-3.94%	
18:00 - 19:00	+0.8%		-9.13%			-2.62%	-14.29%	-9.16%	-7.49%			-2.23%		-5.20%	-0.07%	+1.4%		-15.36%	-8.92%	-17.73%	
19:00 - 20:00	-22.02%		-14.06%			-2.36%	-23.95%	-4.91%	-1.46%			-5.87%		-4.84%	+0.5%	+9.0%		+18.3%	-1.95%	-6.58%	
20:00 - 21:00	+21.2%		-21.86%			-14.71%	-28.76%	-8.51%	-8.64%			-6.58%		-10.30%	-10.42%	-8.62%		+9.9%	-9.47%	-14.83%	
21:00 - 22:00	-7.44%		-16.97%			-1.26%	-13.90%	-1.34%	-9.70%			-19.42%		-8.88%	+7.0%	-8.63%		-8.68%	-5.70%	-19.43%	
22:00 - 23:00	+9.5%		-16.49%			-4.13%	-41.04%	-6.75%	+5.4%			+0.1%		-1.63%	-2.49%	-30.20%		+20.3%	-11.71%	-3.99%	
23:00 - 24:00	+75.0%		-6.82%			-33.33%	-30.91%	-11.35%	-4.42%			-24.16%		-9.47%	-12.53%	-31.30%		+53.2%	-13.68%	-9.76%	
07:00 - 10:00	+5.1%		-6.11%			+3.0%	+6.3%	+17.1%	-3.16%			+1.4%		-5.80%	+1.9%	-1.30%		+7.6%	-0.92%	-3.54%	
10:00 - 16:00	+1.3%		-4.01%			+0.1%	-12.43%	+4.8%	-1.82%			+0.6%		-20.48%	+8.2%	+0.4%		+2.5%	-4.48%	-2.43%	
16:00 - 19:00	-5.05%		-5.45%			-1.17%	-5.70%	-1.95%	-4.92%			-4.21%		-1.88%	-1.13%	-3.42%		-1.54%	-7.22%	-8.92%	

Time Period	ATC 22	ATC 23	ATC 24	ATC 25	ATC 26	ATC 27	ATC 28	ATC 29	ATC 30	ATC 31	ATC 32	ATC 33	ATC 34	ATC 35	ATC 36	ATC 37	ATC 46	ATC 47	ATC 48	ATC 49	ATC 50	ATC 51	ATC 52	ATC 53	ATC 54	ATC 55	ATC 56	ATC 57	ATC 58	ATC 58
00:00 - 01:00	-23.08%	-20.50%			+0.0%	+100.0%	-3.03%	-33.33%	-8.47%	+100.0%	-25.00%	-14.62%	-15.88%	-11.89%		+33.3%	-6.22%	-20.00%	+45.9%	-35.04%	-49.09%	-25.95%	+100.0%	+20.0%	-17.12%	-55.56%	+33.3%	+45.5%	-38.46%	-3.33%
01:00 - 02:00	+42.9%	+9.5%			+60.0%		+83.5%	+9.1%	+108.6%	+71.4%	-47.83%	+55.8%	+57.0%	-5.06%			+42.1%	+16.1%	+44.4%	-4.35%	+17.6%	+53.2%	+0.0%	+38.7%	-29.03%	+4.3%	+31.3%	-20.00%	+0.0%	-11.76%
02:00 - 03:00	+52.0%	+89.5%			+0.0%		+23.1%		+35.1%	+135.3%	-20.00%	+10.3%	+53.2%	-11.76%			+64.7%	+9.1%	+30.0%	-9.43%	-31.03%	+31.0%	+100.0%	+2.9%	+4.0%	-48.39%	-25.00%	-55.56%	+33.3%	-19.51%
03:00 - 04:00	-13.92%	-15.07%			+166.7%		+8.3%	+166.7%	+7.8%	+60.0%	+53.8%	+11.6%	+1.2%	+17.1%		+300.0%	-1.89%	-9.09%	+8.0%	-40.74%	-2.04%	+13.5%	-11.11%	+31.3%	+1.4%	-63.64%	-30.77%	-52.94%	+300.0%	+25.7%
04:00 - 05:00	+30.0%	+35.7%	-55.56%		-23.08%	+100.0%	+28.8%	-42.86%	+59.5%	+22.7%	-15.38%	+30.3%	+28.3%	+2.4%		-20.00%	+31.6%	-10.71%	+18.0%	+10.5%	+4.5%	+20.0%	+38.5%	-3.13%	-21.31%	-11.11%	-26.42%	-60.00%	-36.00%	+9.9%
05:00 - 06:00	+16.8%	+12.0%	-44.83%		+29.0%	-42.86%	-2.02%	+42.6%	+0.2%	+29.4%	+21.2%	-1.57%	-0.71%	+16.0%	+500.0%	-38.46%	+0.6%	+31.1%	+17.4%	+17.0%	-1.37%	+8.6%	+8.2%	+17.3%	-2.58%	+17.4%	-1.60%	+29.9%	+63.6%	+5.3%
06:00 - 07:00	-7.58%	-8.37%	-8.33%	-46.67%	+7.9%	-40.74%	+2.9%	+1.4%	+2.6%	+16.5%	-12.34%	+6.7%	+1.3%	+0.4%	-9.09%	-60.00%	-5.81%	-2.44%	+0.3%	-7.59%	+11.1%	-2.97%	-4.13%	-3.80%	-0.97%	-5.49%	-2.56%	-13.43%	+10.0%	-4.47%
07:00 - 08:00	-18.43%	-17.86%	-1.54%	-5.88%	-22.71%	-27.27%	+2.3%	-2.01%	+2.1%	-7.99%	-7.96%	-1.13%	+2.5%	-8.17%	-14.05%	+16.7%	+7.2%	-5.85%	-4.49%	+4.3%	+4.0%	-2.00%	+4.8%	+2.2%	+4.6%	+0.3%	-16.08%	-6.03%	-16.46%	-9.62%
08:00 - 09:00	-8.78%	-6.75%	+33.3%	-25.93%	-4.30%	-18.01%	+3.7%	-5.41%	+0.5%	+9.4%	+4.6%	+6.5%	+0.9%	-1.75%	-1.59%	+3.4%	-7.24%	-8.14%	+3.1%	+7.2%	+2.4%	-4.03%	+10.0%	-0.94%	+0.6%	+3.3%	-2.61%	-0.41%	-5.00%	+3.9%
09:00 - 10:00	-5.87%	-9.12%	+9.1%	-45.10%	-2.89%	-19.19%	-1.03%	-7.95%	-2.45%	+8.1%	+6.6%	-1.86%	-0.91%	-5.20%	-7.25%	-35.48%	-3.81%	-5.71%	+1.3%	+0.1%	+3.2%	-5.54%	+21.8%	+2.8%	-9.33%	+2.0%	+4.9%	-4.97%	-9.33%	-3.87%
10:00 - 11:00	-8.06%	-9.49%	-6.38%	+21.2%	-11.41%	-34.69%	+1.0%	+4.5%	+4.0%	+7.2%	-6.68%	-0.15%	+1.2%	+3.8%	-20.00%	-10.68%	-2.10%	+5.6%	+0.2%	+1.7%	+1.8%	-2.51%	+10.5%	-1.61%	+3.7%	+7.9%	-7.74%	-5.47%	-6.42%	+5.5%
11:00 - 12:00	-13.45%	-14.80%	-32.58%	-75.76%	+32.0%	+5.5%	+8.1%	-20.83%	+3.4%	-1.39%	-9.03%	+7.8%	+3.5%	-0.71%	+46.8%	-64.91%	+6.5%	-5.56%	+7.1%	+3.9%	+1.2%	-0.83%	+7.6%	+7.5%	+4.1%	+0.6%	-6.82%	+10.4%	+16.8%	+2.6%
12:00 - 13:00	-9.92%	-14.08%	-19.23%	-34.88%	+2.0%	-36.84%	+12.1%	-5.97%	+10.3%	+17.0%	-9.17%	+15.2%	+10.2%	+6.7%	+13.6%	-52.54%	+7.1%	-1.69%	-3.64%	+8.2%	+14.0%	+5.8%	+1.8%	+1.1%	+3.1%	-6.10%	+7.2%	+9.7%	+5.6%	+11.9%
13:00 - 14:00	-1.53%	-8.34%	-26.61%	-13.04%	-3.69%	-7.37%	+12.3%	+23.8%	+2.2%	+26.1%	-8.08%	+12.8%	+1.1%	+12.2%	+47.1%	-44.19%	+1.0%	+4.2%	+10.5%	+18.2%	+7.8%	+4.3%	+4.6%	+2.1%	+9.6%	-3.05%	+8.2%	+3.1%	-8.16%	+14.4%
14:00 - 15:00	-28.28%	-29.55%	+2.2%	-62.79%	-30.97%	-31.43%	-18.01%	-20.26%	-15.45%	-11.11%	-4.00%	-19.25%	-15.79%	-18.81%	-17.07%	+21.2%	-13.93%	-20.39%	-0.18%	-9.49%	-22.07%	-6.32%	-15.43%	-10.54%	-5.58%	+5.6%	-11.51%	-19.97%	-29.09%	-14.88%
15:00 - 16:00	-30.19%	-34.44%	+48.3%	-8.33%	+3.3%	-35.00%	-5.25%	-11.40%	-6.36%	+4.6%	-5.12%	-5.47%	-4.35%	-3.82%	-6.25%	-26.05%	-5.72%	-4.16%	+0.8%	-12.29%	-16.46%	-13.13%	-8.14%	-16.56%	-5.03%	+1.4%	+2.2%	-19.85%	+18.1%	-9.88%
16:00 - 17:00	-23.78%	-28.08%	-17.33%	+20.0%	+1.9%	-33.33%	-2.12%	-6.02%	-8.82%	+0.6%	-17.66%	-5.22%	-9.99%	-8.38%	-7.69%	-16.13%	-9.90%	-5.61%	-3.88%	+1.0%	-2.94%	-5.41%	-0.49%	-8.03%	-8.32%	+3.9%	-16.28%	-15.32%	+5.8%	-15.88%
17:00 - 18:00	-14.98%	-21.07%	+15.9%	-11.76%	-24.46%	-27.04%	+2.0%	-1.09%	-4.73%	+4.5%	-10.75%	-4.90%	-3.95%	-4.88%	+5.9%	+16.7%	-5.16%	+0.2%	-5.16%	-12.41%	-9.25%	-5.93%	+4.1%	-5.18%	-7.69%	+2.3%	-4.06%	-24.25%	-28.99%	-4.07%
18:00 - 19:00	-1.65%	-4.77%	-5.56%	-30.43%	-8.44%	-35.21%	+10.2%	-5.42%	-4.36%	+74.4%	+6.8%	-0.37%	-6.72%	-16.36%	+1.1%	-23.08%	-6.02%	-16.73%	-2.36%	-6.48%	-8.53%	-8.86%	+3.8%	-10.00%	-11.95%	+2.4%	+1.8%	-29.52%	-13.12%	-7.89%
19:00 - 20:00	+16.7%	+29.0%	+123.3%	+6.7%	-5.88%	+25.7%	+29.6%	+14.3%	-7.06%	+315.0%	-10.93%	+11.2%	-9.88%	-10.80%	+6.7%	+31.3%	-14.30%	-2.92%	-11.95%	-6.85%	+4.2%	-17.98%	+1.0%	-11.03%	-9.84%	-9.77%	-4.45%	-23.46%	-17.05%	-10.39%
20:00 - 21:00	-11.29%	-12.39%	-5.88%	+14.3%	-31.33%	-52.54%	+7.9%	-7.14%	-14.18%	+184.0%	-3.26%	-9.91%	-18.37%	-10.96%	-44.19%	-30.77%	-18.79%	-20.81%	-7.97%	-9.27%	-24.27%	-23.37%	-2.24%	-21.83%	-20.37%	+0.7%	+1.8%	-20.11%	-33.05%	-3.36%
21:00 - 22:00	-29.36%	-16.25%	+47.4%	-11.11%	-47.37%	-17.65%	+16.6%	-4.86%	+2.6%	+222.9%	-6.93%	-1.76%	-0.27%	-16.12%	+12.5%	-6.67%	-7.92%	-22.90%	-14.38%	-11.94%	-25.88%	-8.39%	-24.72%	-0.64%	+3.6%	-14.82%	-18.79%	-28.36%	-40.66%	-19.13%
22:00 - 23:00	-9.47%	-14.55%	+14.3%		-49.55%	+41.2%	+11.8%	-10.08%	-7.41%	+126.8%	-33.33%	-2.71%	-7.08%	-2.44%	-15.79%	-45.45%	-10.09%	-4.03%	-8.57%	-5.96%	+8.0%	-25.65%	+7.5%	-10.89%	-16.91%	-13.98%	-29.73%	-46.12%	-49.55%	-14.08%
23:00 - 24:00	-9.77%	+10.7%	+1500%		-53.49%	-33.33%	+9.3%	-9.68%	+0.0%	+198.0%	+2.0%	+1.6%	-9.27%	-7.14%			-2.84%	-10.45%	+19.6%	-6.81%	-11.11%	-3.26%	-52.69%	-23.57%	-35.58%	-38.64%	+21.4%	-7.69%	-56.52%	-4.92%
07:00 - 10:00	-11.56%	-11.48%			-8.99%		+1.8%		+0.1%	+3.6%	+1.4%	+1.3%	+0.9%	-5.06%			-1.47%	-6.72%	+0.3%	+4.4%	+3.1%	-3.86%	+12.3%	+1.2%	-0.84%	+2.2%	-4.85%	-3.43%	-9.65%	-3.75%
10:00 - 16:00	-15.33%	-18.54%	-6.78%	-28.46%	-2.21%	-25.19%	+1.2%	-6.19%	-0.77%	+6.4%	-6.77%	+1.2%	-1.03%	-0.49%	+9.8%	-31.38%	-1.48%	-4.15%	+2.4%	+0.9%	-3.85%	-2.41%	-0.66%	-3.50%	+1.3%	+1.0%	-1.19%	-4.13%	-1.14%	+1.3%
16:00 - 19:00	-15.70%	-20.69%	-3.95%		-11.20%	-31.71%	+2.7%	-3.92%	-6.14%	+12.2%	-10.37%	-3.63%	-6.91%	-9.29%	+0.0%	-2.70%	-7.11%	-6.67%	-3.96%	-5.99%	-6.76%	-6.52%	+2.4%	-7.52%	-9.01%	+2.9%	-8.20%	-23.03%	-13.09%	-9.49%

June 23rd 2016 - EU Referendum Vote Day

June 23rd Flow Difference From Survey Period Average (excluding June 16th and June 23rd)

Time Period	ATC 1	ATC 2	ATC 3	ATC 4	ATC 5	ATC 6	ATC 7	ATC 8	ATC 9	ATC 10	ATC 11	ATC 12	ATC 13	ATC 14	ATC 15	ATC 16	ATC 17	ATC 18	ATC 19	ATC 20	ATC 21
00:00 - 01:00	-66.67%			-21.34%	-16.88%	+13.3%	+29.4%	-15.49%	+25.2%		+0.9%	-17.58%		-0.27%	+28.6%	-18.28%		-15.79%	+0.3%	+15.1%	
01:00 - 02:00	+100.0%			+12.5%	+22.4%	+56.7%	-16.67%	-13.04%	+33.3%		-8.77%	-42.31%		+7.1%	-15.79%	-47.37%		+24.1%	+38.1%	+20.7%	
02:00 - 03:00	+33.3%			+46.9%	+6.7%	+30.1%	-36.84%	-2.44%	-3.61%		+25.0%	+11.8%		-2.07%	-18.37%	-35.14%		-28.57%	+2.7%	+7.7%	
03:00 - 04:00	+23.1%			-3.31%	+11.4%	-16.83%	+60.0%	-37.50%	+5.5%		-38.98%	+9.7%		+16.7%	+10.6%	+3.7%		-20.00%	+5.9%	-1.72%	
04:00 - 05:00	+23.1%			+16.7%	+1.6%	+19.6%	+9.1%	+14.3%	+7.4%		+0.0%	-7.32%		+3.4%	-33.33%	-48.72%		+20.0%	+0.0%	-14.66%	
05:00 - 06:00	-16.48%			+0.3%	+15.3%	-2.79%	+14.0%	+2.9%	+14.1%		+9.6%	-5.70%		+4.0%	+3.3%	+6.7%		+47.6%	+3.9%	+7.1%	
06:00 - 07:00	+15.3%			-0.75%	+17.5%	-0.25%	+3.0%	+2.6%	-4.71%		+2.2%	+0.0%		-1.71%	-2.18%	-1.58%		-0.80%	-2.85%	-5.61%	
07:00 - 08:00	+13.8%			+5.1%	+33.8%	+4.4%	+1.8%	+1.2%	+0.5%		+2.8%	+4.9%		+1.6%	+0.7%	+1.0%		+0.0%	+0.1%	+1.5%	
08:00 - 09:00	-1.94%			+3.5%	+52.7%	+3.9%	+2.3%	+0.0%	-1.27%		+7.2%	+3.3%		-3.86%	+1.5%	-0.34%		-4.51%	-2.14%	+0.6%	
09:00 - 10:00	-6.16%			-3.48%	+29.8%	+1.8%	-5.07%	-0.12%	-4.98%		-2.44%	-5.60%		-5.81%	+4.9%	-3.18%		-8.61%	+2.0%	+2.2%	
10:00 - 11:00	+7.7%			+1.1%	+34.9%	-5.87%	+7.1%	-2.45%	-5.50%		+2.6%	-1.31%		-2.66%	-5.32%	+1.7%		+17.1%	+2.1%	-5.09%	
11:00 - 12:00	+6.4%			-7.87%	+24.2%	-2.00%	-6.64%	+13.0%	+1.0%		-10.84%	-7.91%		+5.7%	-0.04%	+1.3%		-10.32%	-1.62%	+2.0%	
12:00 - 13:00	+11.6%			+10.0%	+19.8%	+10.6%	-5.01%	+7.2%	-11.76%		-12.82%	+1.0%		+6.0%	-0.30%	-0.27%		+1.8%	-2.67%	-1.02%	
13:00 - 14:00	-1.48%			+15.9%	+26.9%	+8.3%	-10.44%	+11.6%	-10.32%		-17.10%	-3.49%		+6.3%	+2.6%	-6.18%		-11.33%	-3.84%	+1.3%	
14:00 - 15:00	-5.62%			+11.5%	+32.4%	-0.06%	-10.02%	-1.24%	-2.84%		-10.88%	-6.53%		+6.0%	+5.1%	-5.63%		+14.6%	+0.1%	-1.29%	
15:00 - 16:00	-5.91%			+4.0%	+51.2%	-3.20%	-17.13%	-6.84%	-6.34%		+4.4%	-3.99%		+4.5%	-2.66%	-1.97%		-2.92%	-0.51%	+2.1%	
16:00 - 17:00	+0.6%			-0.31%	+41.6%	-3.30%	+0.0%	+5.5%	-0.50%		+6.9%	-1.41%		+3.3%	+2.3%	+0.1%		+6.3%	-2.15%	+2.2%	
17:00 - 18:00	+0.3%			+5.7%	+31.3%	+0.6%	-6.37%	-3.68%	-1.88%		-7.87%	-3.55%		-1.67%	+4.8%	+9.4%		+0.5%	-3.19%	+0.9%	
18:00 - 19:00	-1.64%			-4.53%	+20.0%	+3.9%	+1.7%	-11.33%	+7.6%		-13.66%	-7.69%		-1.94%	+4.8%	+10.1%		+13.7%	+1.2%	-3.58%	
19:00 - 20:00	+6.9%			-5.35%	+2.0%	+4.2%	-14.83%	-9.61%	+0.4%		-9.41%	-17.07%		-5.07%	+2.7%	+7.9%		-5.47%	-0.59%	-5.13%	
20:00 - 21:00	+21.2%			+19.8%	+30.1%	-6.37%	-1.29%	+27.6%	+2.6%		+2.8%	+0.5%		-1.75%	-1.49%	+10.0%		+16.0%	+0.2%	+2.5%	
21:00 - 22:00	-7.44%			+10.0%	+17.6%	-0.54%	-32.43%	-4.56%	-3.18%		+11.5%	+3.0%		+1.0%	+6.7%	+9.8%		+21.1%	+10.5%	+0.5%	
22:00 - 23:00	+71.4%			+9.4%	+9.6%	-6.26%	-23.51%	-3.27%	-2.21%		+11.5%	+1.2%		-3.48%	-0.12%	-9.02%		+42.9%	-1.06%	+17.2%	
23:00 - 24:00	+125.0%			-1.39%	+25.0%	+2.1%	-41.82%	+16.8%	-15.04%		+4.5%	+26.8%		-12.87%	-11.47%	-17.56%		+6.4%	+12.4%	+10.6%	
07:00 - 10:00	+1.8%			+1.7%	+39.6%	+3.4%	-0.21%	+0.3%	-2.00%		+2.7%	+0.8%		-2.90%	+2.4%	-0.91%		-4.44%	+0.0%	+1.4%	
10:00 - 16:00	+1.1%			+5.6%	+31.3%	+1.2%	-7.80%	+3.3%	-6.05%		-7.23%	-3.80%		+4.3%	-0.16%	-1.99%		+0.9%	-1.10%	-0.29%	
16:00 - 19:00	+0.0%			+0.5%	+31.6%	+0.1%	-2.02%	-2.86%	+1.4%		-4.43%	-3.94%		-0.16%	+3.9%	+6.3%		+6.7%	-1.47%	+0.1%	

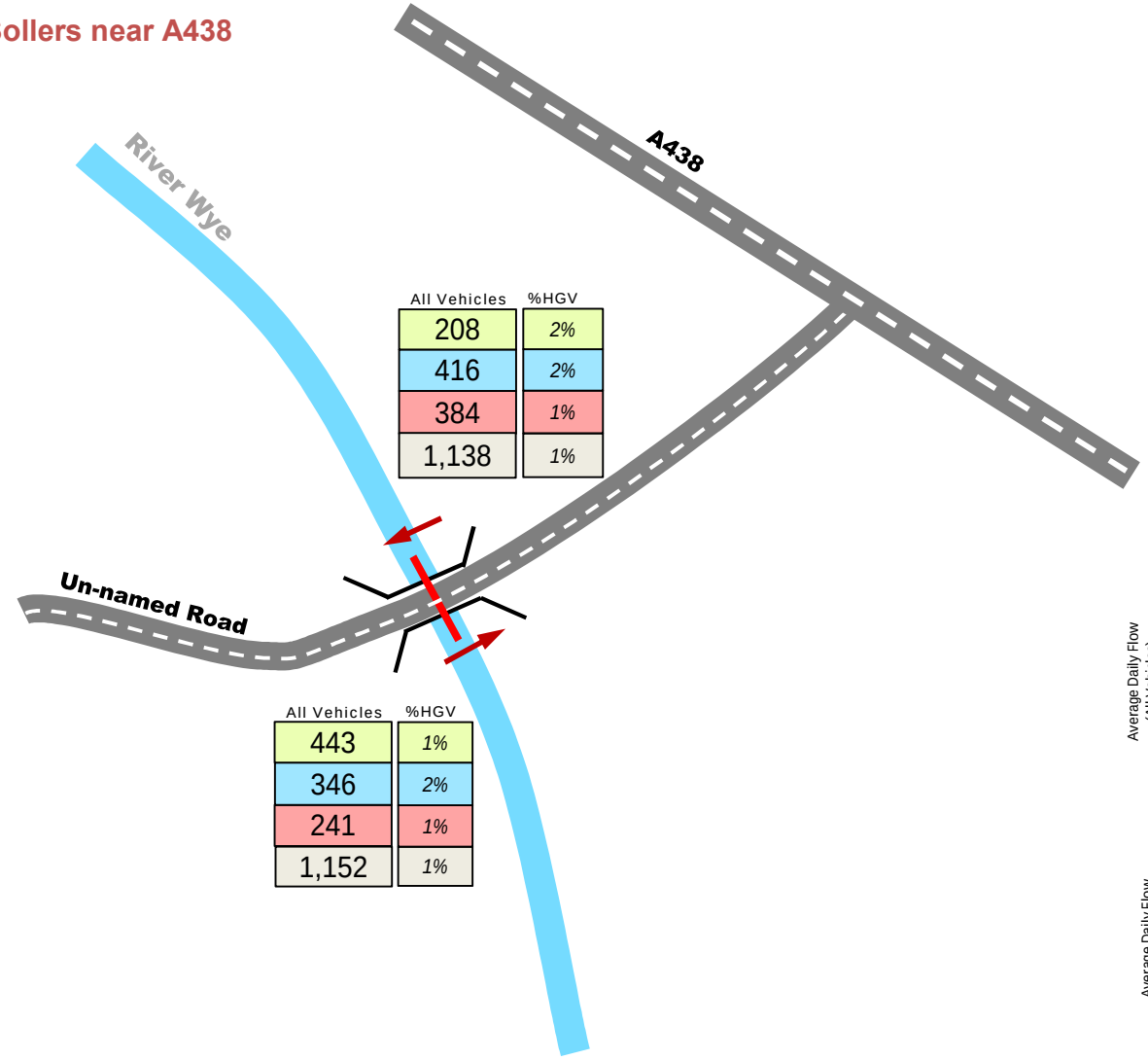
Time Period	ATC 22	ATC 23	ATC 24	ATC 25	ATC 26	ATC 27	ATC 28	ATC 29	ATC 30	ATC 31	ATC 32	ATC 33	ATC 34	ATC 35	ATC 36	ATC 37	ATC 46	ATC 47	ATC 48	ATC 49	ATC 50	ATC 51	ATC 52	ATC 53	ATC 54	ATC 55	ATC 56	ATC 57	ATC 58	ATC 58
00:00 - 01:00	+14.3%	+31.7%			-57.14%		-8.23%	-66.67%	-3.39%	+0.0%	+0.0%		-5.58%	+11.2%		+33.3%	-6.22%	+20.0%	+78.4%	-17.95%	+1.8%	-10.76%	-45.45%	+10.0%	-35.14%	-49.21%		-87.88%	-53.85%	+10.0%
01:00 - 02:00	+4.8%	-15.79%			+60.0%		+23.3%	+190.9%	+25.7%	+71.4%	-47.83%		+24.4%	+6.3%			+52.1%	+6.5%	+88.9%	+13.0%	-41.18%	-20.21%	+0.0%	+70.7%	-41.94%	+4.3%		+60.0%	+0.0%	+11.8%
02:00 - 03:00	+44.0%	+57.9%					+0.7%	-11.11%	+12.2%	-5.88%	+20.0%		+19.1%	+14.7%			+17.6%	+0.0%	+20.0%	-39.62%	-3.45%	+56.3%	+100.0%	+8.6%	-12.00%	-22.58%		+77.8%	-100.00%	-4.88%
03:00 - 04:00	-34.18%	-26.03%	+300.0%		+33.3%		+22.2%	-33.33%	+35.9%	+76.0%	-38.46%		+29.4%	-2.86%			+33.3%	-18.18%	+38.0%	-48.15%	-42.86%	-27.03%	-11.11%	-4.17%	+12.7%	+27.3%		-29.41%	+166.7%	+21.6%
04:00 - 05:00	+15.0%	-2.61%	+33.3%		-53.85%		+3.4%	-34.69%	+17.9%	+36.4%	+15.4%		+9.2%	-14.90%			+5.0%	+21.4%	-18.85%	+31.6%	-9.91%	+20.0%	+100.0%	+2.1%	-40.98%	-20.00%		+20.0%	-36.00%	-40.46%
05:00 - 06:00	-3.02%	-2.90%	-31.03%		+29.0%	+71.4%	+2.8%	-12.87%	+1.1%	-6.38%	-9.09%		-0.71%	+8.6%	+100.0%	-69.23%	+0.6%	+12.2%	-13.91%	+38.4%	+9.6%	+1.4%	-1.18%	+4.0%	-5.54%	-4.59%		-11.69%	+45.5%	+9.6%
06:00 - 07:00	-6.15%	-3.62%	+41.7%	+33.3%	-14.29%	+3.7%	+1.1%	-13.04%	-3.75%	-2.14%	-9.39%		-7.50%	-5.97%	-9.09%	-20.00%	-5.81%	-2.93%	-4.94%	-2.07%	+1.5%	-5.62%	+5.8%	-7.34%	-5.73%	-8.02%		-5.97%	-6.67%	-9.75%
07:00 - 08:00	-10.06%	-8.92%	+32.3%	-13.73%	-4.35%	-27.27%	+9.2%	+5.2%	+9.8%	+9.1%	+2.4%		+7.1%	+3.4%	+2.5%	-11.11%	+5.0%	-3.23%	-4.29%	+1.5%	-5.47%	-2.00%	-1.92%	+1.9%	+2.2%	+1.1%		+6.8%	-3.69%	+1.1%
08:00 - 09:00	-8.47%	-6.75%	+2.3%	+23.5%	-2.06%	-20.50%	+1.4%	-5.16%	-1.12%	+2.4%	+1.8%		-1.46%	-0.49%	-7.94%	-29.31%	-1.50%	-1.39%	+7.7%	+0.5%	-3.26%	-1.26%	-1.22%	+3.6%	+12.0%	+8.6%		+2.2%	-0.71%	+6.8%
09:00 - 10:00	-4.75%	-6.89%	+9.1%	+17.6%	+1.0%	+9.1%	+2.5%	-10.80%	-1.69%	+14.3%	+0.2%		-1.86%	-1.66%	+15.9%	+12.9%	-1.25%	-5.04%	-4.86%	-4.50%	+2.4%	+1.0%	+1.1%	-7.64%	-8.49%	-2.61%		+7.6%	-1.71%	-0.28%
10:00 - 11:00	-2.05%	+0.4%	-10.64%	+33.3%	-3.36%	-14.29%	+2.4%	+1.2%		+12.6%	+10.3%		-6.11%	-0.23%	-1.18%	+8.7%	-3.78%	+13.2%	-3.41%	+4.3%	+7.6%	+0.8%	-7.51%	-4.73%	-8.70%	+5.6%		+6.5%	+1.8%	-3.20%
11:00 - 12:00	-0.90%	-2.83%	-50.56%	-39.39%	-7.00%	-38.46%	+1.4%	-10.50%		-4.65%	-5.09%		-3.21%	+1.6%	-8.86%	-36.84%	-2.25%	-7.71%	-1.70%	+4.2%	+7.0%	-6.84%	+8.0%	+1.1%	-0.90%	+1.4%		-1.06%	-8.01%	+12.9%
12:00 - 13:00	-1.91%	-4.67%	-38.46%	+39.5%	+4.9%	-47.37%	+9.4%	-8.14%		+25.7%	-6.30%			+1.2%	+8.6%	-15.25%	-0.51%	+2.9%	-3.26%	+1.0%	+11.7%	-3.61%	+1.0%	+2.3%	-2.15%	-10.73%		+2.2%	+6.7%	+2.8%
13:00 - 14:00	-8.00%	-13.90%	-4.59%	-56.52%	-21.38%	-11.58%	+2.1%	+25.3%		+22.8%	-2.51%			-0.85%	+5.9%	-19.38%	+0.6%	-6.68%	-3.91%	-9.28%	-2.78%	-9.01%	-10.11%	-7.38%	-3.41%	-1.83%		+8.5%	-29.59%	+4.4%
14:00 - 15:00	-12.36%	-14.69%	-24.44%	-44.19%	-16.81%	+29.5%	+13.4%	+9.7%		+3.7%	+1.9%			-1.54%	+2.4%	-7.07%	+3.9%	-9.01%	-2.35%	-8.22%	-11.00%	+6.9%	-11.24%	-4.78%	+1.1%	+5.8%		-8.66%	-17.27%	+6.6%
15:00 - 16:00	-12.00%	-10.00%	+39.3%	+0.0%	-0.47%	-10.00%	+5.1%	-2.59%		+19.6%	-7.87%			+5.7%	+25.0%	+41.2%	-1.87%	+0.8%	-1.85%	-0.88%	+1.2%	+6.2%	-14.59%	-2.24%	-3.77%	-2.32%		+5.9%	+2.2%	+4.2%
16:00 - 17:00	-1.41%	-5.86%	+12.0%	+86.7%	-7.49%	-6.67%	+10.1%	+6.4%		+25.5%	-2.18%			-1.40%	-3.30%	+22.6%	+1.0%	-1.05%	+0.7%	-5.72%	-9.41%	+1.0%	-6.02%	-6.32%	+4.6%	+0.2%		+13.6%	-1.94%	-4.60%
17:00 - 18:00	-3.37%	-9.77%	+4.7%	+0.0%	+7.2%	-4.40%	+6.9%	+9.1%		+10.2%	+4.2%			+0.5%	-25.49%	+42.9%	+7.6%	-1.80%	-2.79%	-4.29%	-5.28%	+2.0%	-6.47%	-0.68%	+2.4%	+5.3%		+6.0%	+8.0%	+6.8%
18:00 - 19:00	+0.6%	-2.24%	-27.78%	-13.04%	+5.8%	-4.23%	+6.3%	-3.61%		+7.2%	-4.31%			+3.4%	-11.58%	-23.08%	+4.0%	+4.5%	-0.30%	-8.99%	+3.2%	-9.73%	-2.63%	-0.45%	-0.37%	+3.2%		-15.87%	+8.6%	+12.4%
19:00 - 20:00	+7.6%	+7.5%	-25.58%	+6.7%	+12.0%	-12.38%	-3.64%	-15.34%		+17.6%	-1.33%			-3.50%	+0.0%	+25.0%	-2.00%	+4.7%	+1.5%	-0.89%	+5.1%	+0.4%	+6.7%	-5.47%	-3.81%	+0.1%		+1.7%	+11.4%	+8.0%
20:00 - 21:00	+4.4%	-1.81%	+41.2%	+42.9%	+18.5%	-8.47%	+2.8%	+14.3%		+9.2%	+5.2%			+14.5%	+20.9%	+15.4%	+1.3%	+17.0%	-1.73%	+6.6%	+16.6%	+15.6%	-8.96%	+1.6%	+4.0%	+17.3%		+39.4%	+16.7%	+6.7%
21:00 - 22:00	-8.83%	+0.0%	-57.89%	-11.11%	+7.4%	+23.5%	+17.6%	+21.1%		+14.3%	-0.28%			+4.7%	+50.0%	-20.00%	+20.8%	+1.8%	-10.00%	+10.5%	-20.77%	+1.8%	-15.73%	+7.1%	+2.4%	+0.2%		+14.2%	+7.7%	+10.1%
22:00 - 23:00	-3.86%	-2.76%	-42.86%	-27.27%	-2.70%	-64.71%	+21.4%	-19.38%		-21.26%	-21.99%			+25.2%	+47.4%	-45.45%	+17.6%	+13.7%	+7.6%	-0.51%	-7.42%	-1.05%	+29.4%	-1.61%	-10.29%	-13.98%		-5.34%	-13.51%	+12.1%
23:00 - 24:00	-27.82%	-35.71%	+300.0%	+166.7%	+39.5%	-33.33%	-4.63%	-29.03%		-37.25%	-41.18%			+13.4%	-20.00%	+33.3%	-3.88%	+56.7%	+2.8%	+1.8%	-47.22%	-13.04%	+11.8%	-5.00%	-23.60%	-11.36%		+6.2%	+65.2%	-11.48%
07:00 - 10:00	-8.05%	-7.59%					+4.4%	-3.37%	+2.3%	+7.4%	+1.6%		+1.2%	+0.5%			+0.7%	-3.01%	+0.1%	-0.52%	-2.36%	-0.79%	-0.69%	-0.22%	+3.4%	+3.7%		+5.2%	-1.88%	+2.4%
10:00 - 16:00	-6.44%	-8.06%	-15.13%	-12.20%	-7.41%	-14.93%	+5.7%	+2.1%		+13.3%	-2.21%			+1.1%	+4.6%	-4.99%	-0.62%	-1.29%	-2.73%	-1.71%	+1.5%	-0.68%	-6.30%	-2.70%	-2.96%	-0.56%		+2.3%	-7.35%	+4.6%
16:00 - 19:00	-1.71%	-6.60%	+0.9%	+26.4%	+2.1%	-5.10%	+7.9%	+5.1%		+16.5%	+0.0%			+0.6%	-13.89%	+22.2%	+4.2%	+0.3%	-0.87%	-6.13%	-4.62%	-1.49%	-5.22%	-2.69%	+2.5%	+2.8%		+1.5%	+5.0%	+4.0%

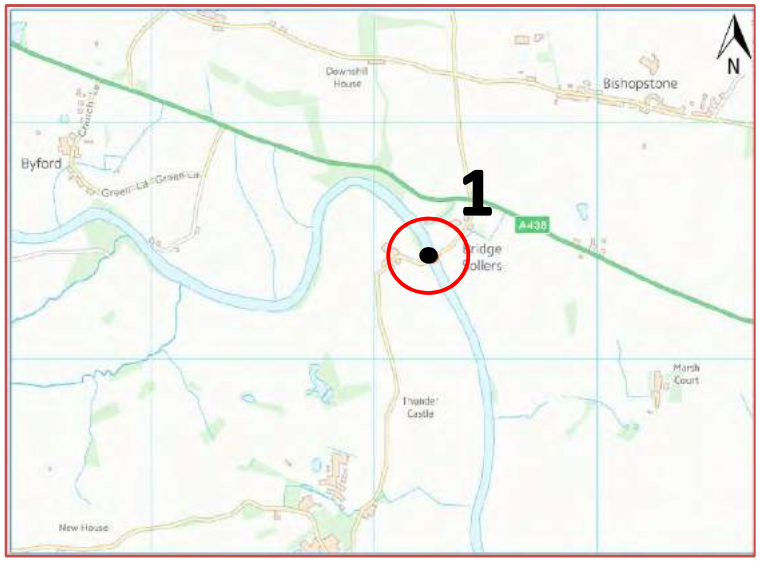
APPENDIX A-4

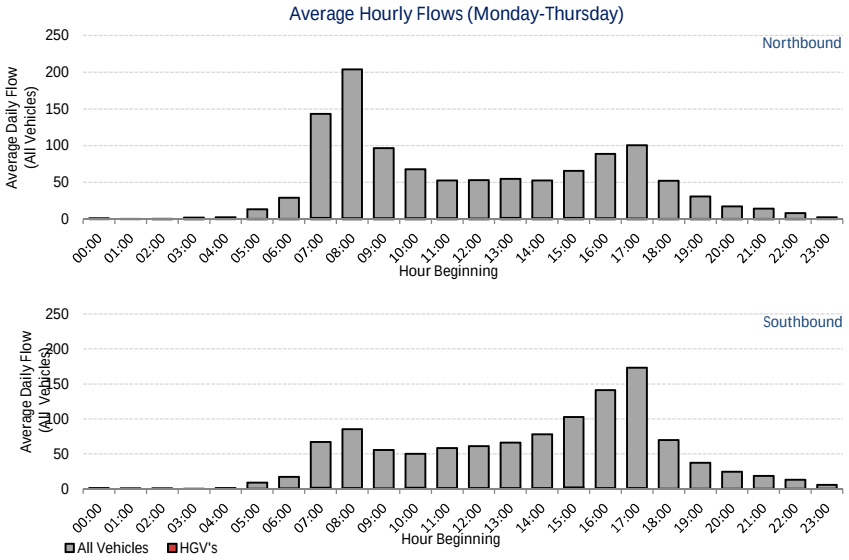
ATC – DETAILED SUMMARY OF ATC SITE DATA

ATC SITE 1

Bridge Sollers near A438







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-2

• FIGURE TITLE

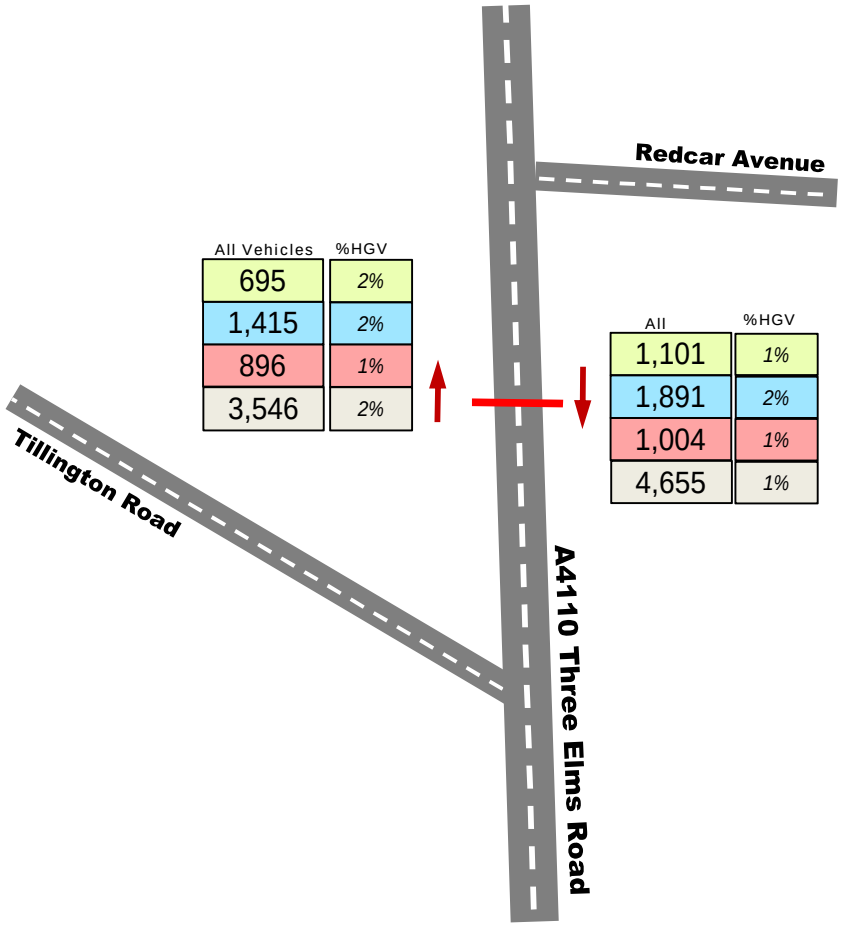
ATC SITE 1 Summary

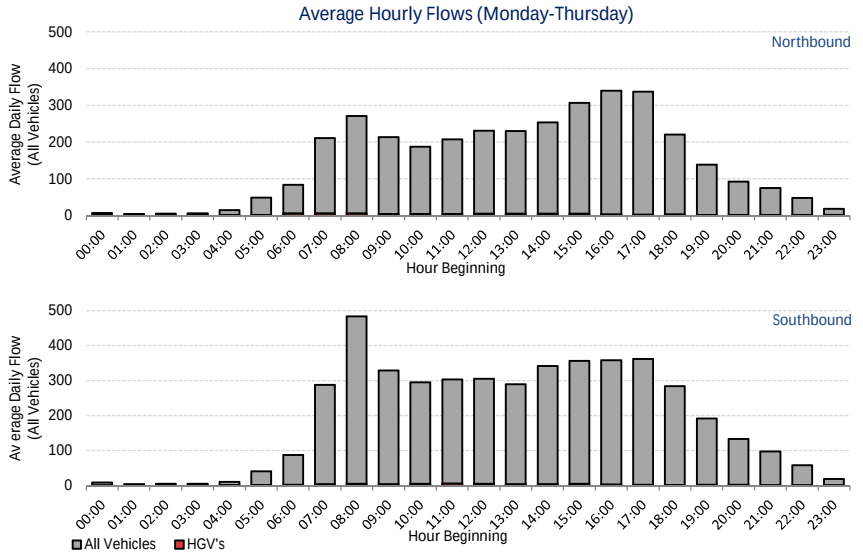
WSP | PARSONS BRINCKERHOFF

• DATE	18/11/2016
• SCALE	NTS
DRAWN BY	GS
CHECKED	DL
APPROVED	MH

ATC SITE 2

A4110 Three Elms Road





REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-3

• FIGURE TITLE

ATC SITE 2 Summary

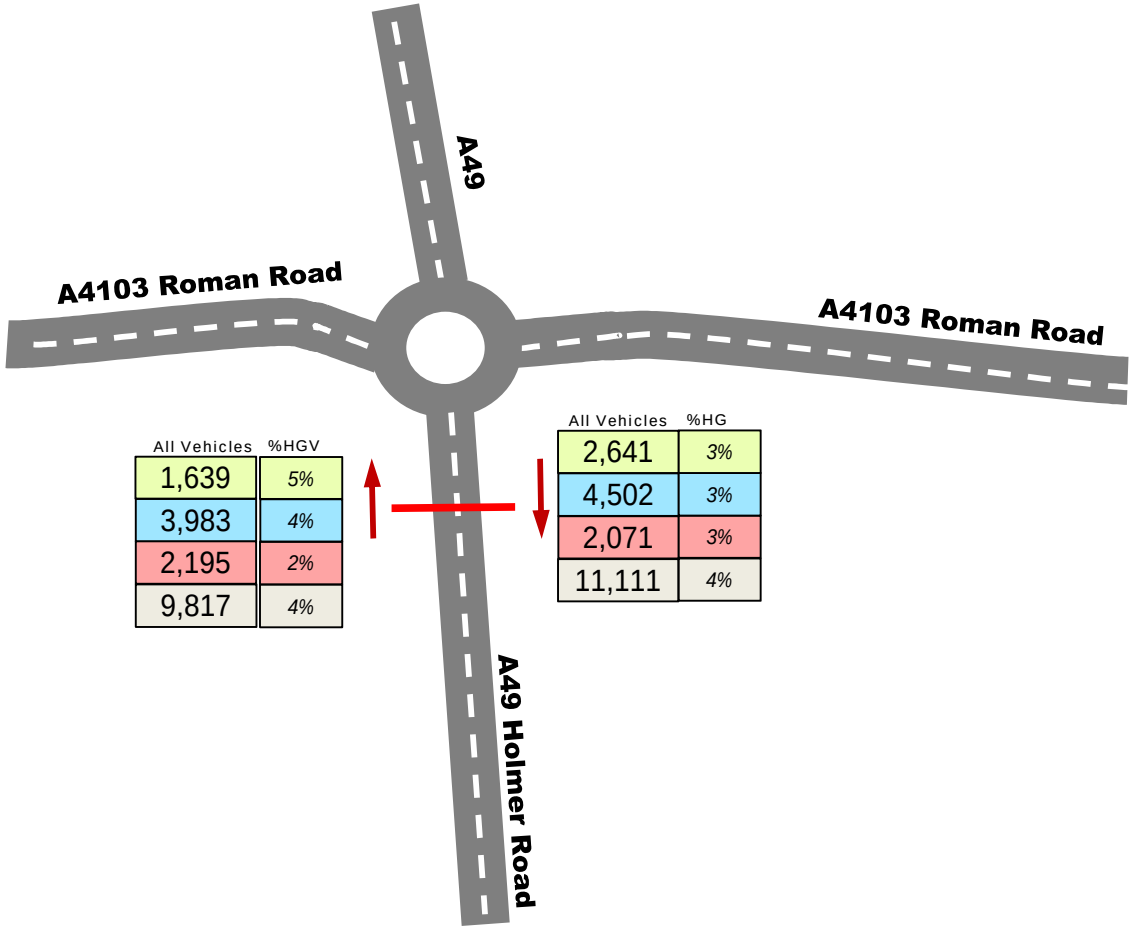
WSP | PARSONS BRINCKERHOFF

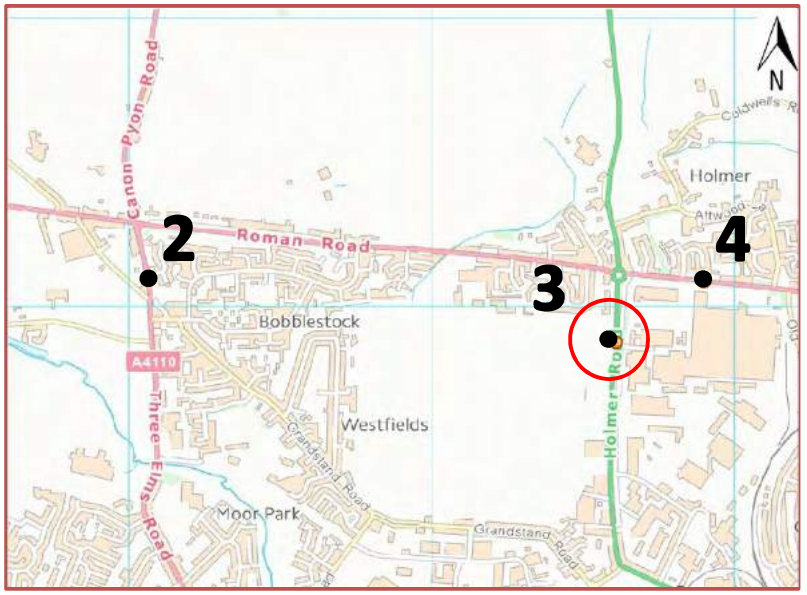
• DATE	18/11/2016
• SCALE	NTS

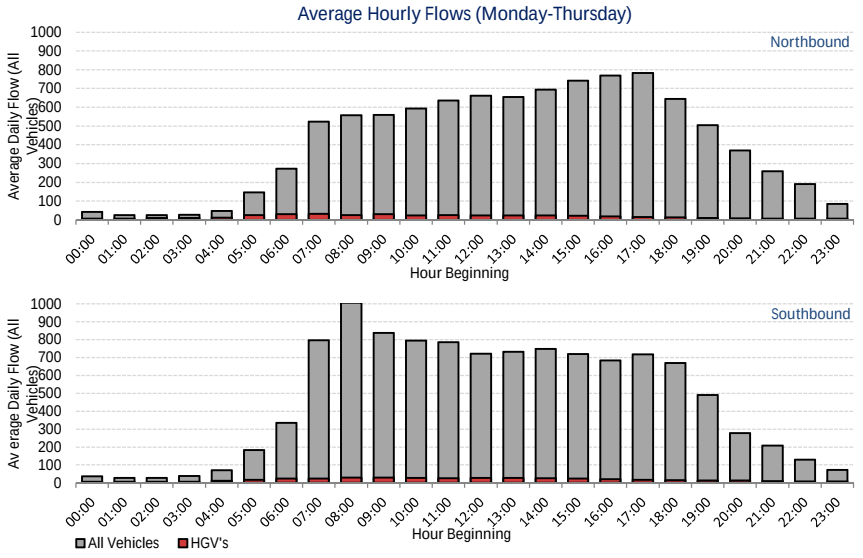
DRAWN BY	GS
CHECKED	DL
APPROVED	MH

ATC SITE 3

A49 Holmer Road







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-4

• FIGURE TITLE

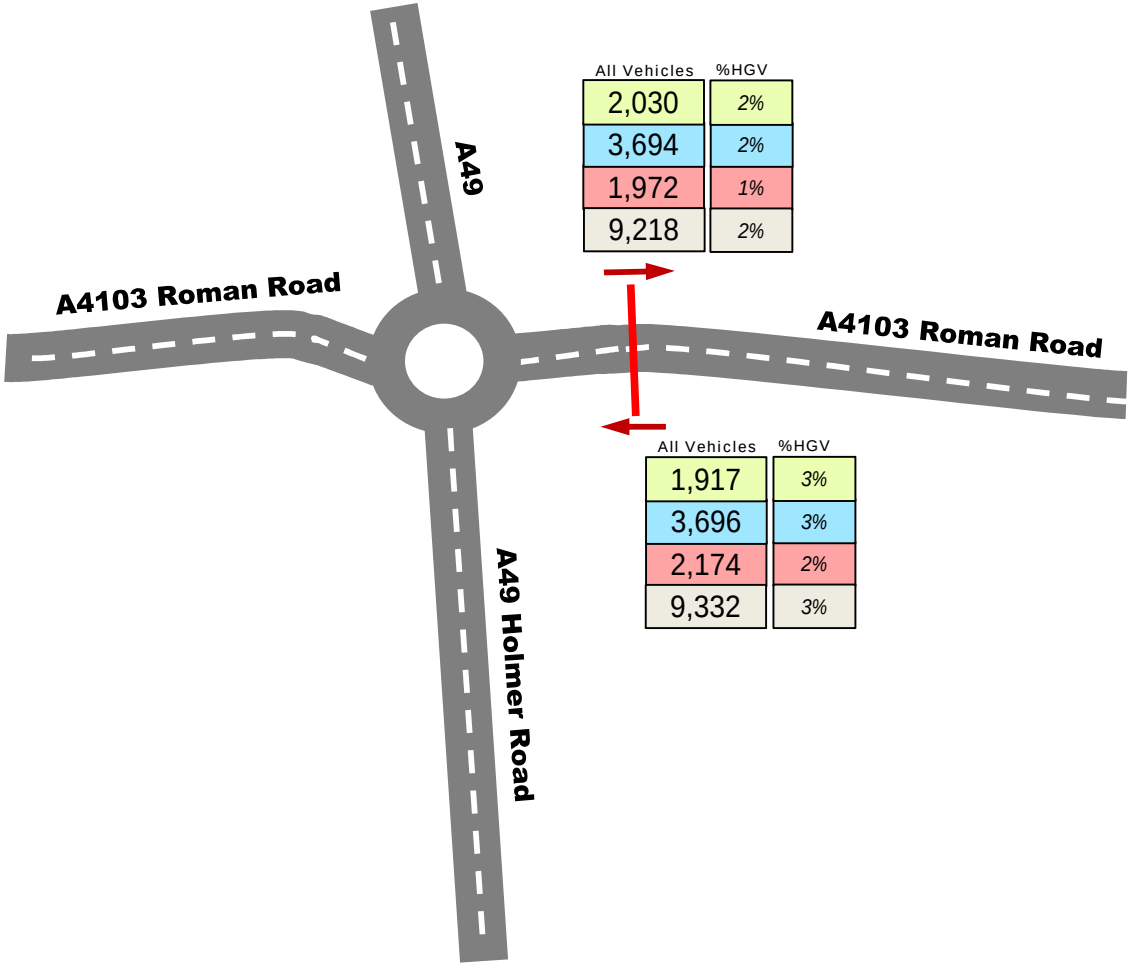
ATC SITE 3 Summary

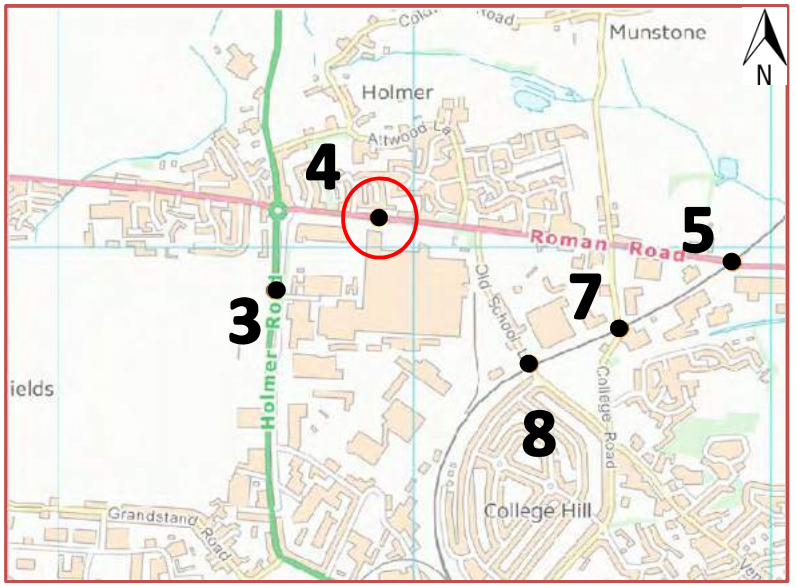
WSP | PARSONS BRINCKERHOFF

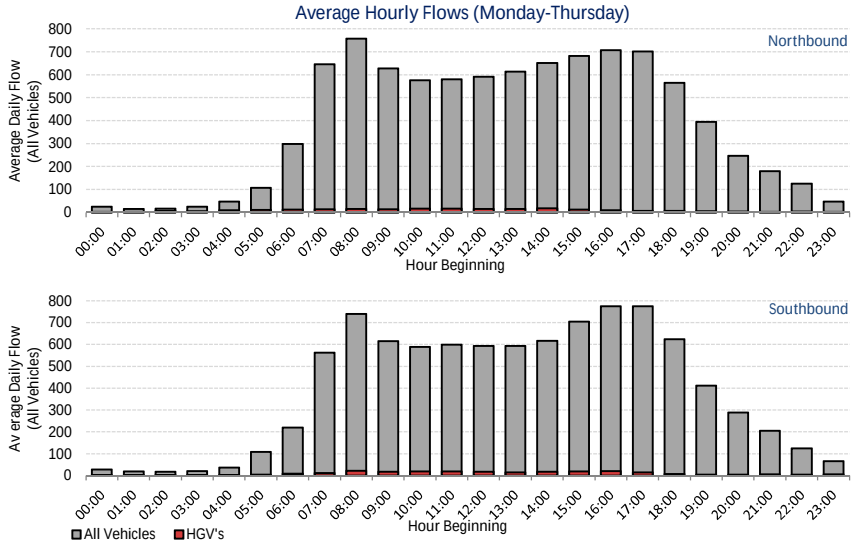
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 4

A4103 Roman Road by Holmer







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-5

• FIGURE TITLE

ATC SITE 4 Summary

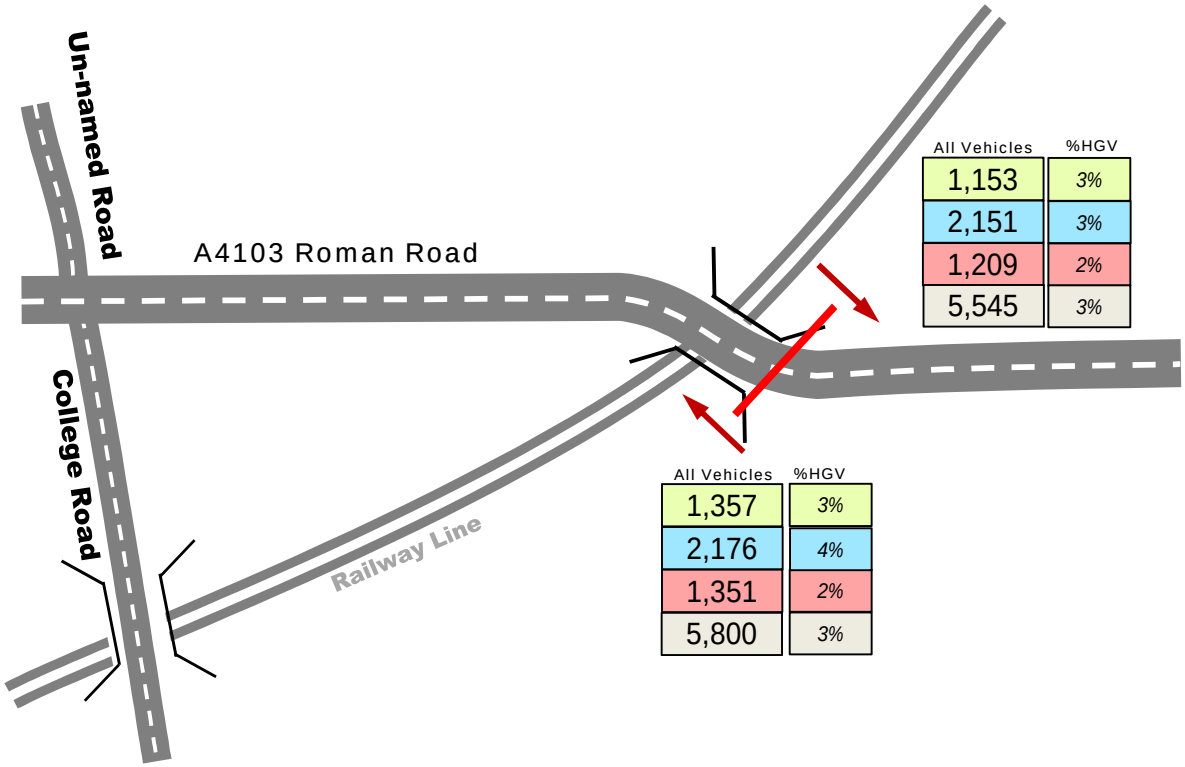
WSP | PARSONS BRINCKERHOFF

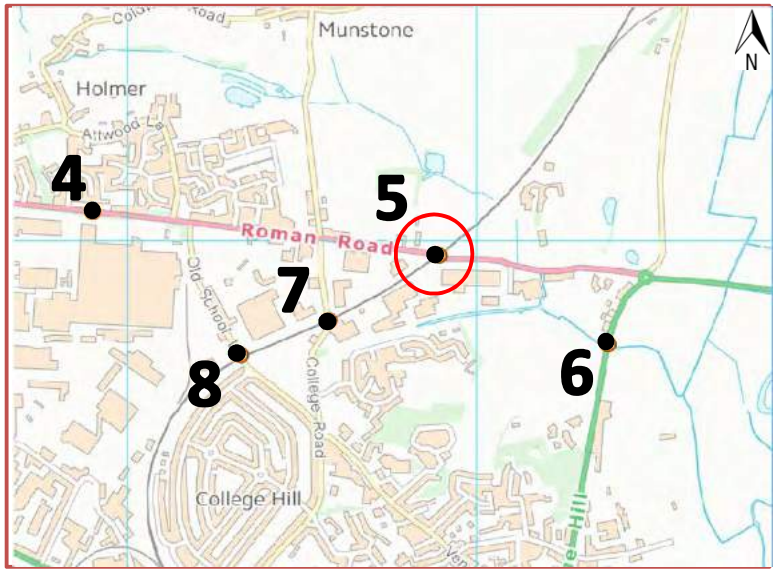
• DATE	18/11/2016
• SCALE	NTS

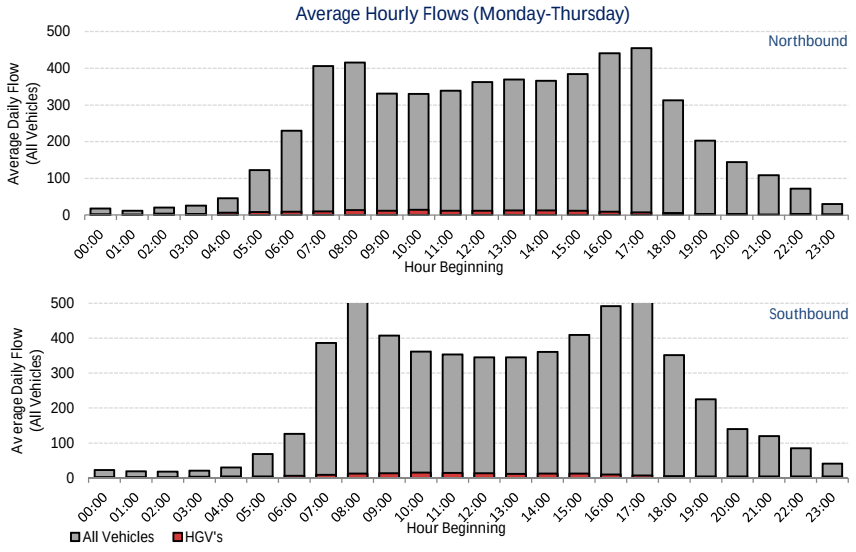
DRAWN BY	GS
CHECKED	DL
APPROVED	MH

ATC SITE 5

A4103 Roman Road







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-6

• FIGURE TITLE

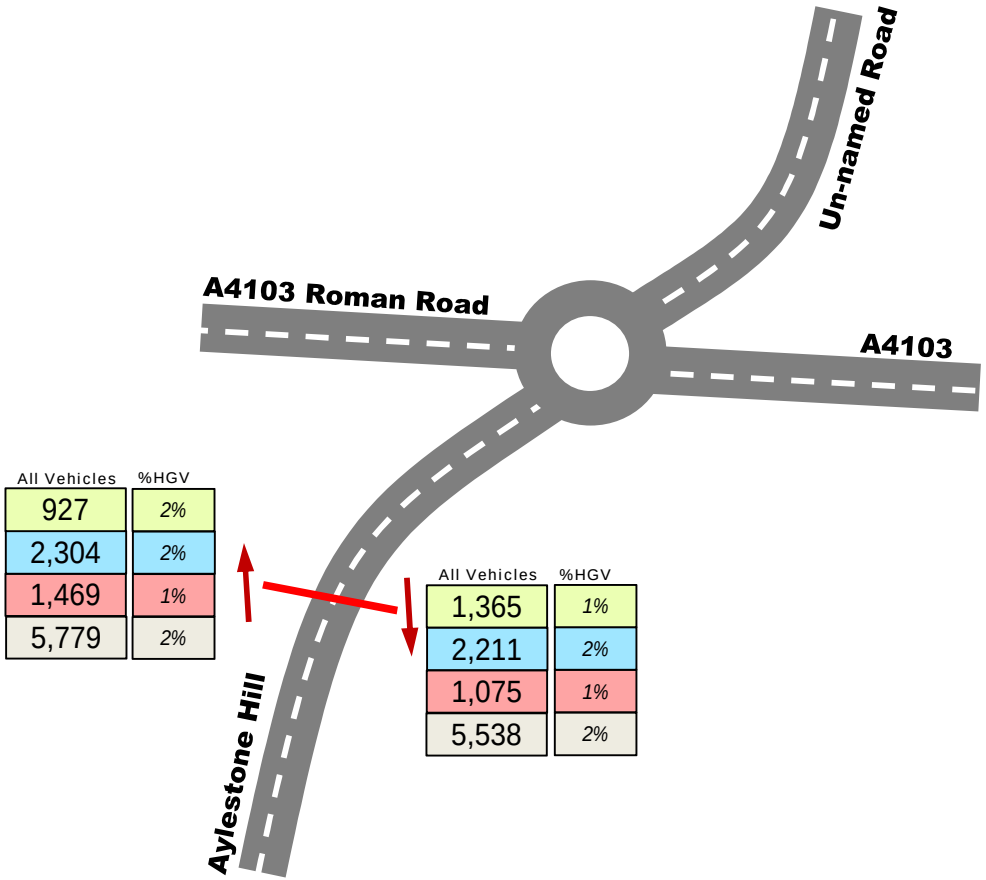
ATC SITE 5 Summary

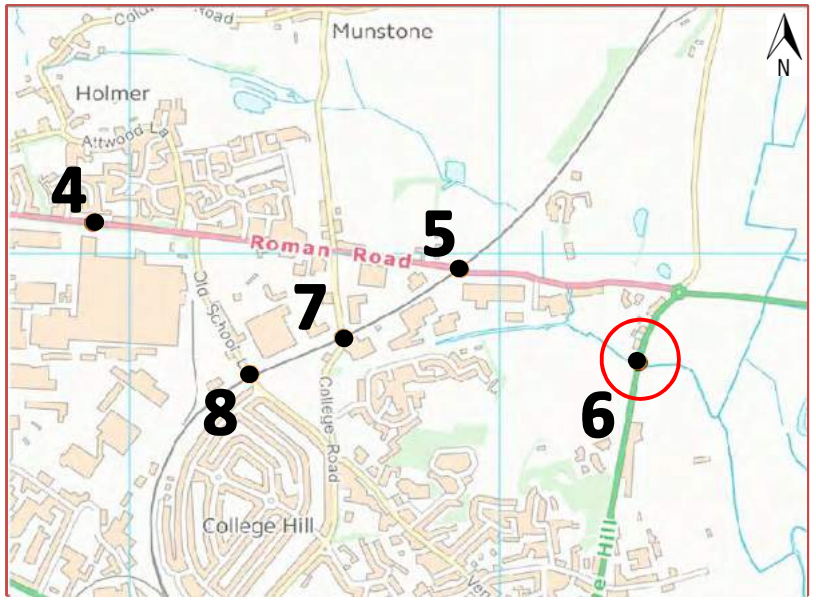
WSP | PARSONS BRINCKERHOFF

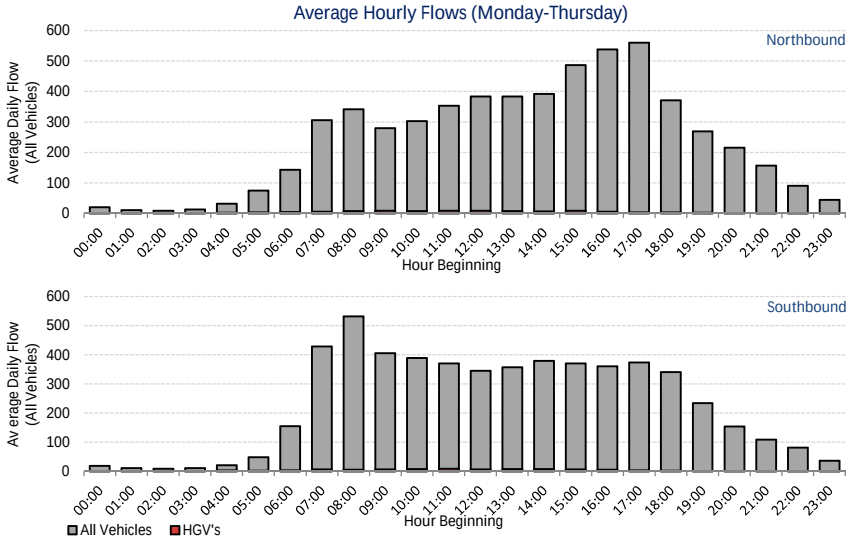
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 6

Aylestone Hill







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-7

• FIGURE TITLE

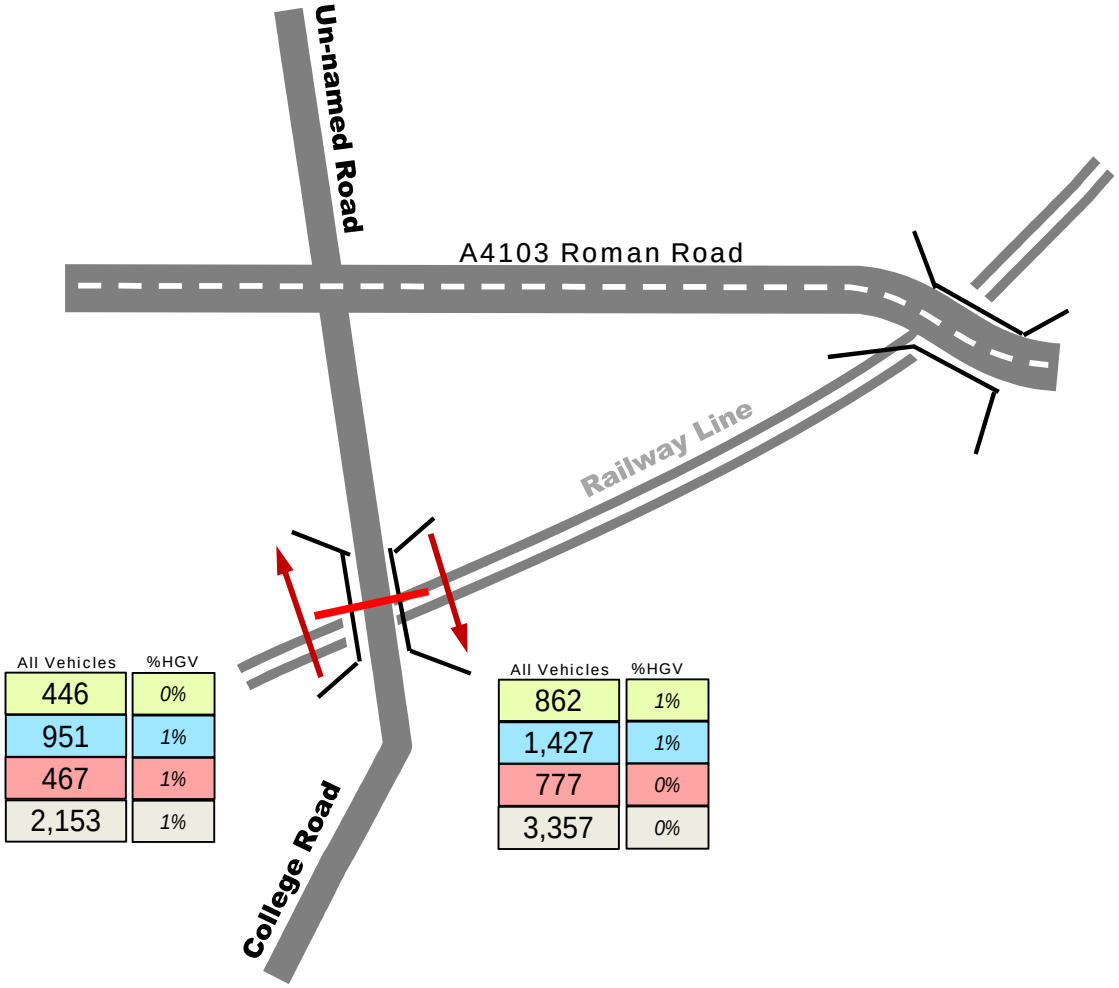
ATC SITE 6 Summary

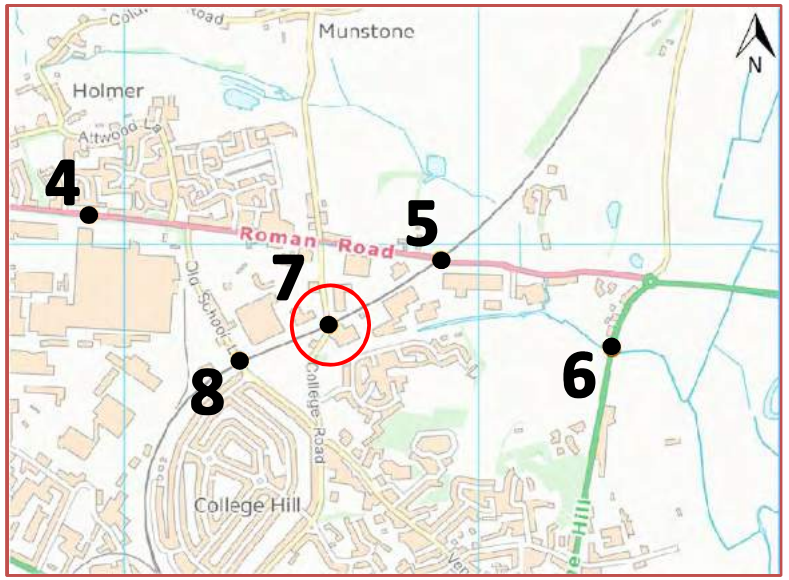
WSP | PARSONS BRINCKERHOFF

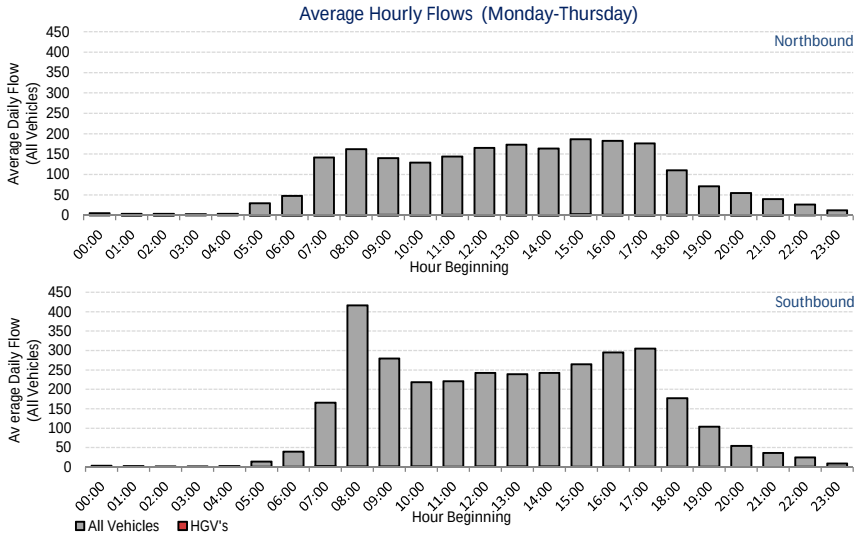
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 7

College Road







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-8

• FIGURE TITLE

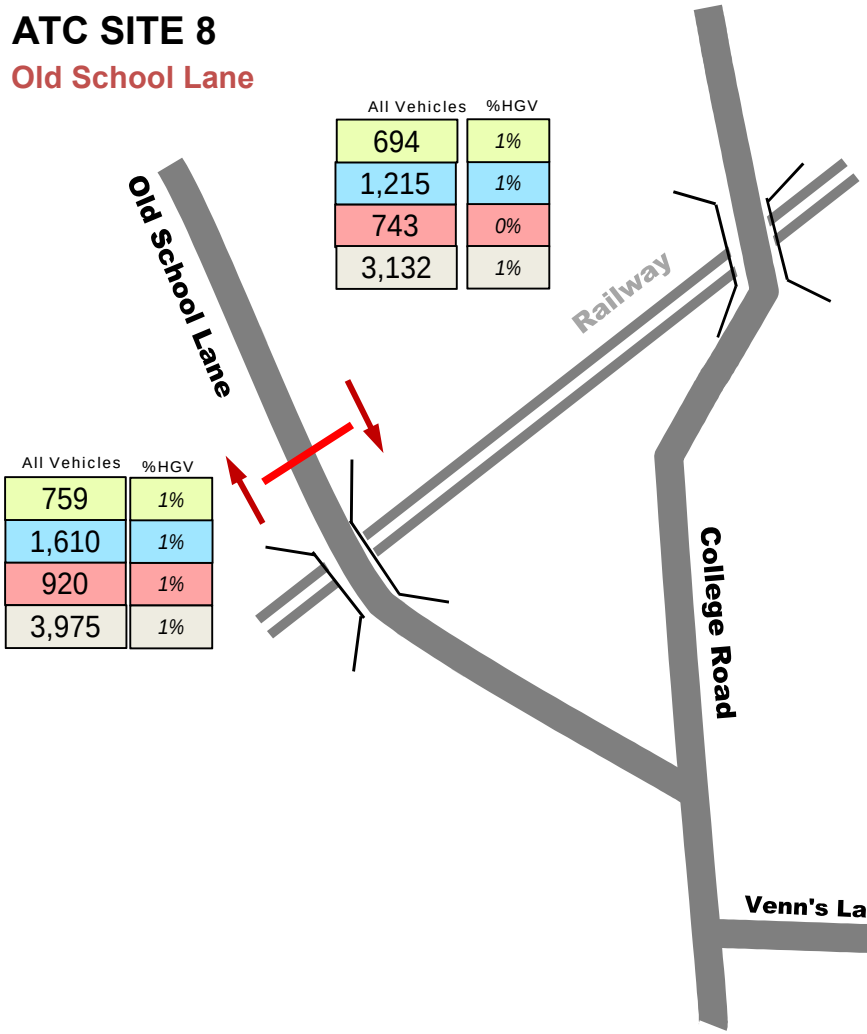
ATC SITE 7 Summary

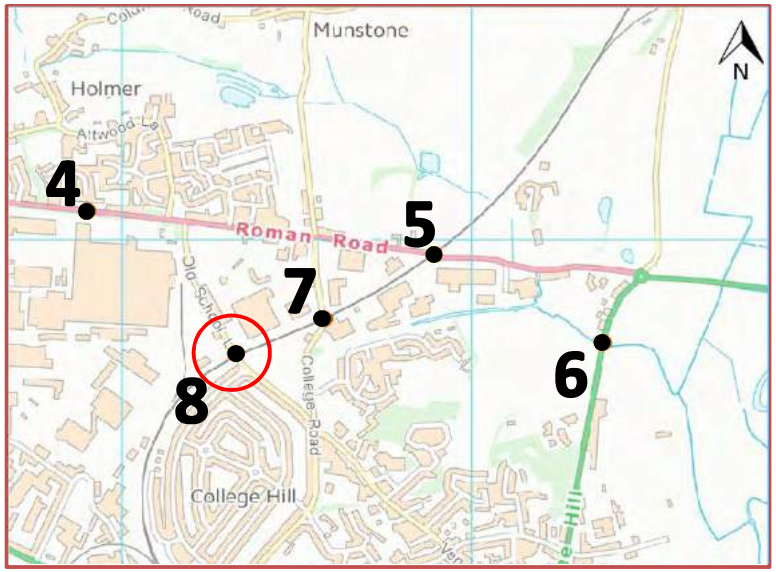
WSP | PARSONS BRINCKERHOFF

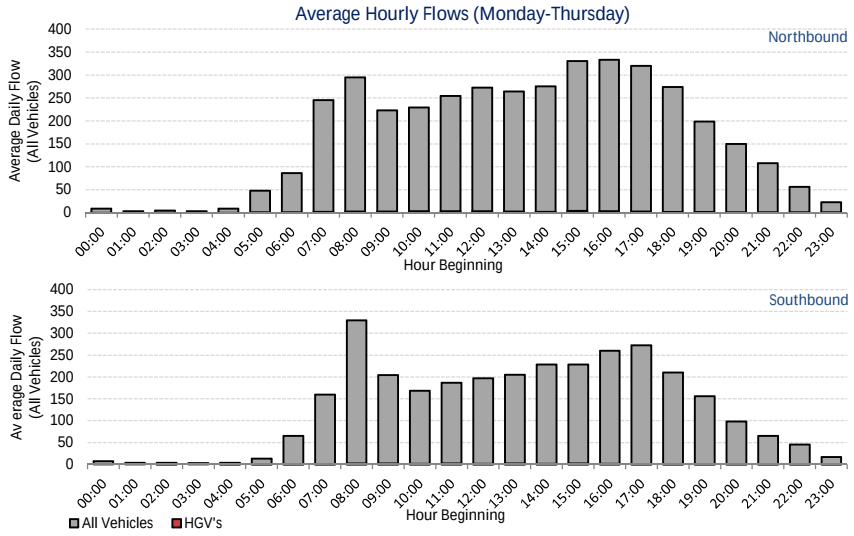
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 8

Old School Lane







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-9

• FIGURE TITLE

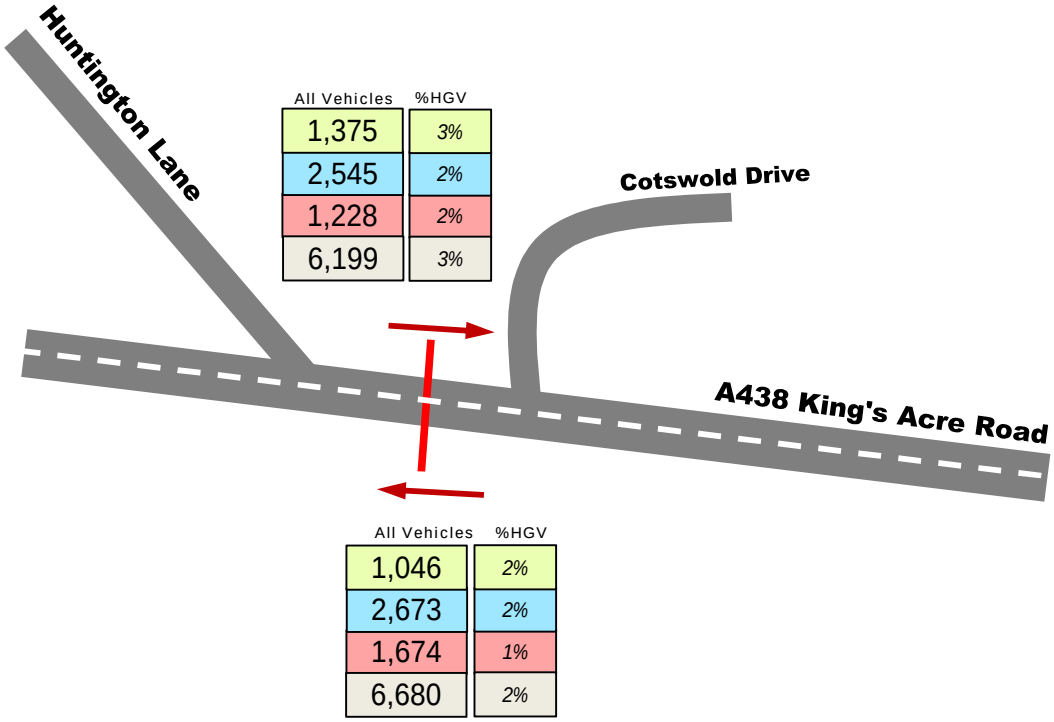
ATC SITE 8 Summary

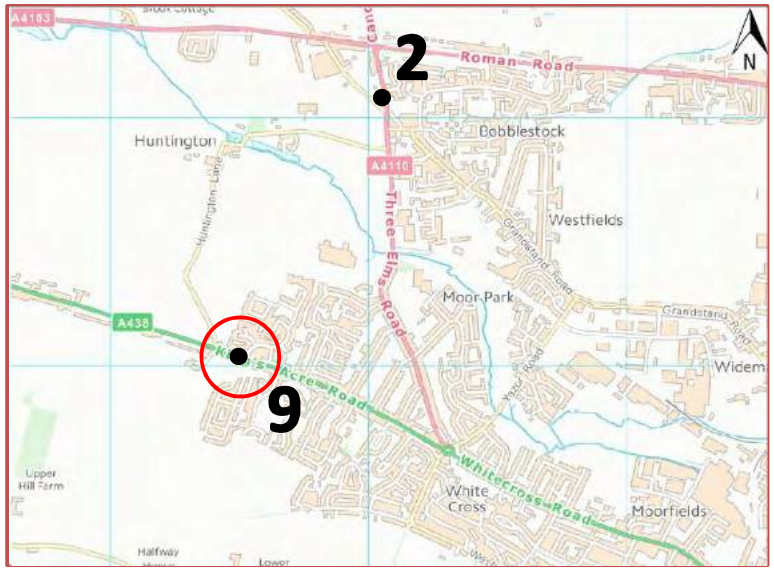
WSP | PARSONS BRINCKERHOFF

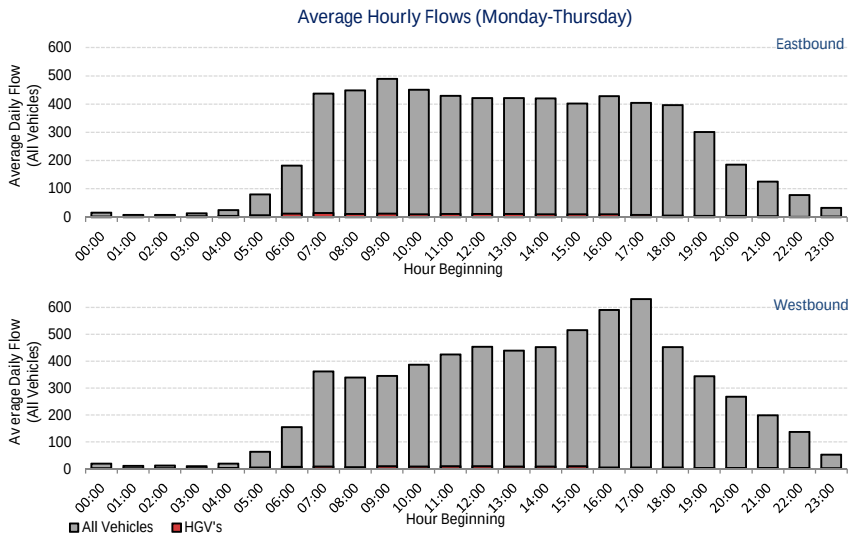
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 9

A438 Kings Acre Road







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-10

• FIGURE TITLE

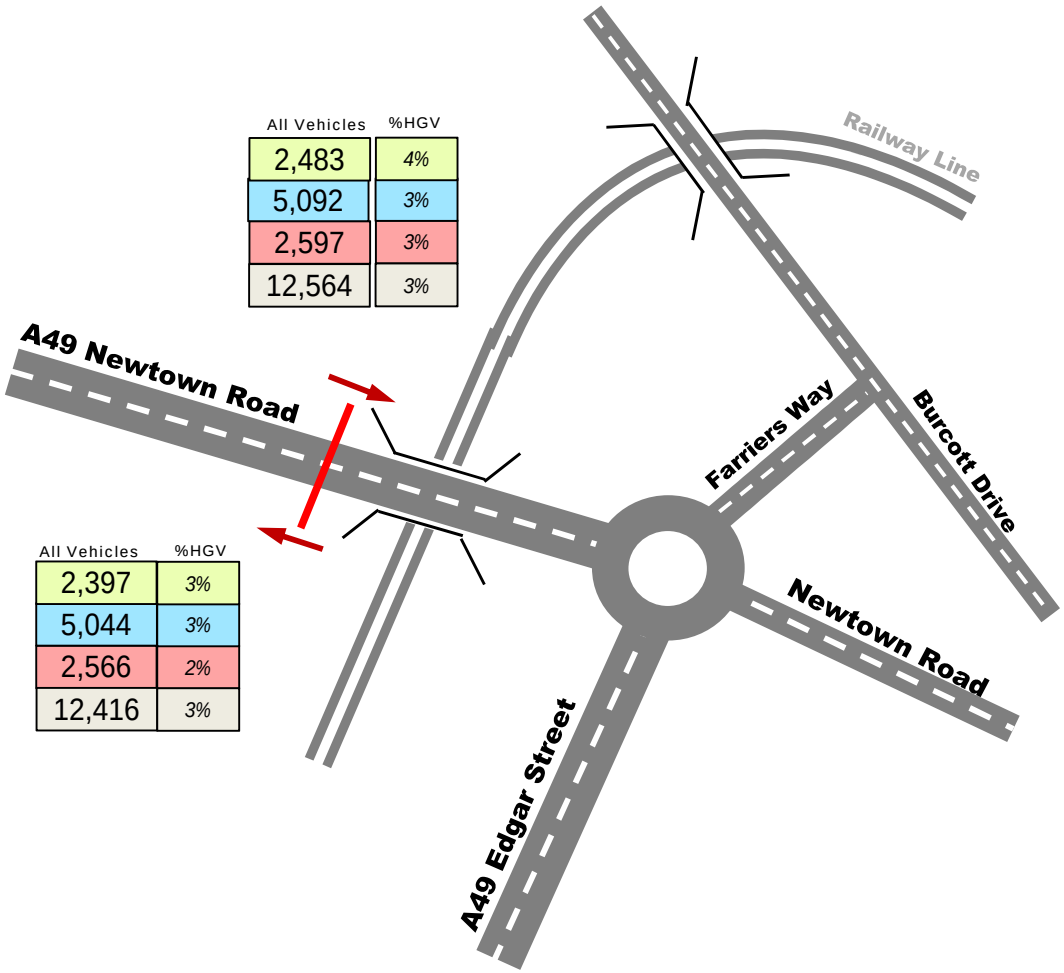
ATC SITE 9 Summary

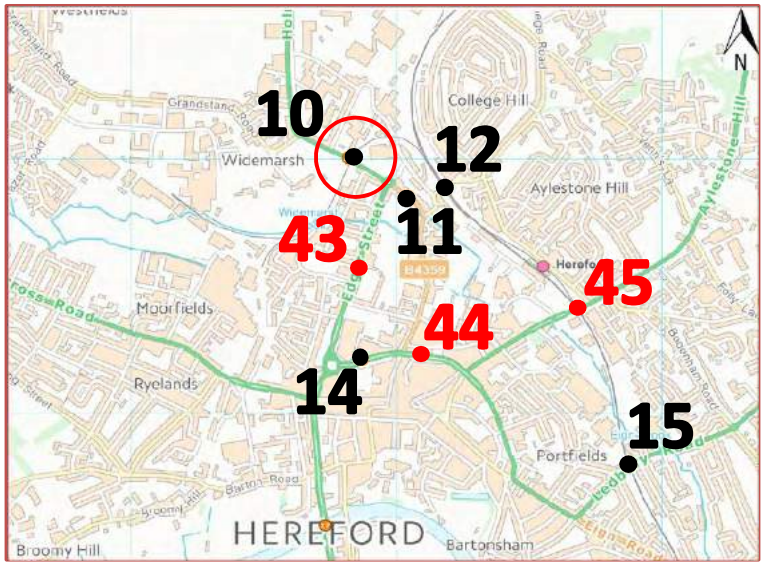
WSP | PARSONS BRINCKERHOFF

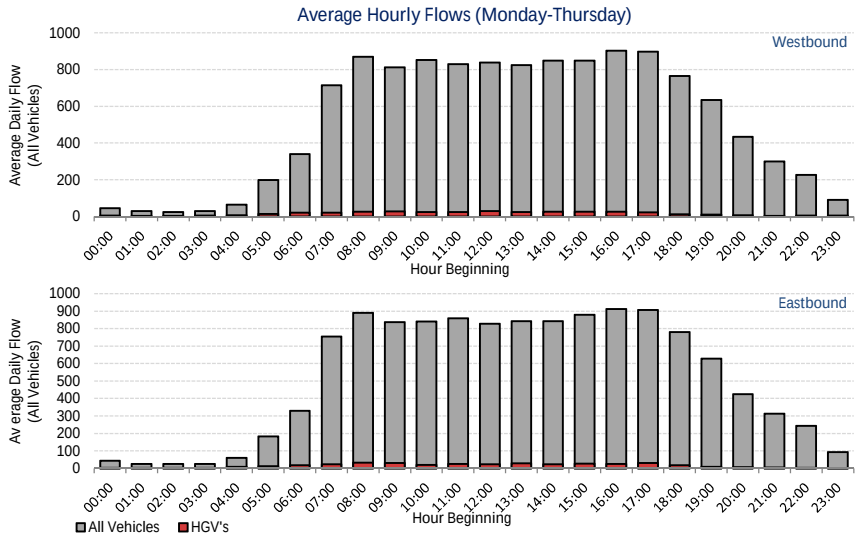
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 10

A49 by Widemarsh Brook







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-11

• FIGURE TITLE

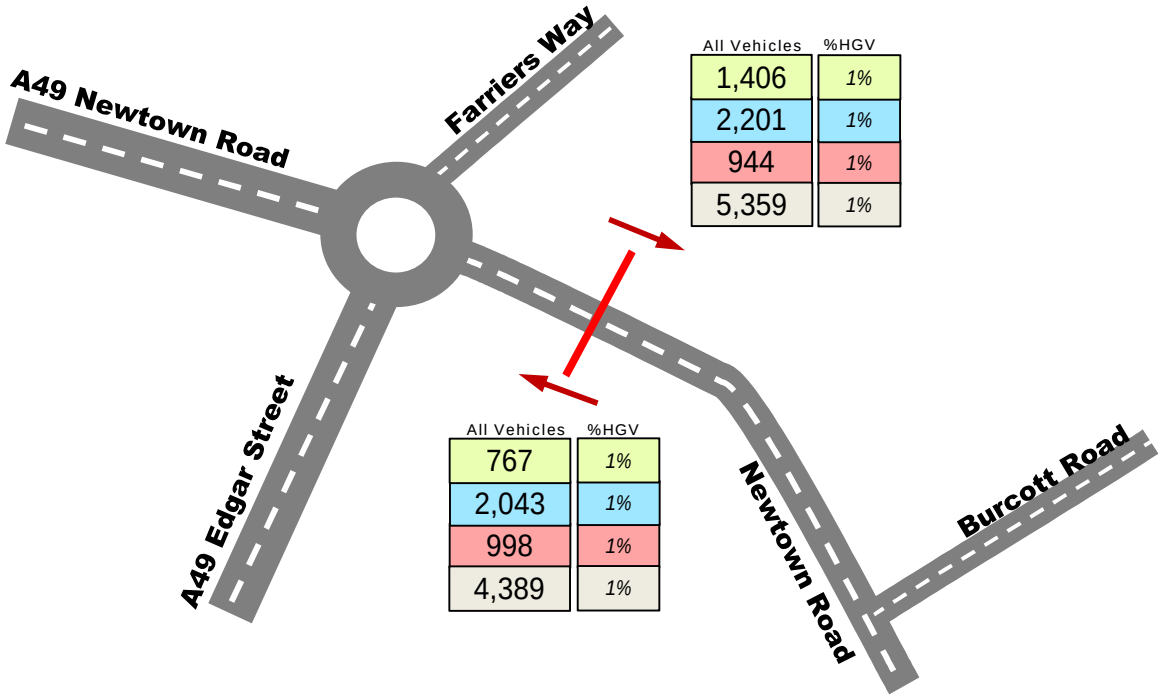
ATC SITE 10 Summary

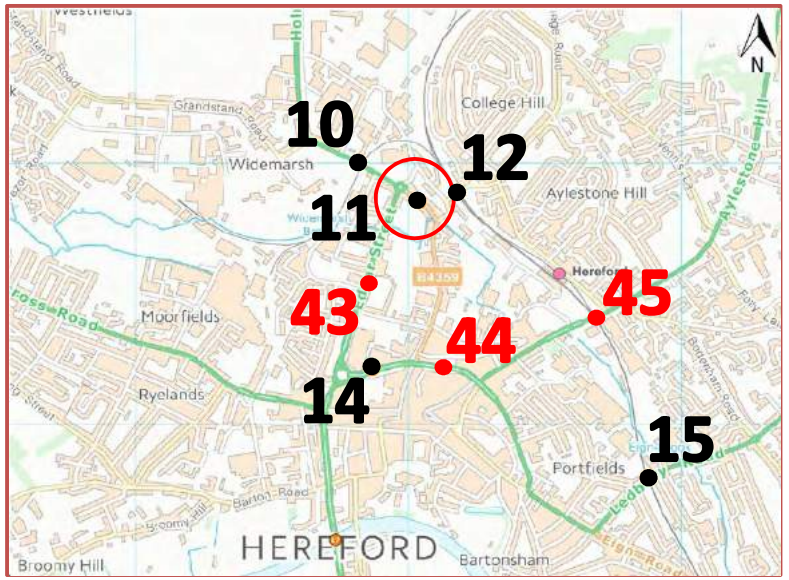
WSP | PARSONS BRINCKERHOFF

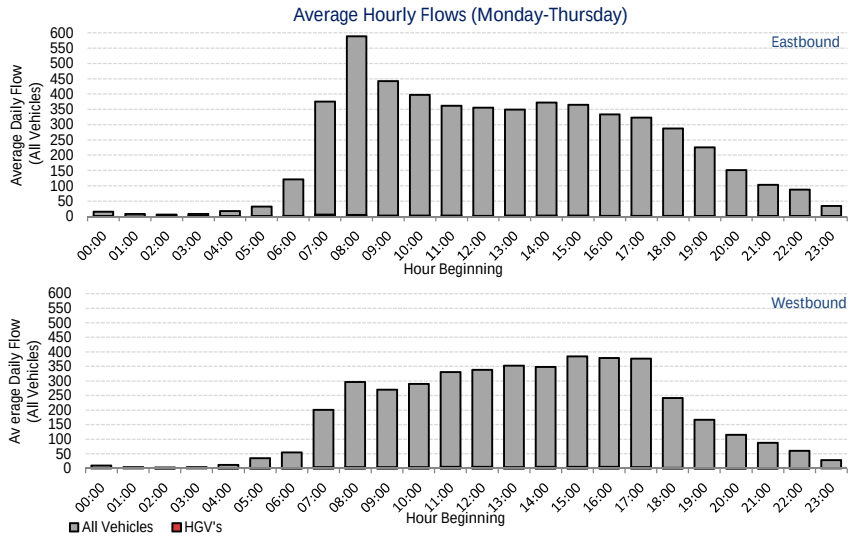
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 11

B4359 Newtown Road







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs
- Interpeak Period (10:00 - 16:00), Mon- Thurs
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-12

• FIGURE TITLE

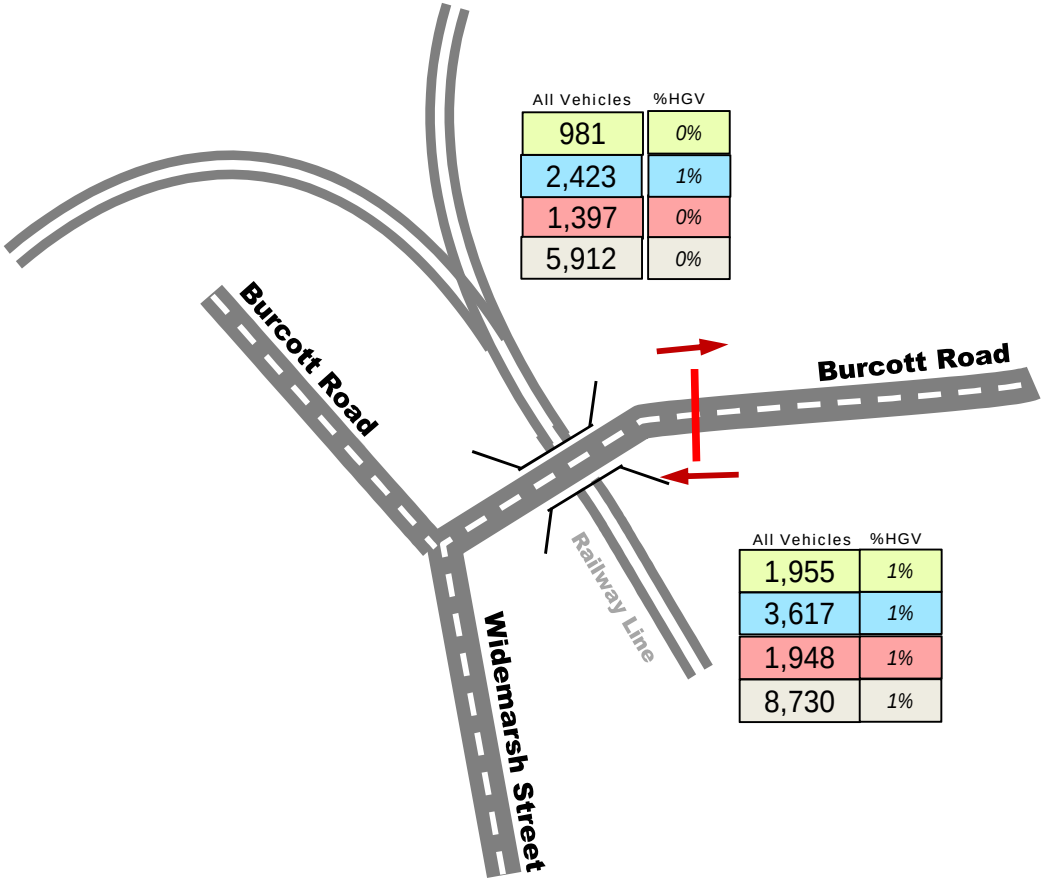
ATC SITE 11 Summary

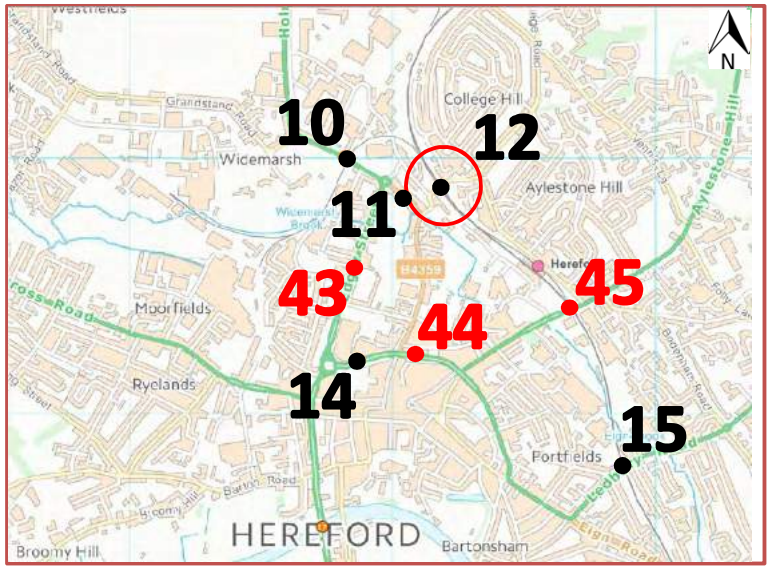
WSP | PARSONS BRINCKERHOFF

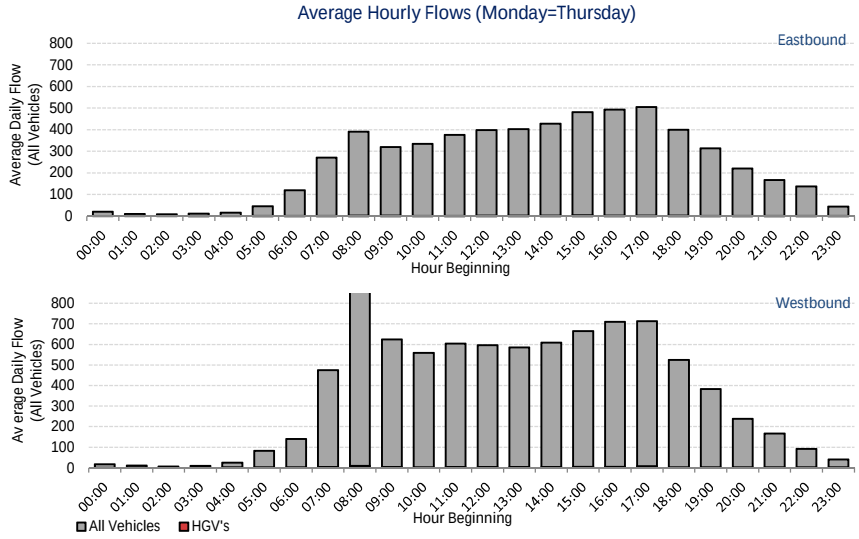
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 12

Burcott Road







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-13

• FIGURE TITLE

ATC SITE 12 Summary

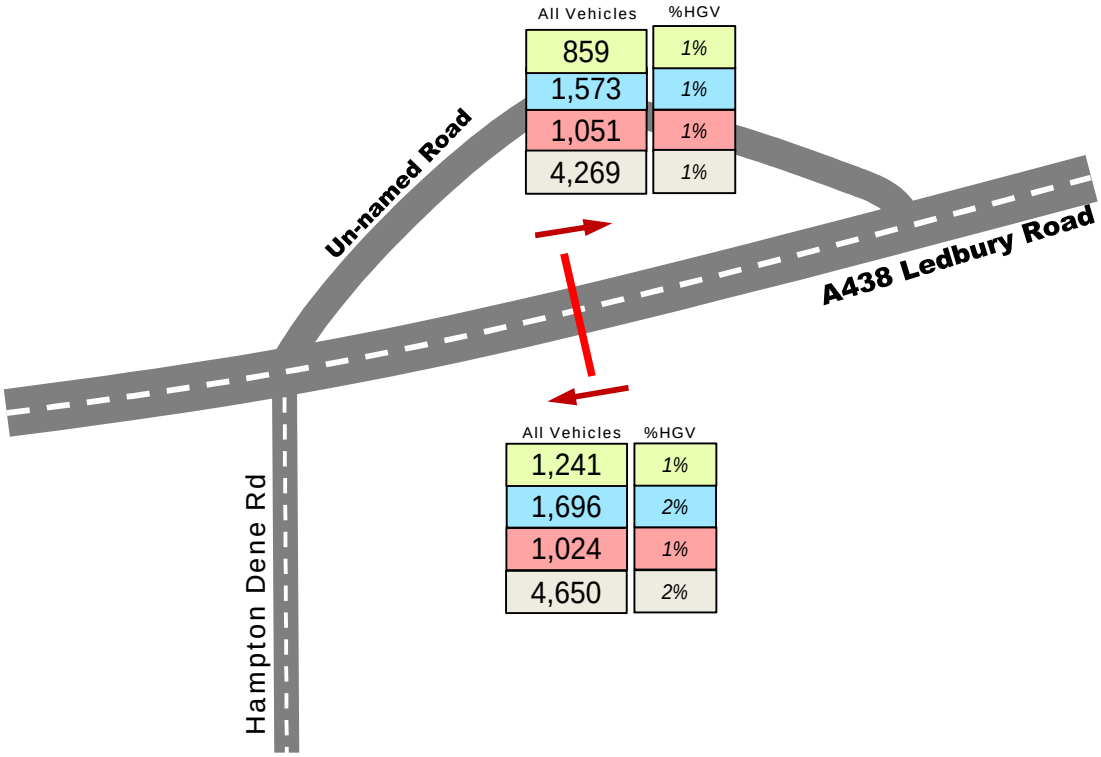
WSP | PARSONS BRINCKERHOFF

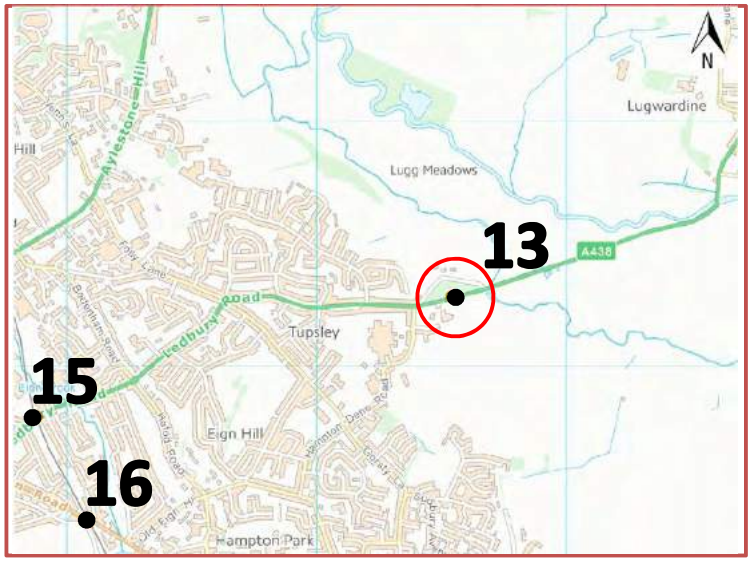
• DATE	18/11/2016
• SCALE	NTS

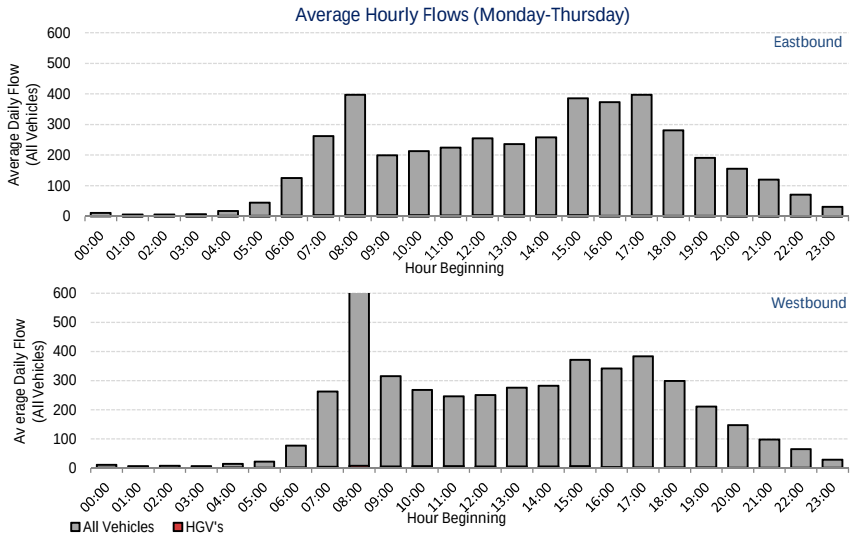
DRAWN BY	GS
CHECKED	DL
APPROVED	MH

ATC SITE 13

A438 Ledbury Road (A)







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-14

• FIGURE TITLE

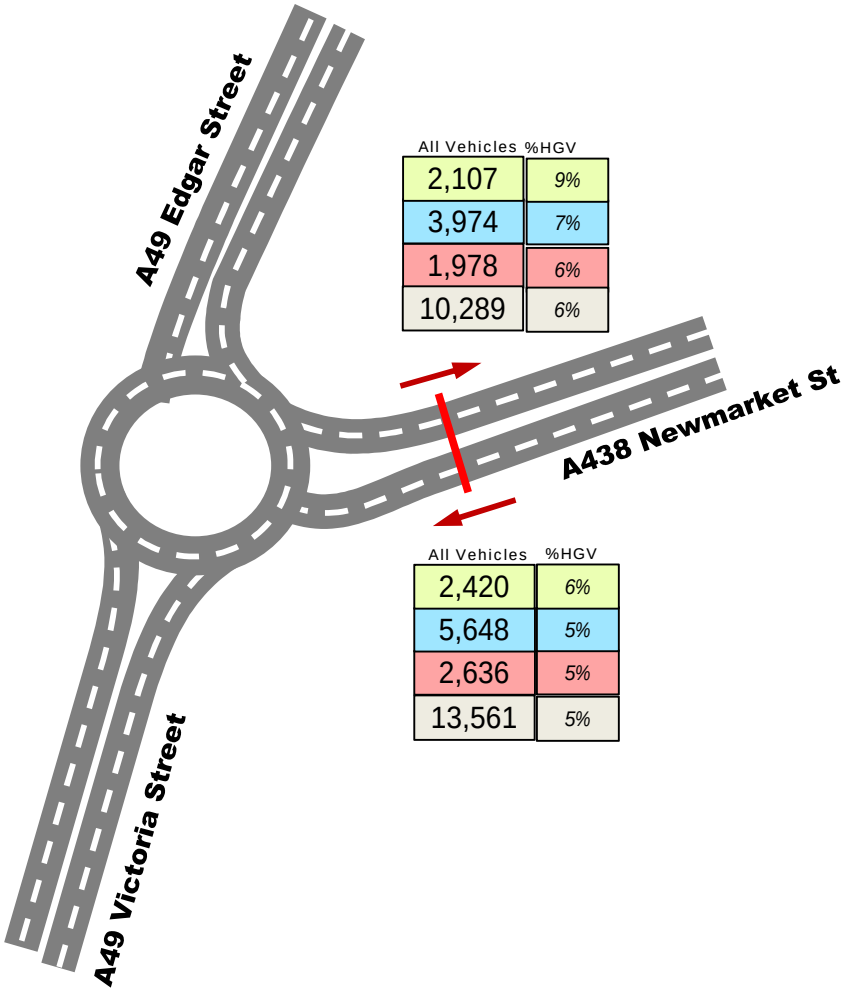
ATC SITE 13 Summary

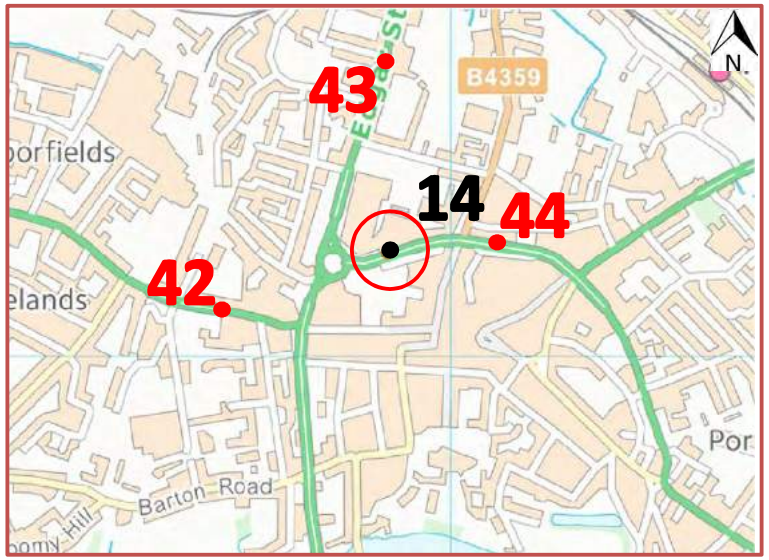
WSP | PARSONS BRINCKERHOFF

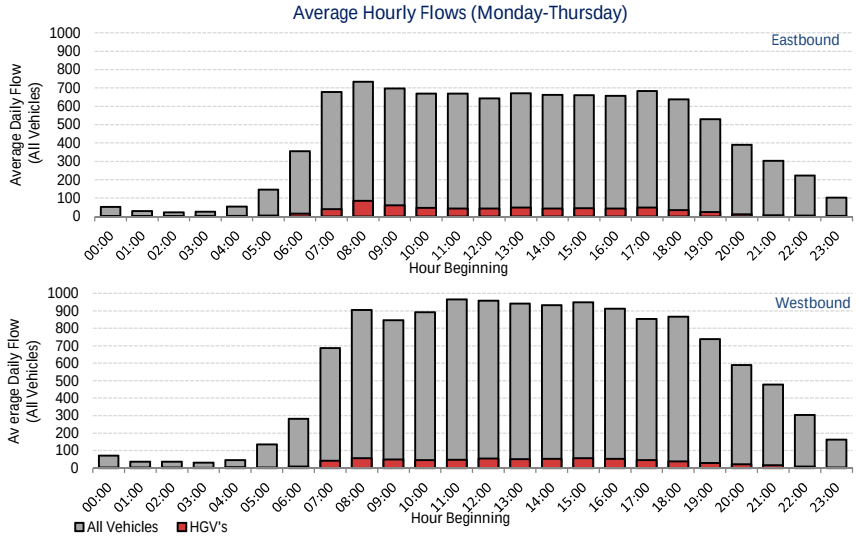
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 14 (A and B)

A438 Newmarket Street







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-15

• FIGURE TITLE

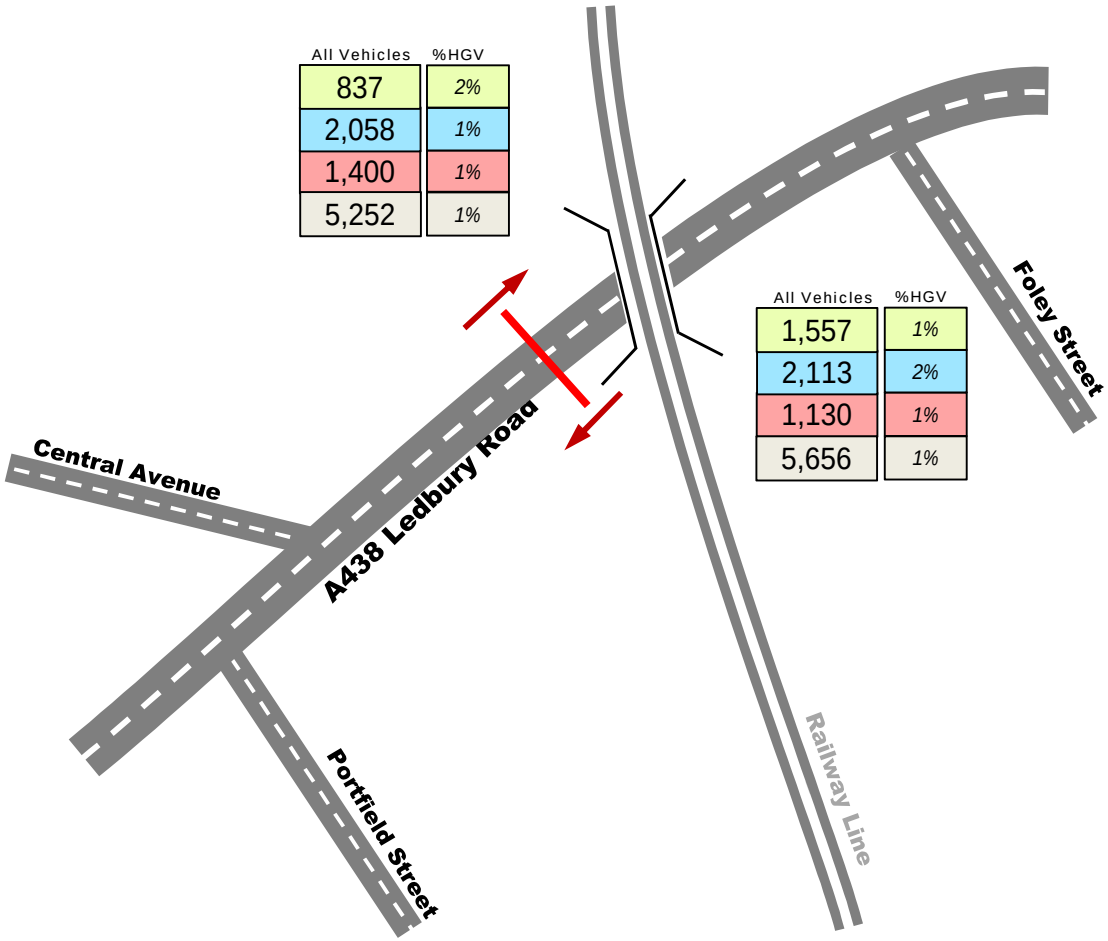
ATC SITE 14 Summary

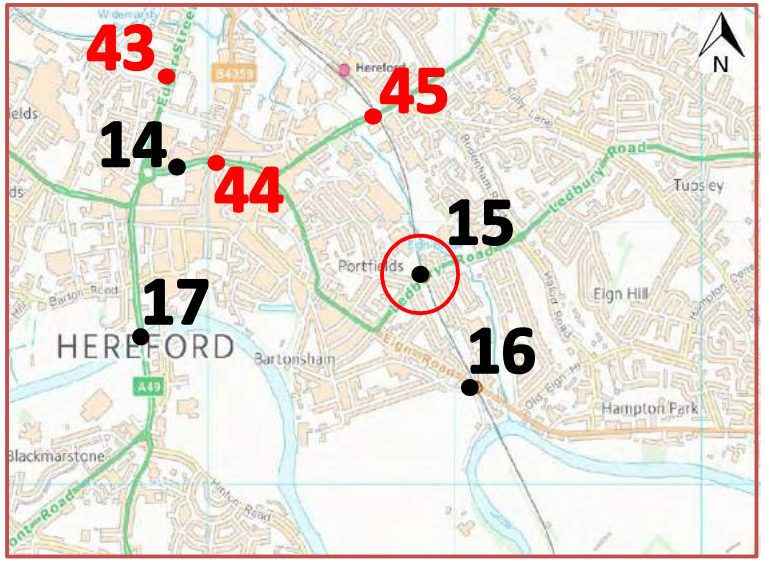
WSP | PARSONS BRINCKERHOFF

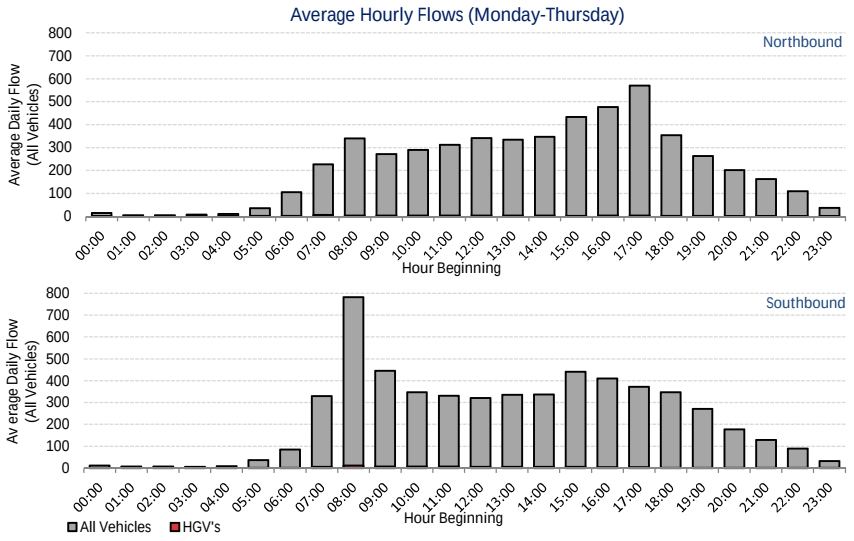
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 15

A438 Ledbury Road (B)







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-16

• FIGURE TITLE

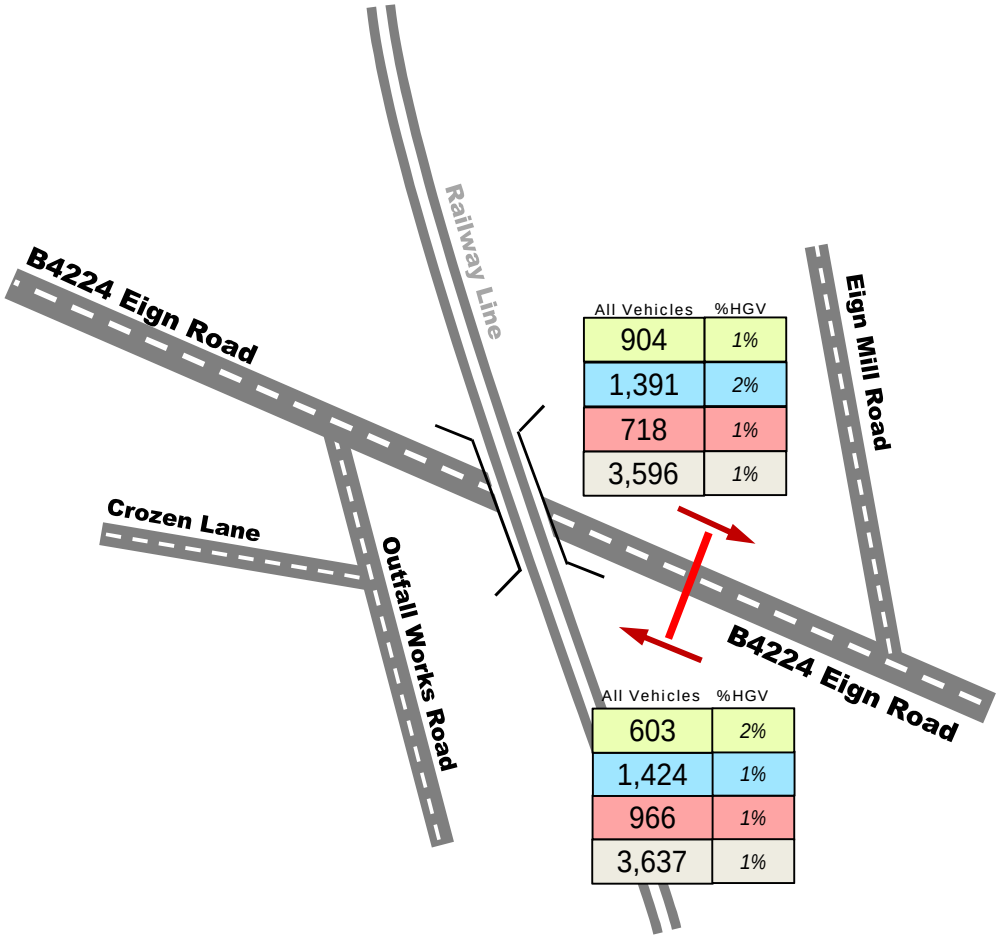
ATC SITE 15 Summary

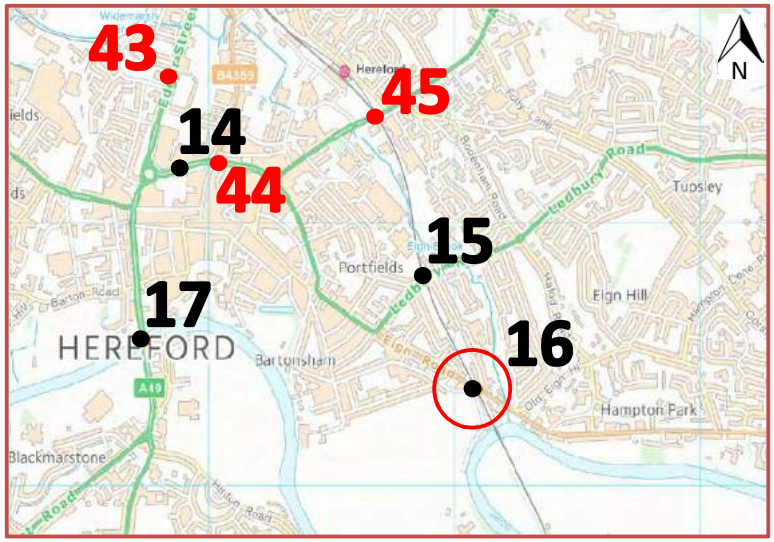
WSP | PARSONS BRINCKERHOFF

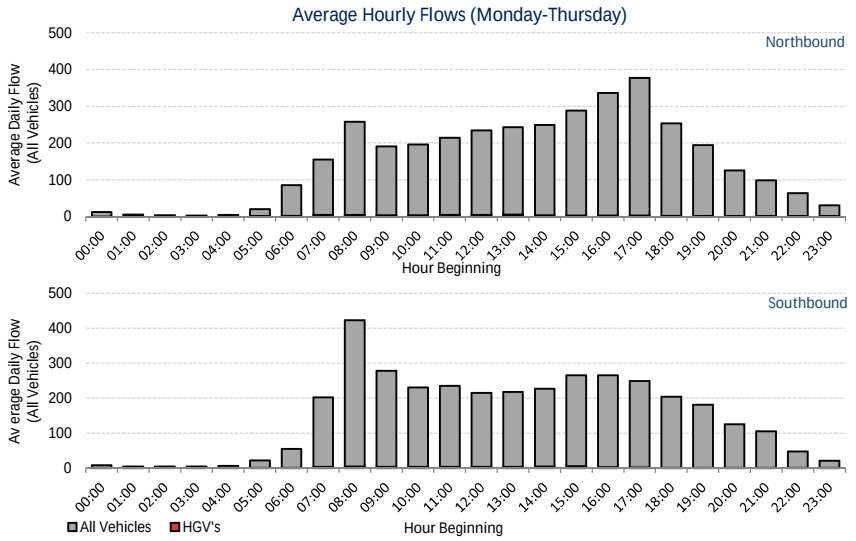
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 16

B4224 Eign Road







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-17

• FIGURE TITLE

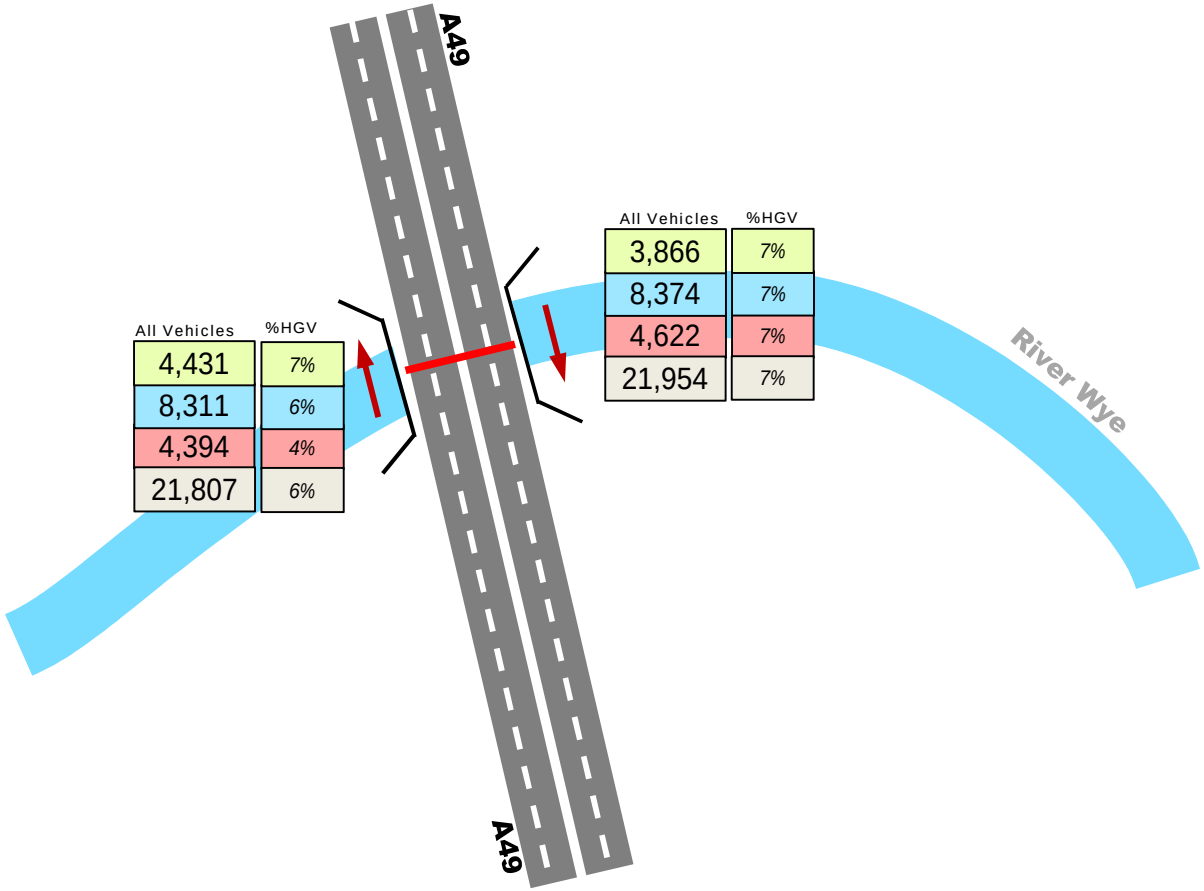
ATC SITE 16 Summary

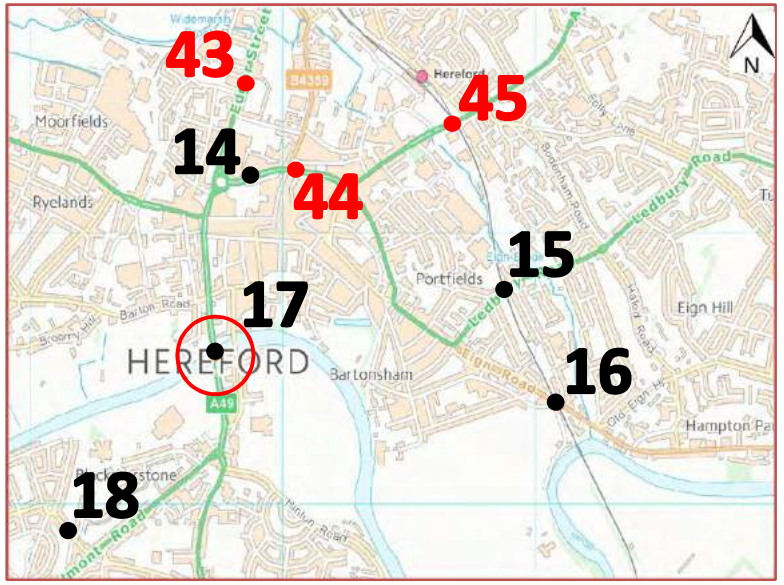
WSP | PARSONS BRINCKERHOFF

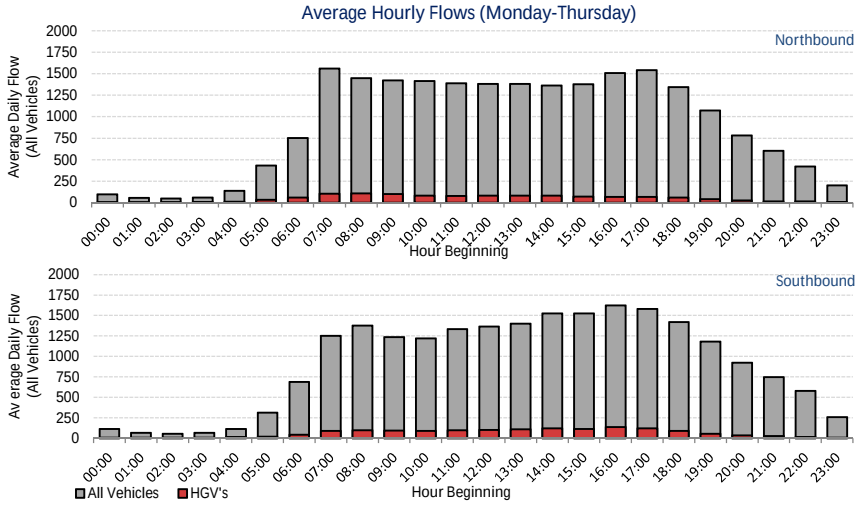
• DATE	18/11/2016
• SCALE	NTS
DRAWN BY	GS
CHECKED	DL
APPROVED	MH

ATC SITE 17

A49 Bridge







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-18

• FIGURE TITLE

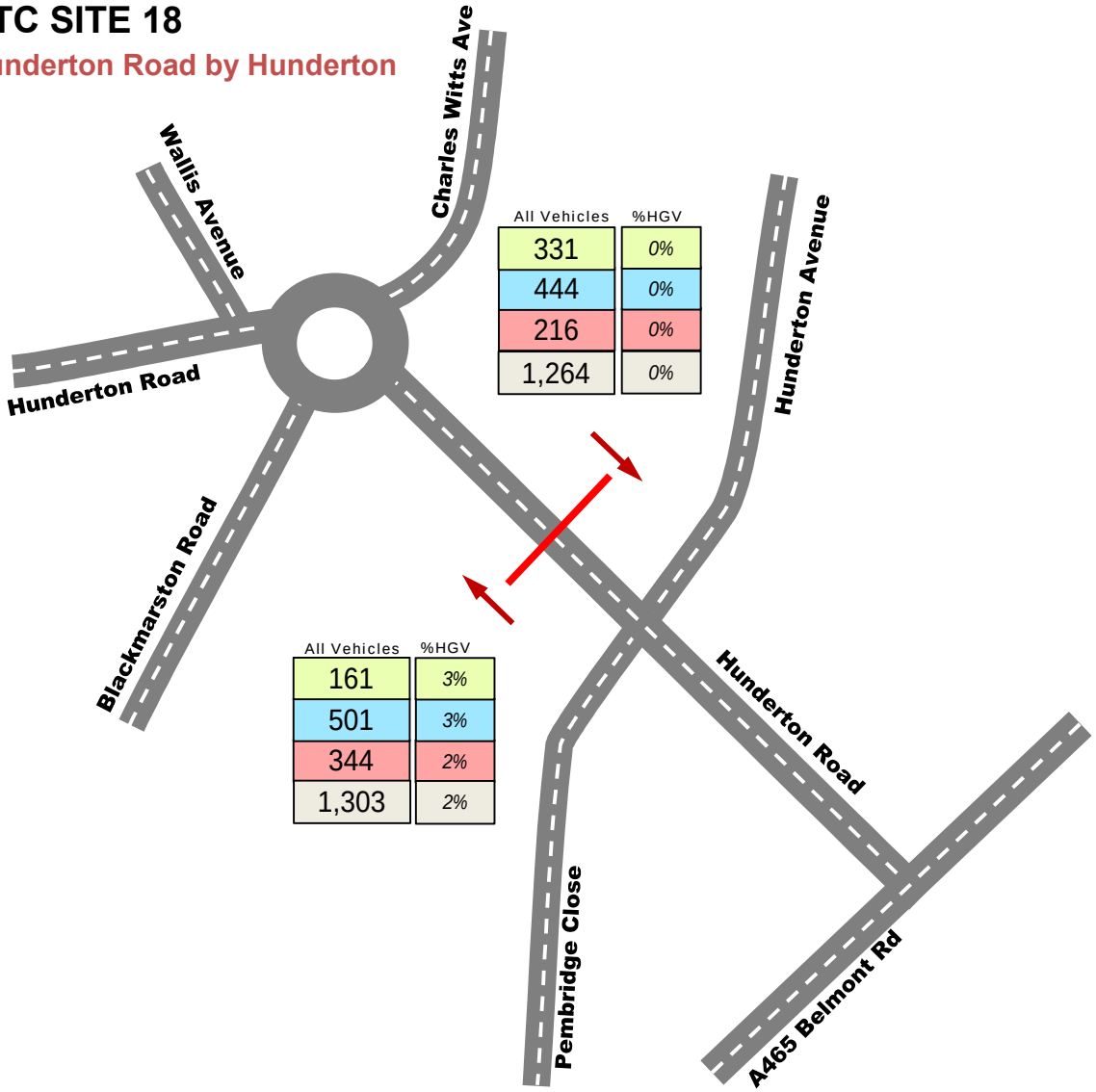
ATC SITE 17 Summary

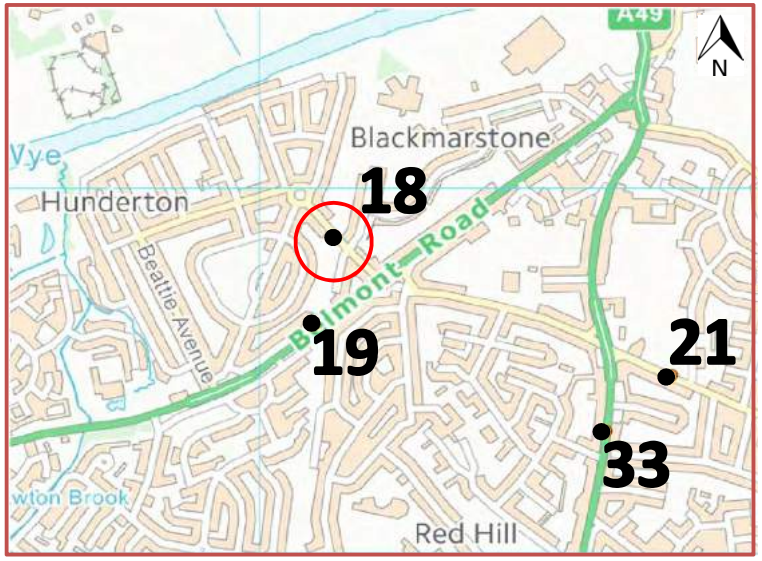
WSP | PARSONS BRINCKERHOFF

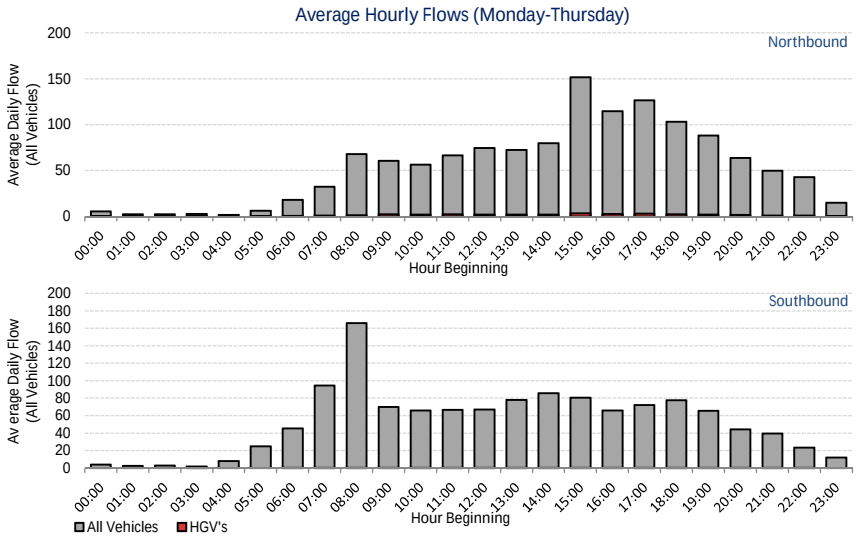
• DATE	18/11/2016
• SCALE	NTS
DRAWN BY	GS
CHECKED	DL
APPROVED	MH

ATC SITE 18

Hunderton Road by Hunderton







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-19

• FIGURE TITLE

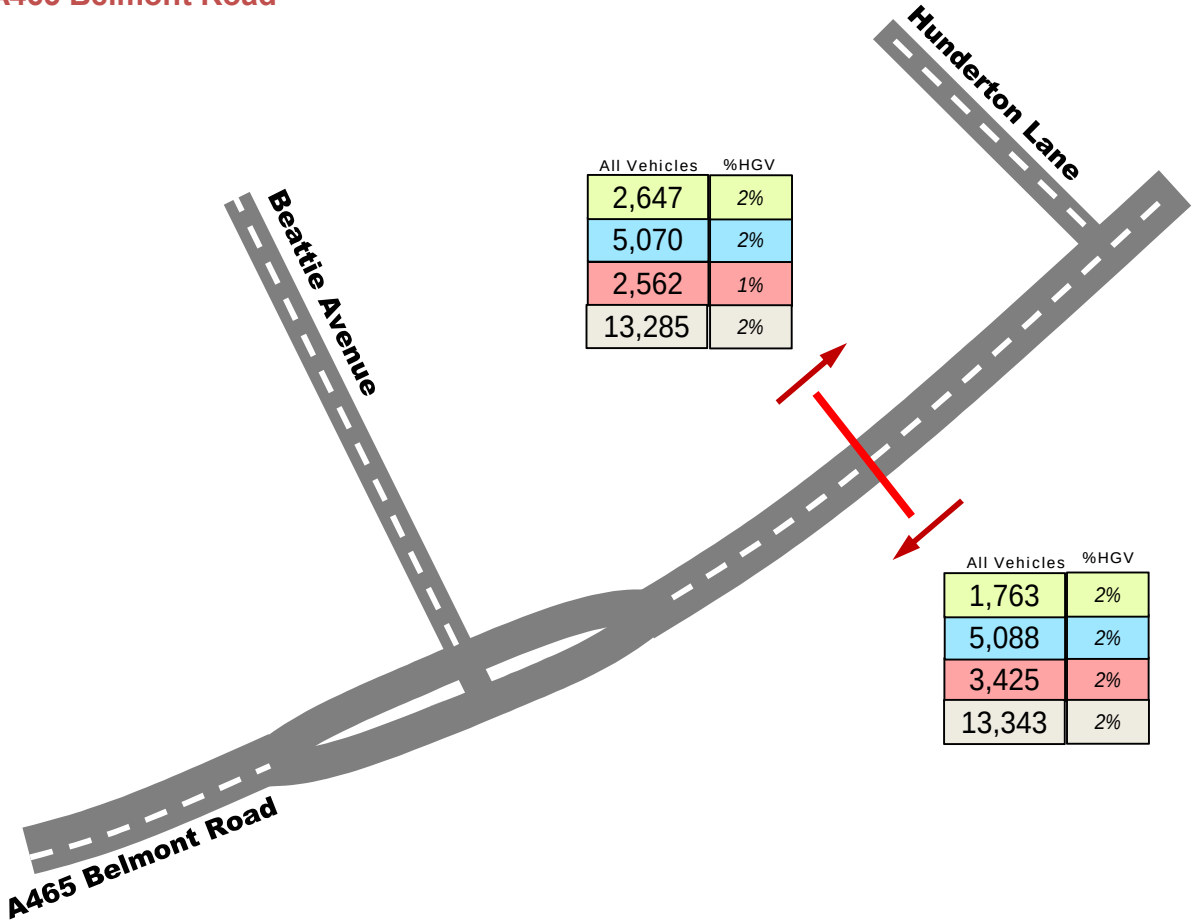
ATC SITE 18 Summary

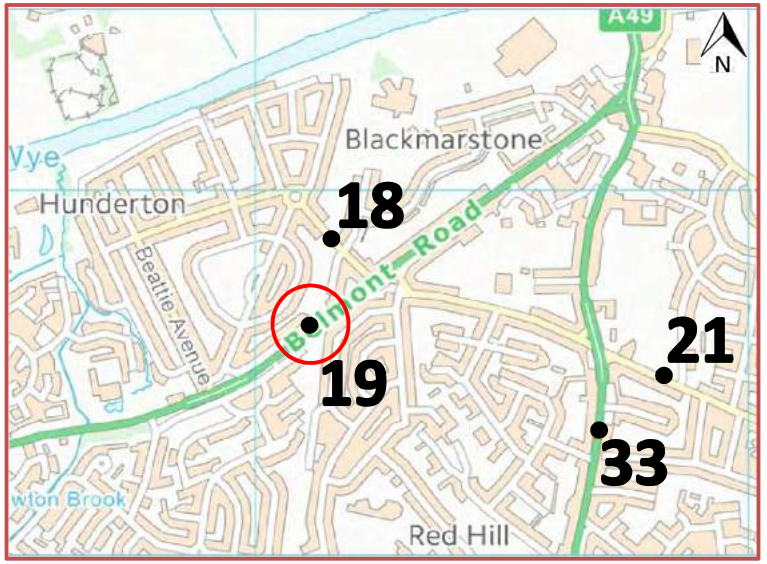
WSP | PARSONS BRINCKERHOFF

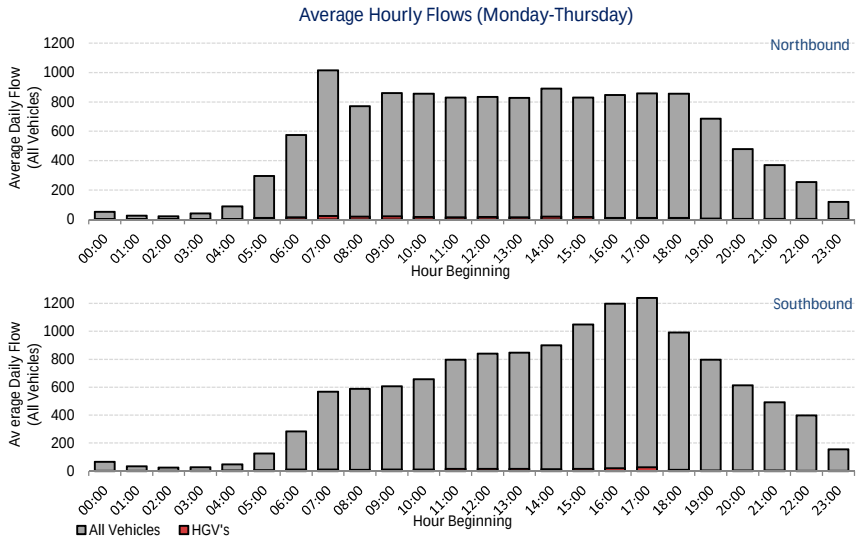
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 19

A465 Belmont Road







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-20

• FIGURE TITLE

ATC SITE 19 Summary

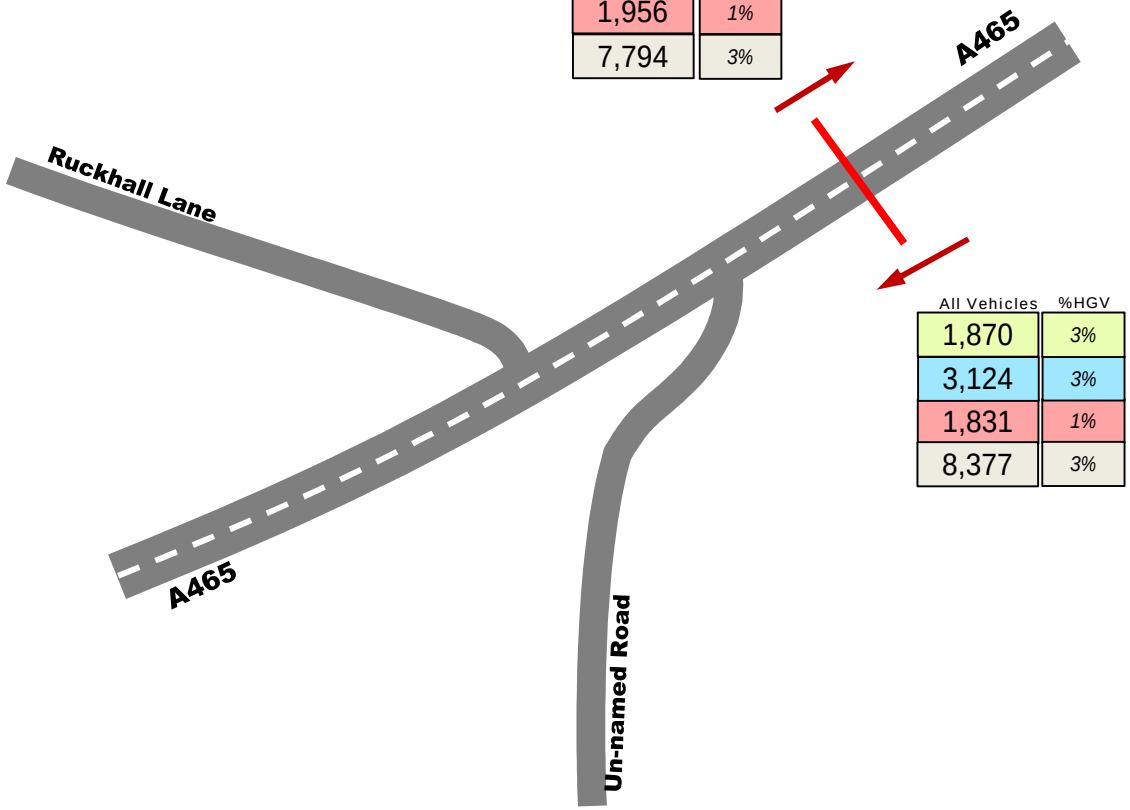
WSP | PARSONS BRINCKERHOFF

• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

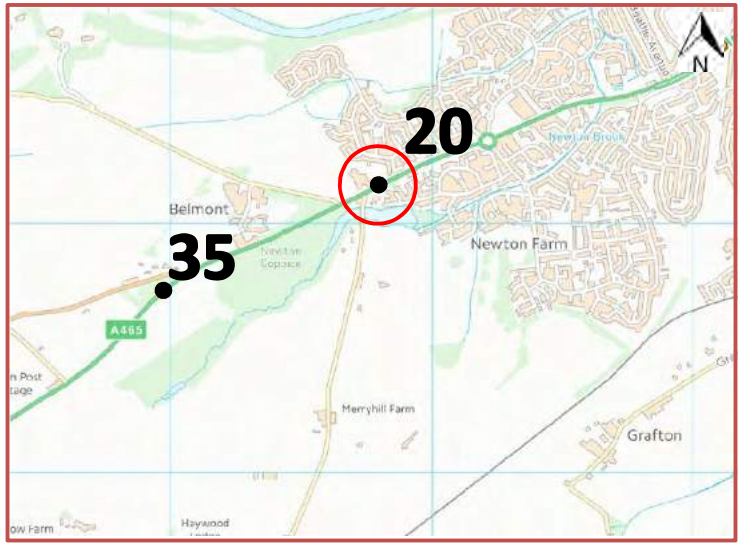
ATC SITE 20

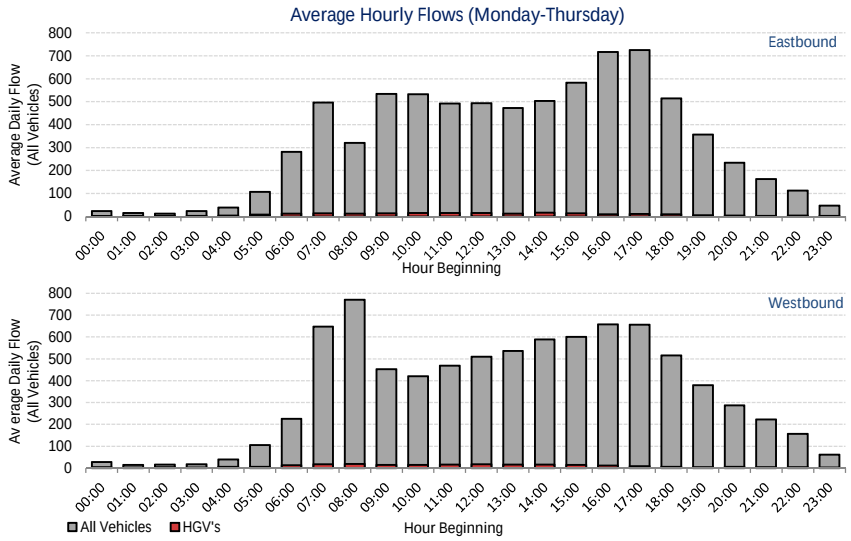
A465 Newtown Coppice

All Vehicles	%HGV
1,351	3%
3,076	3%
1,956	1%
7,794	3%



All Vehicles	%HGV
1,870	3%
3,124	3%
1,831	1%
8,377	3%





REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-21

• FIGURE TITLE

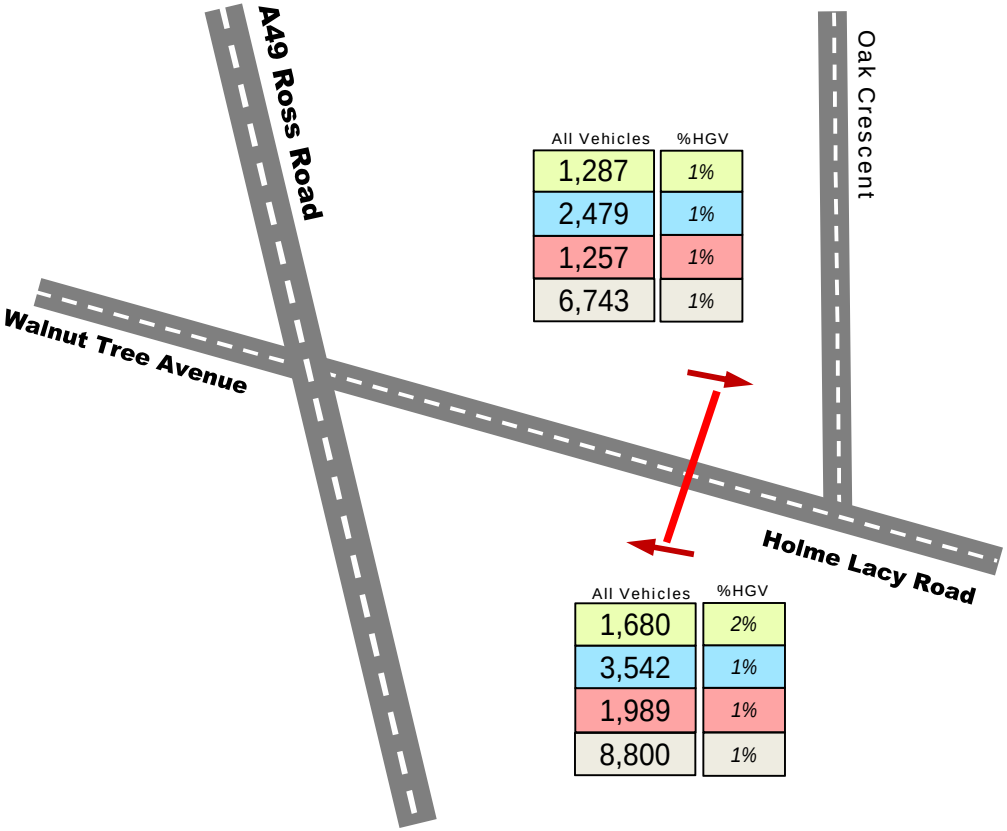
ATC SITE 20 Summary

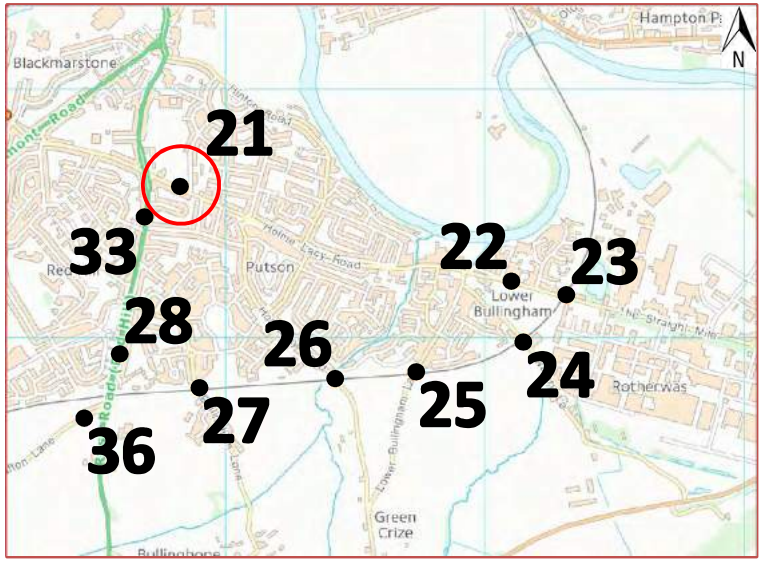
WSP | PARSONS BRINCKERHOFF

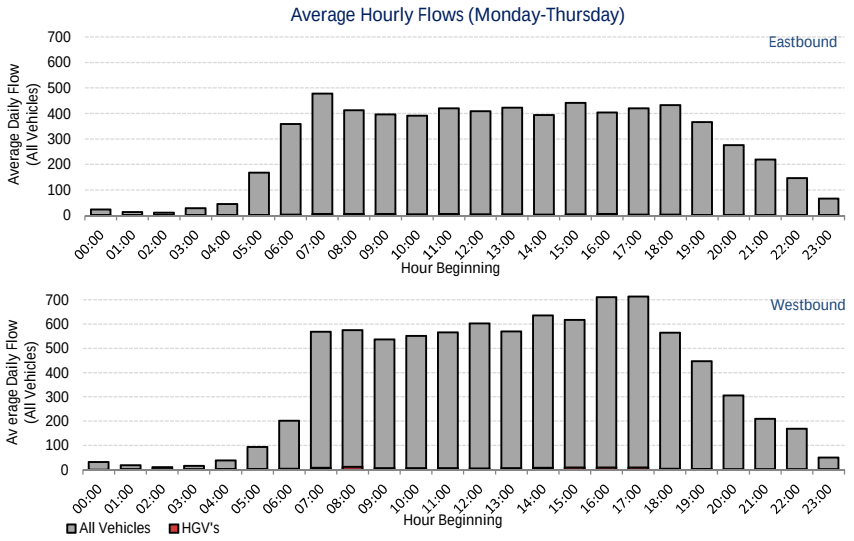
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 21

Holme Lacy Road by Red Hill







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-22

• FIGURE TITLE

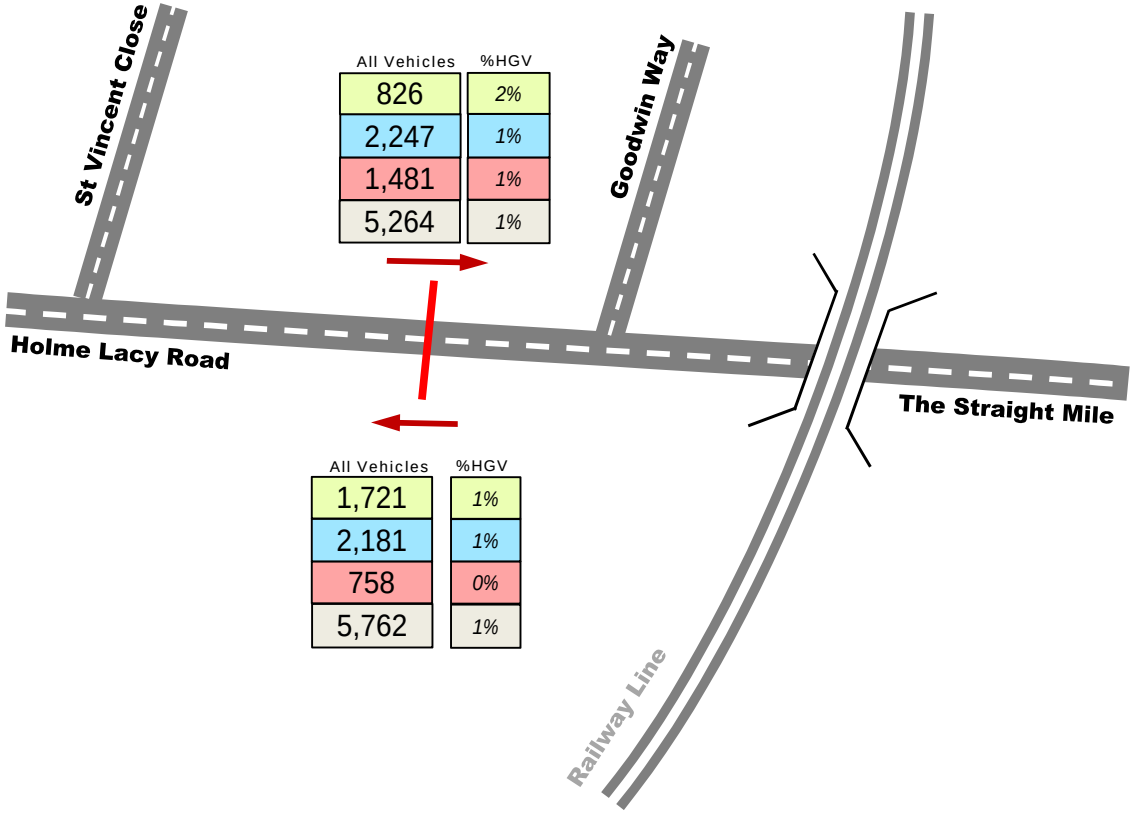
ATC SITE 21 Summary

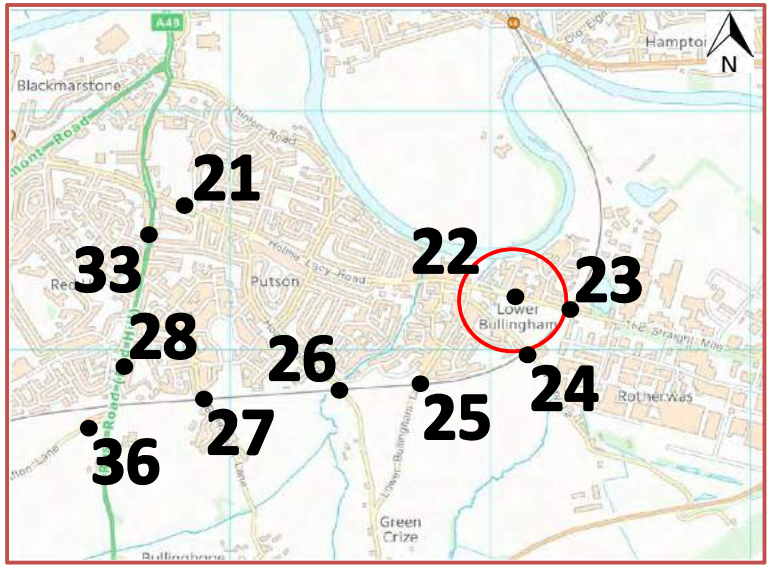
WSP | PARSONS BRINCKERHOFF

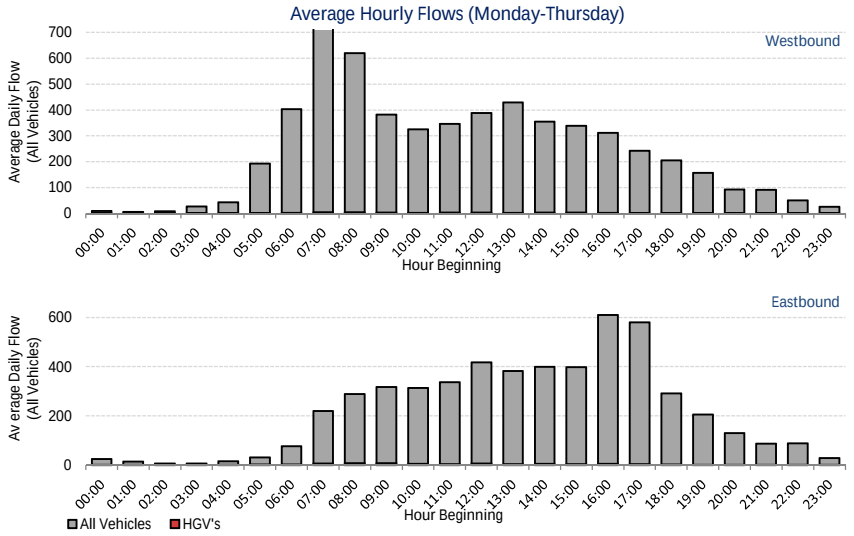
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 22

The Straight Mile (A)







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-23

• FIGURE TITLE

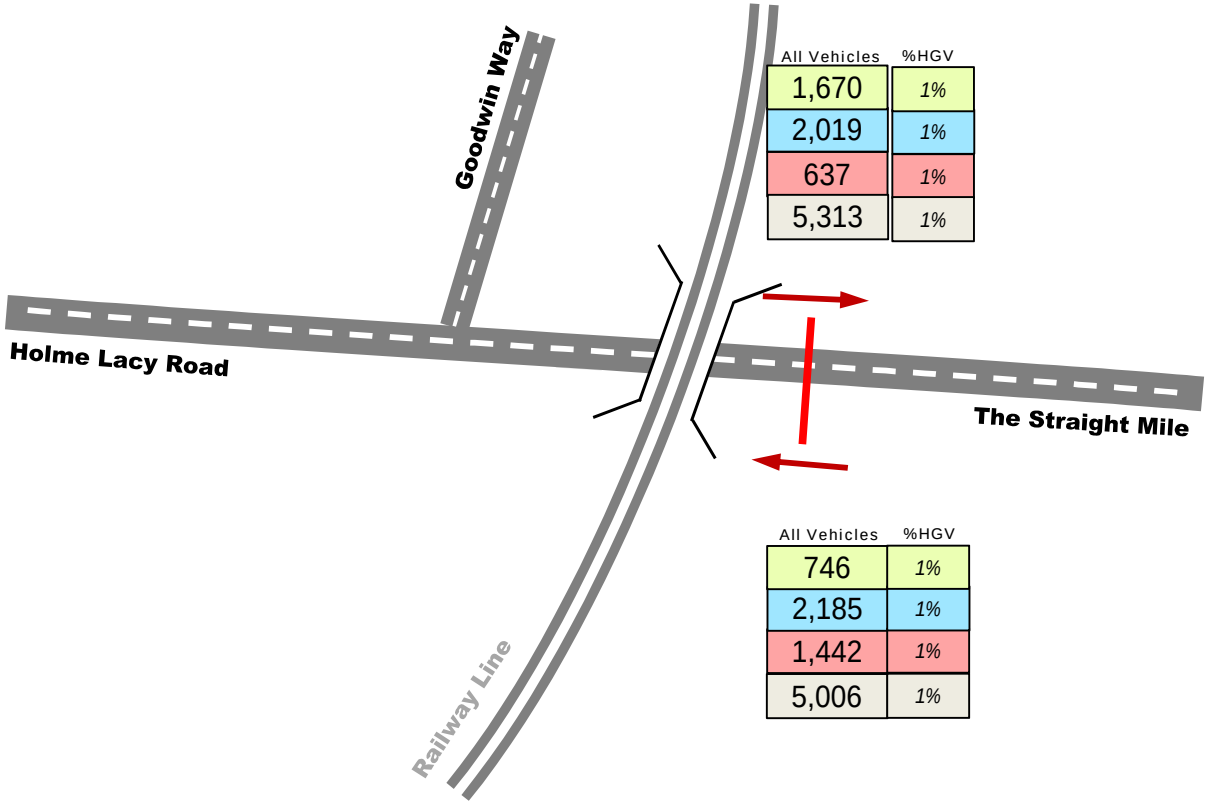
ATC SITE 22 Summary

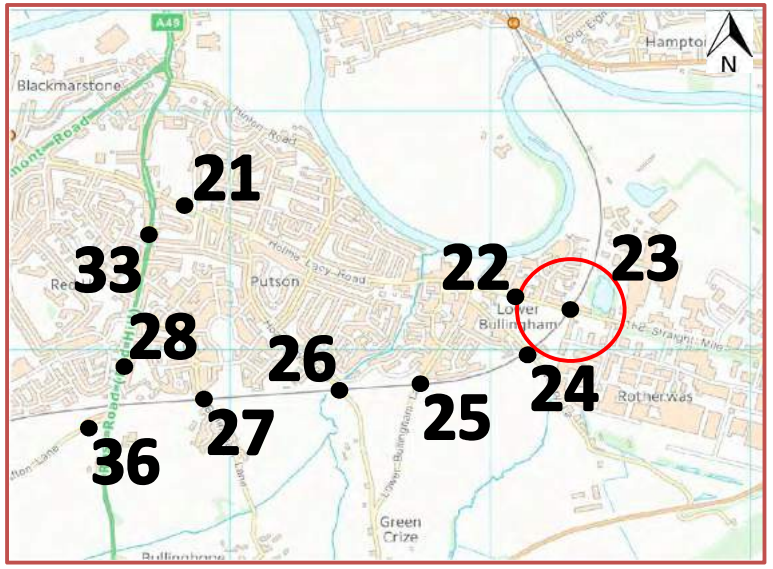
WSP | PARSONS BRINCKERHOFF

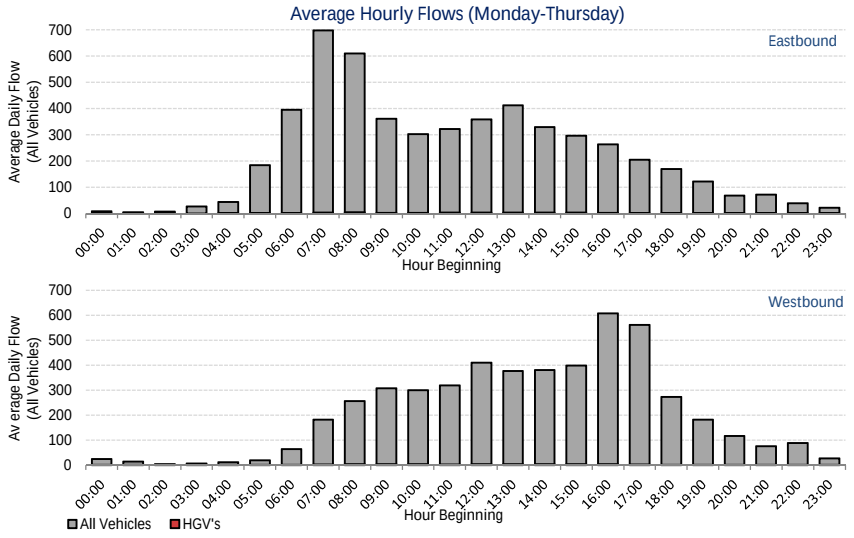
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 23

The Straight Mile (B)







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-24

• FIGURE TITLE

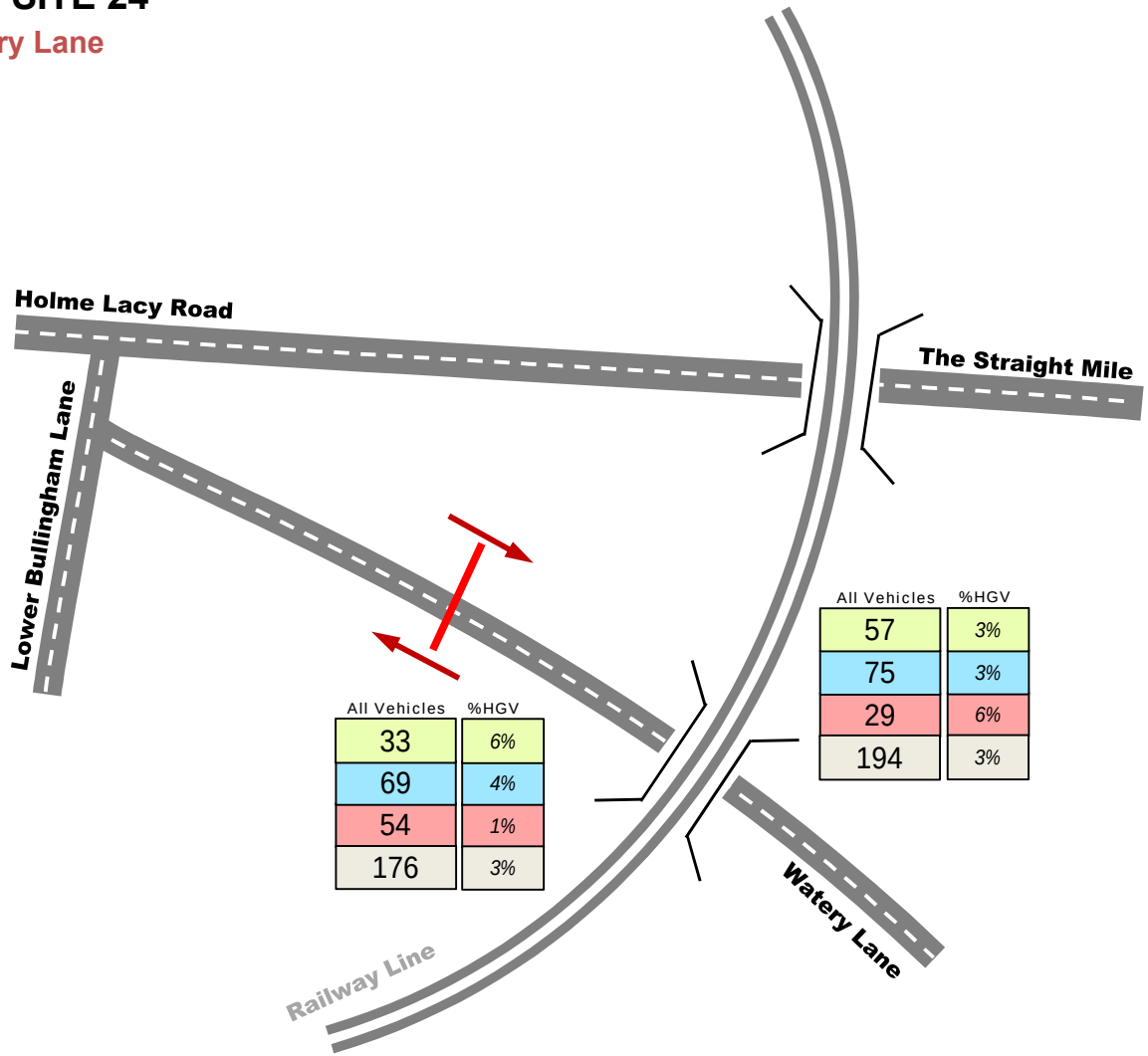
ATC SITE 23 Summary

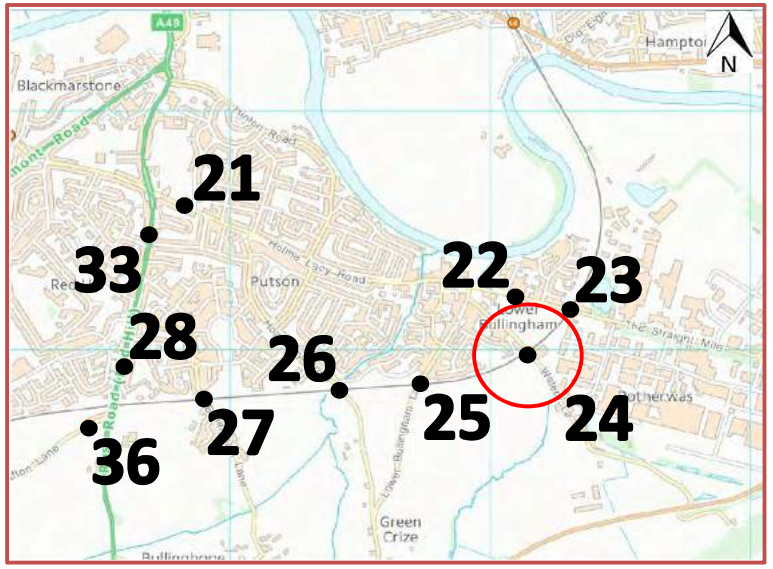
WSP | PARSONS BRINCKERHOFF

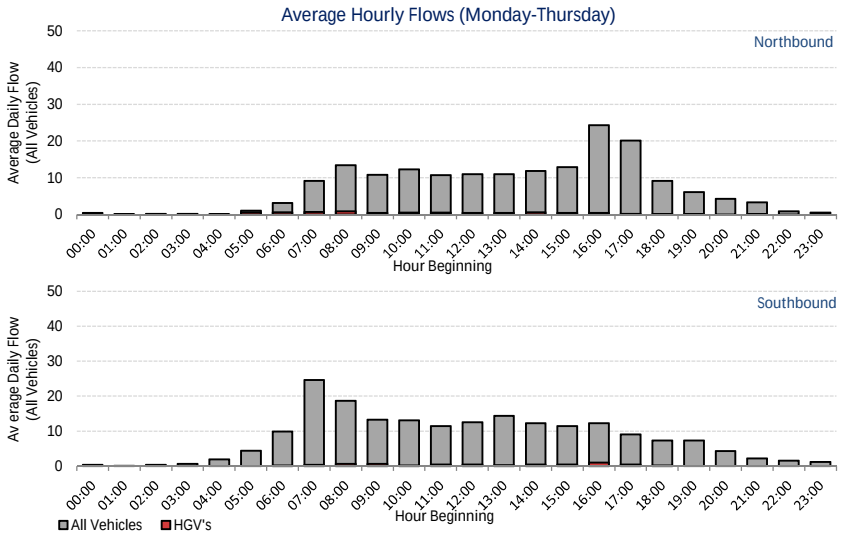
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 24

Watery Lane







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-25

• FIGURE TITLE

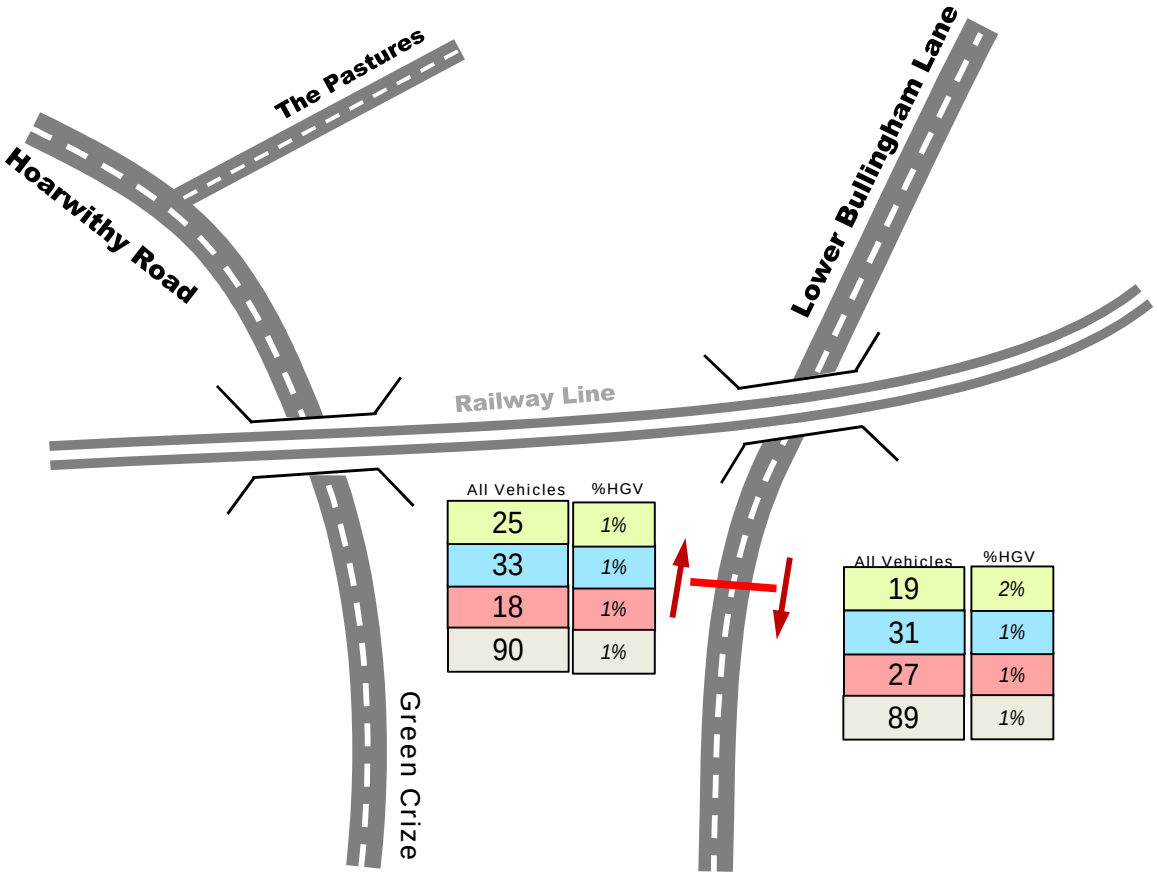
ATC SITE 24 Summary

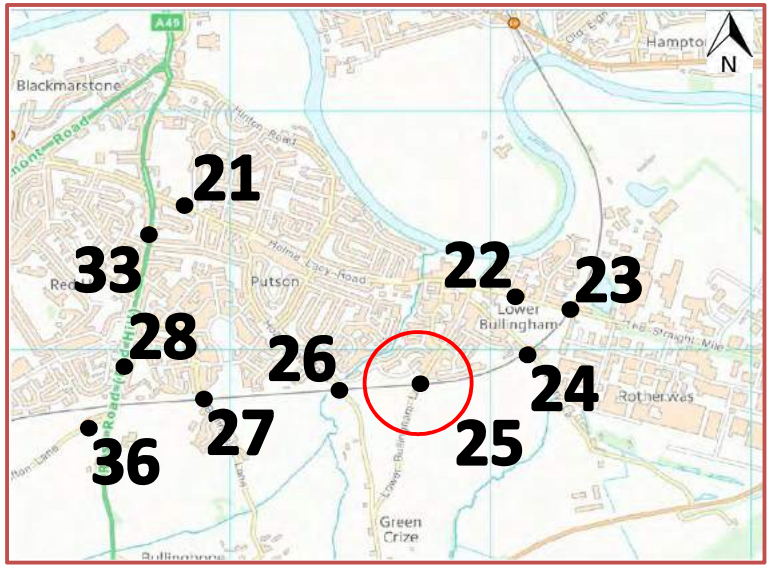
WSP | PARSONS BRINCKERHOFF

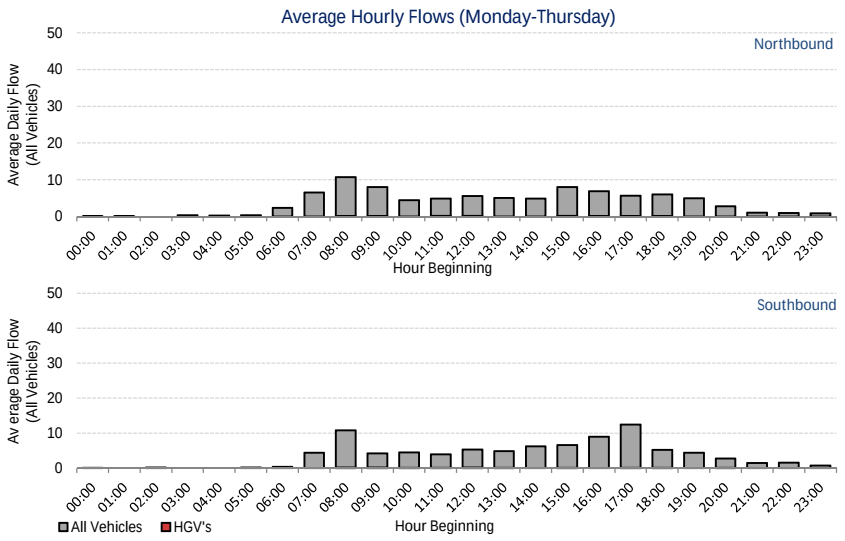
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 25

Lower Bullingham Lane







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-26

• FIGURE TITLE

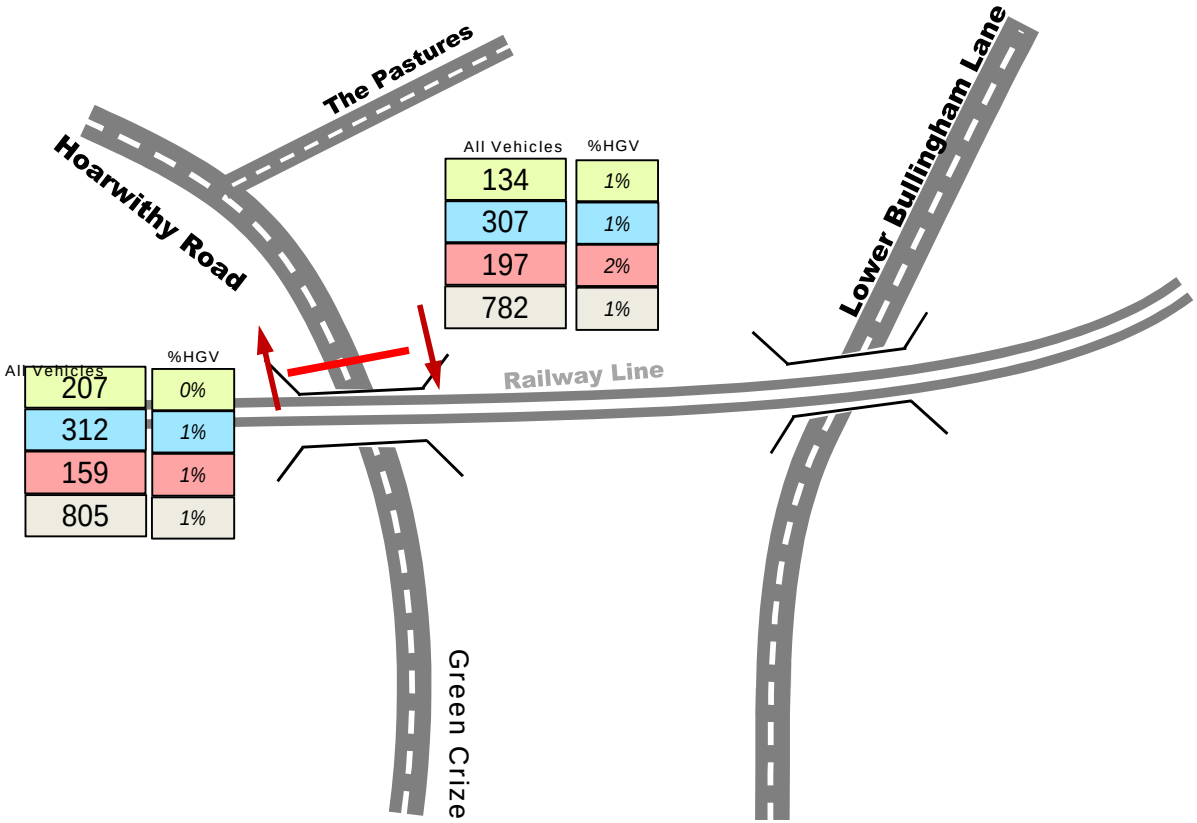
ATC SITE 25 Summary

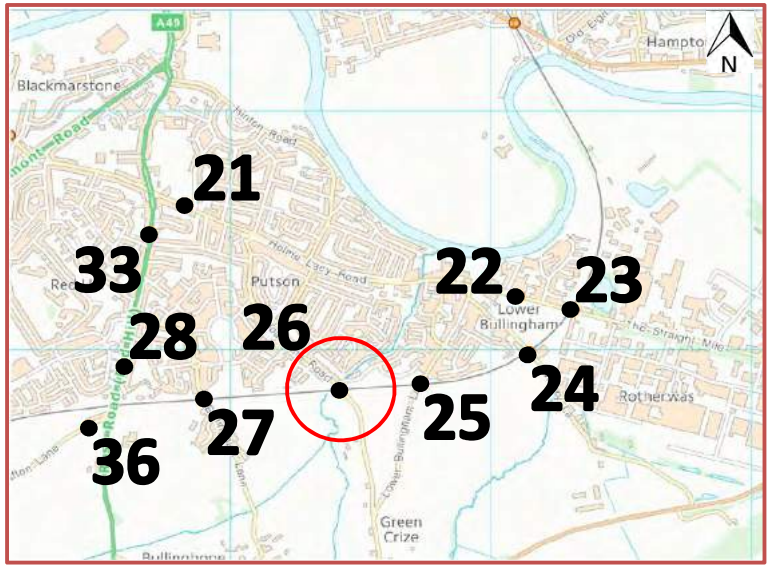
WSP | PARSONS BRINCKERHOFF

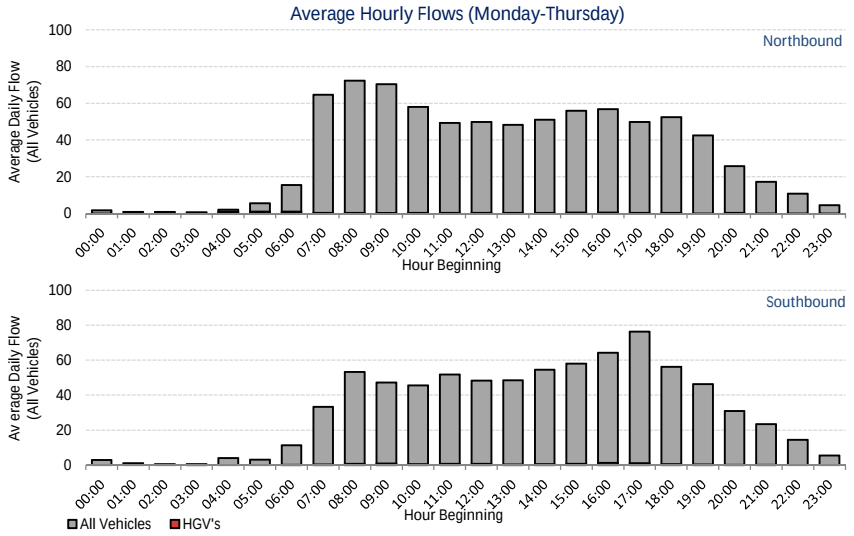
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 26

Hoarwithy Road







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-27

• FIGURE TITLE

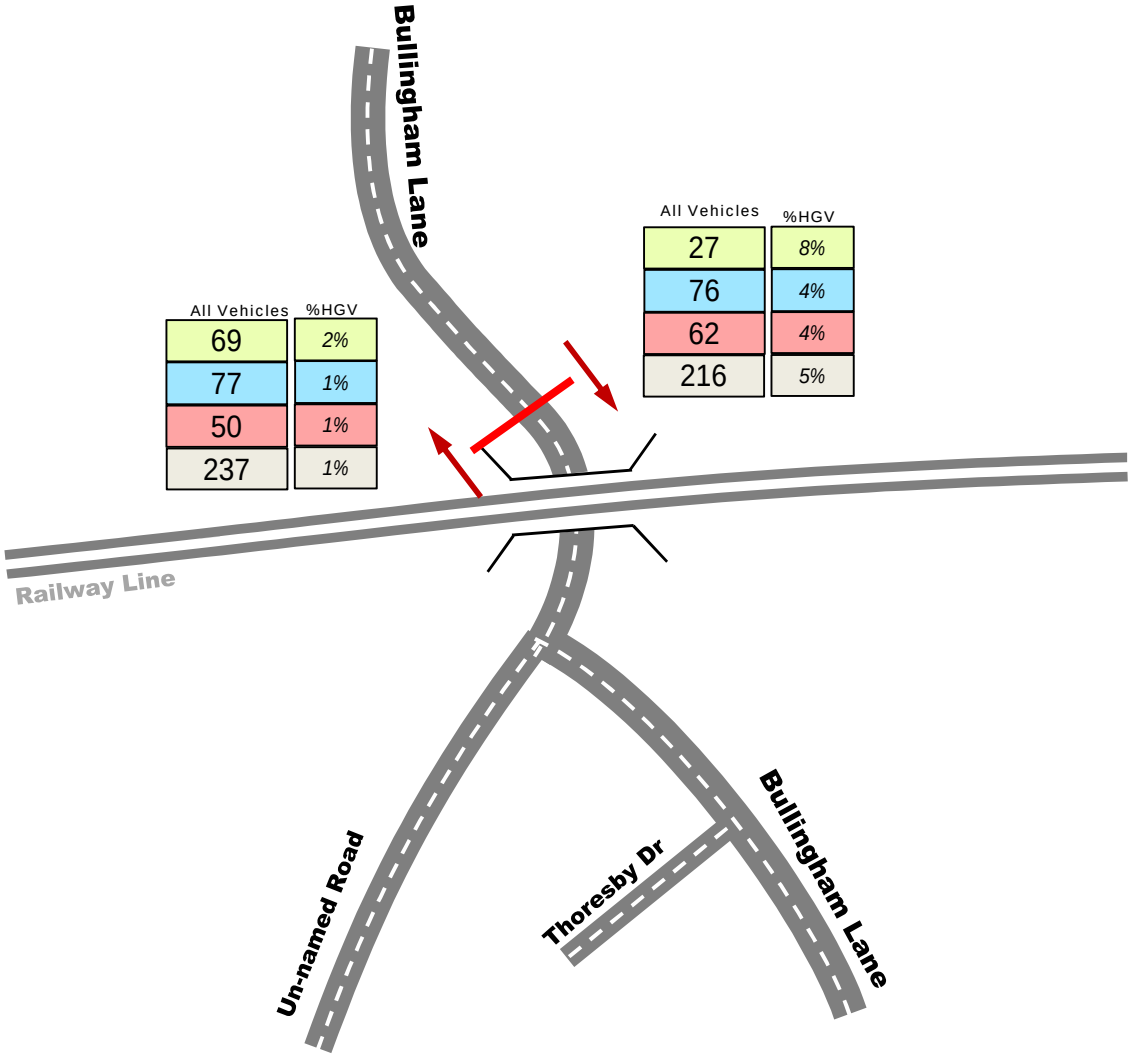
ATC SITE 26 Summary

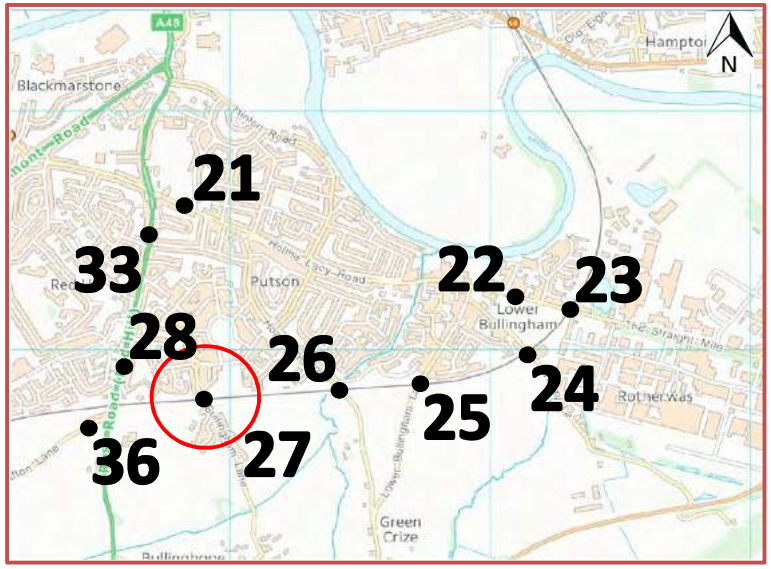
WSP | PARSONS BRINCKERHOFF

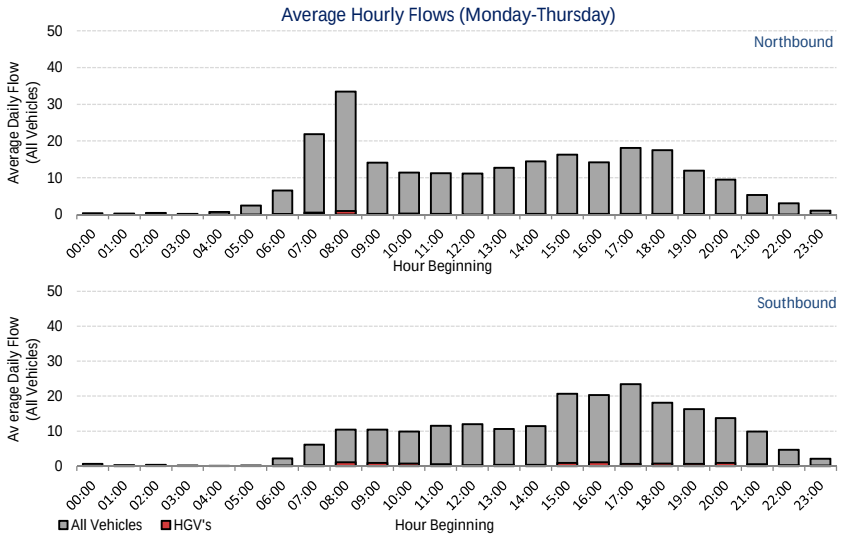
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 27

Bullingham Lane







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-28

• FIGURE TITLE

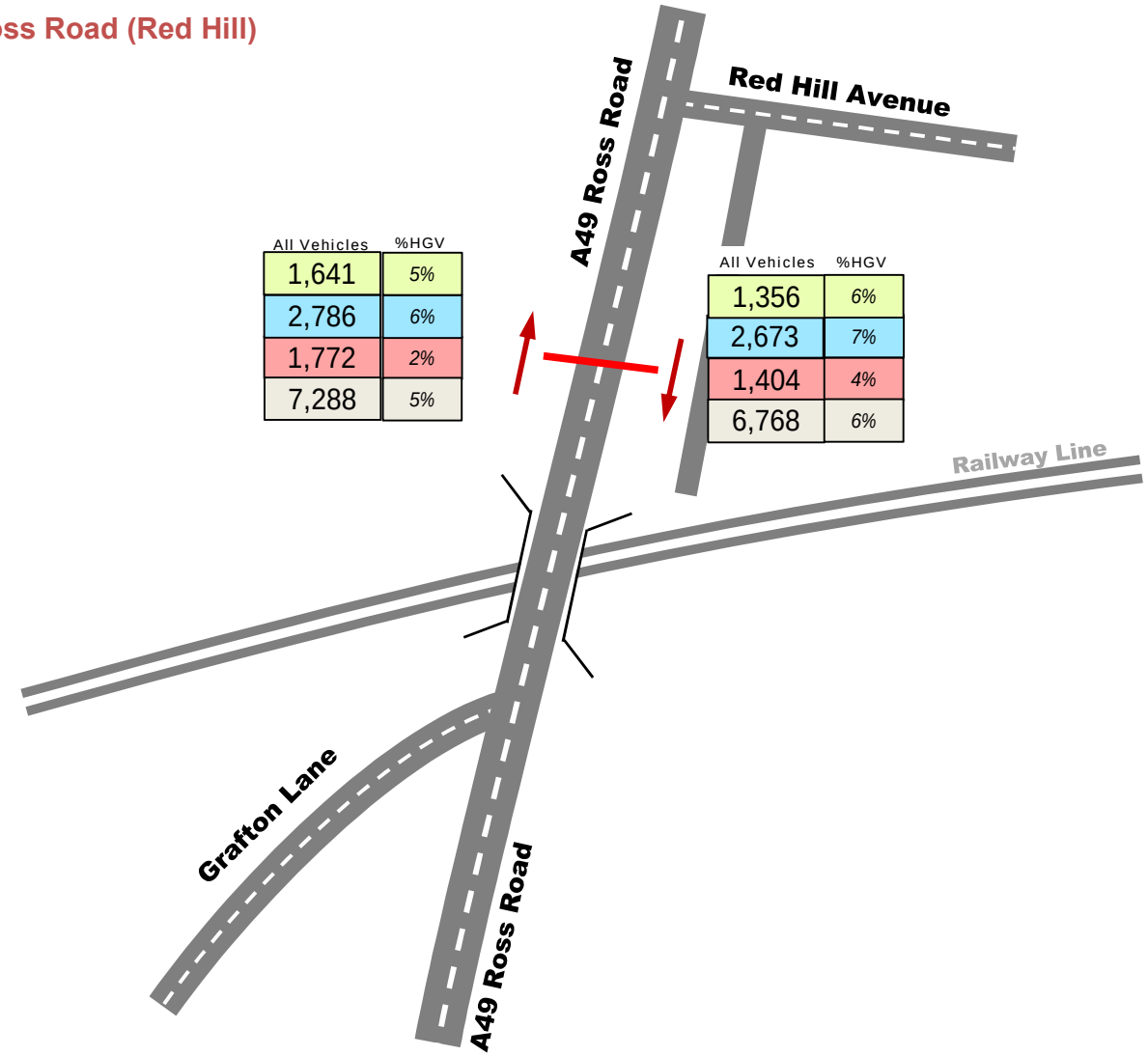
ATC SITE 27 Summary

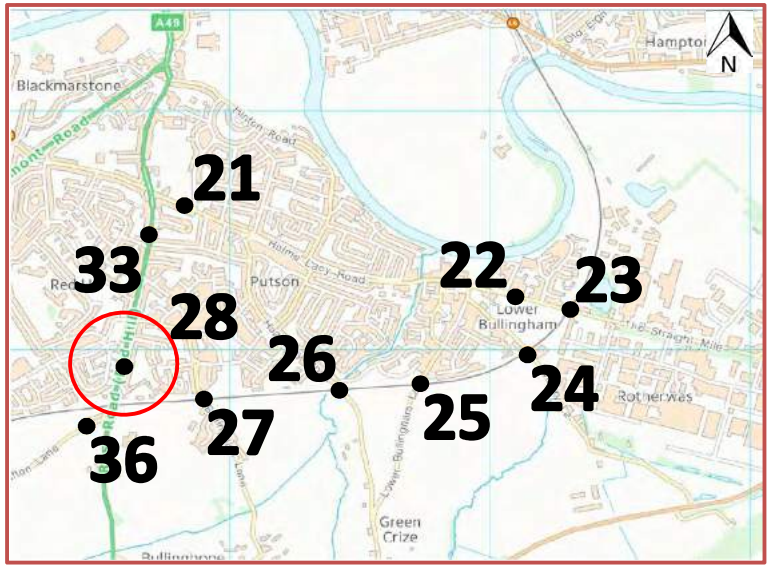
WSP | PARSONS BRINCKERHOFF

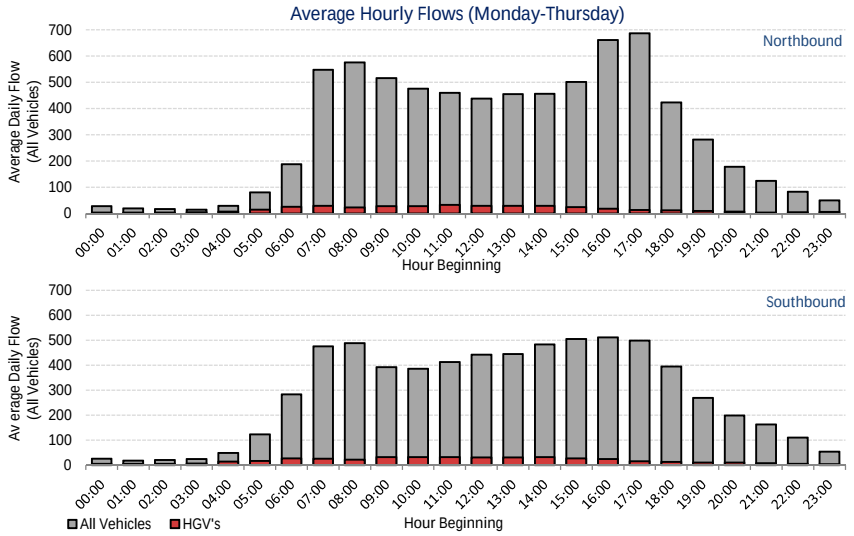
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 28

Ross Road (Red Hill)







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-29

• FIGURE TITLE

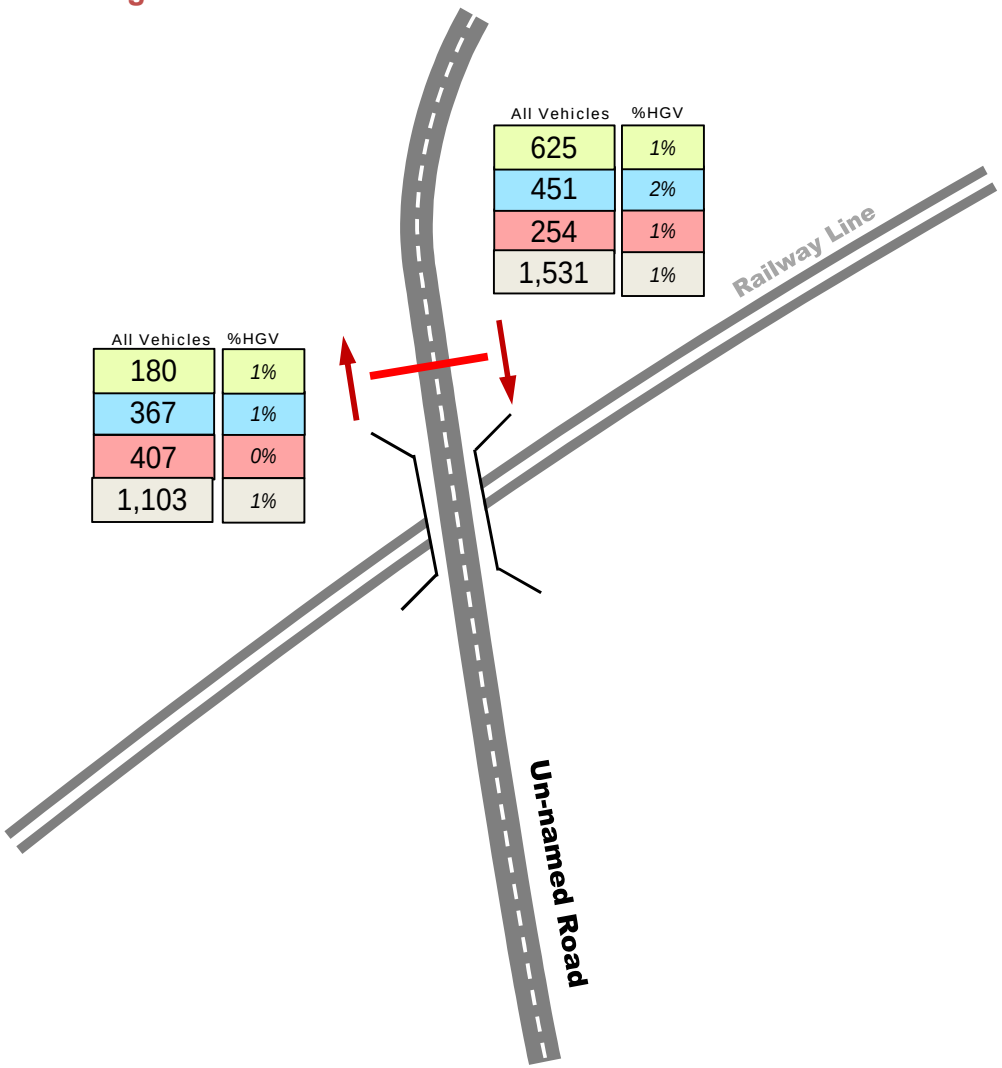
ATC SITE 28 Summary

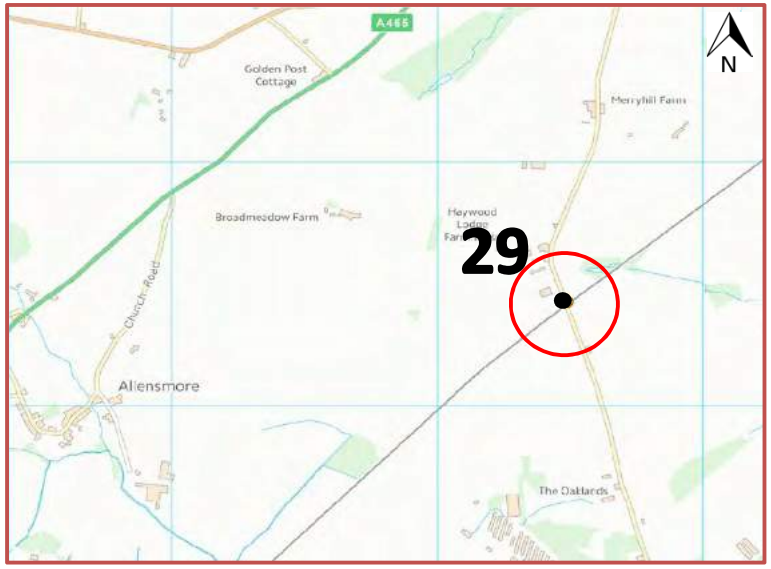
WSP | PARSONS BRINCKERHOFF

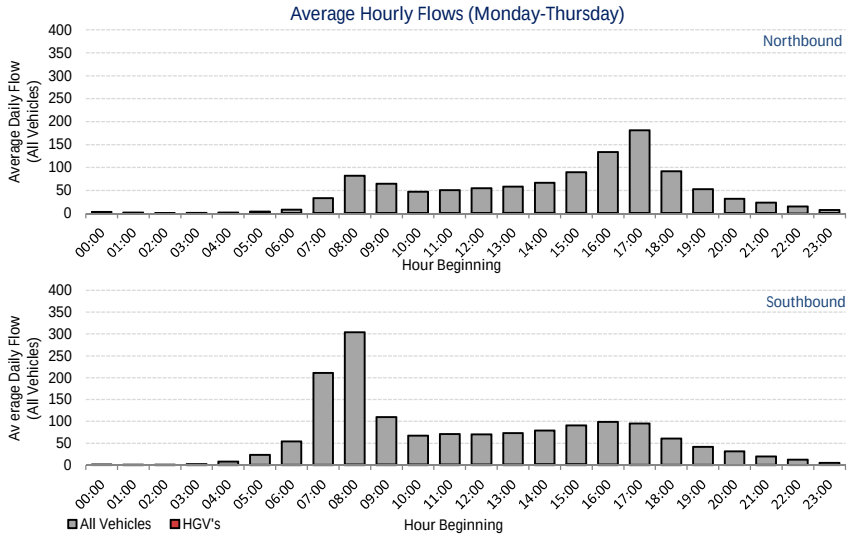
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 29

Near Haywood Lodge Farmhouse







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-30

• FIGURE TITLE

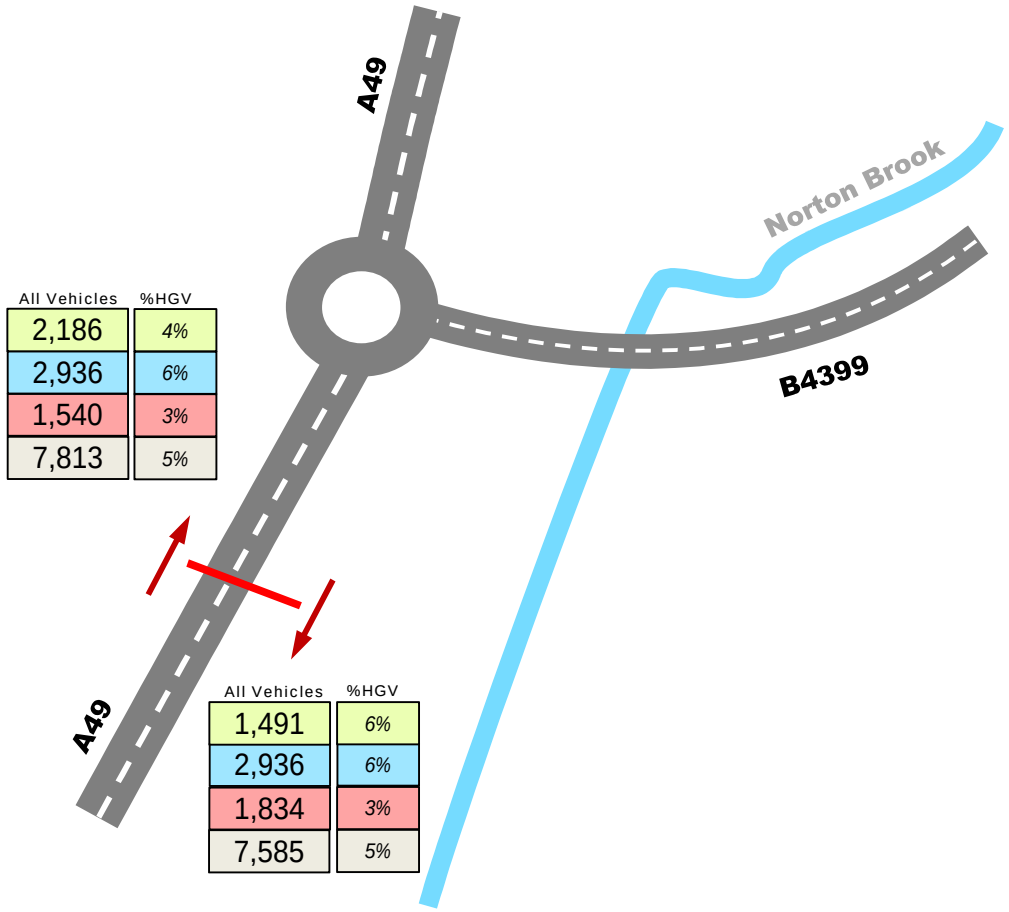
ATC SITE 29 Summary

WSP | PARSONS BRINCKERHOFF

• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

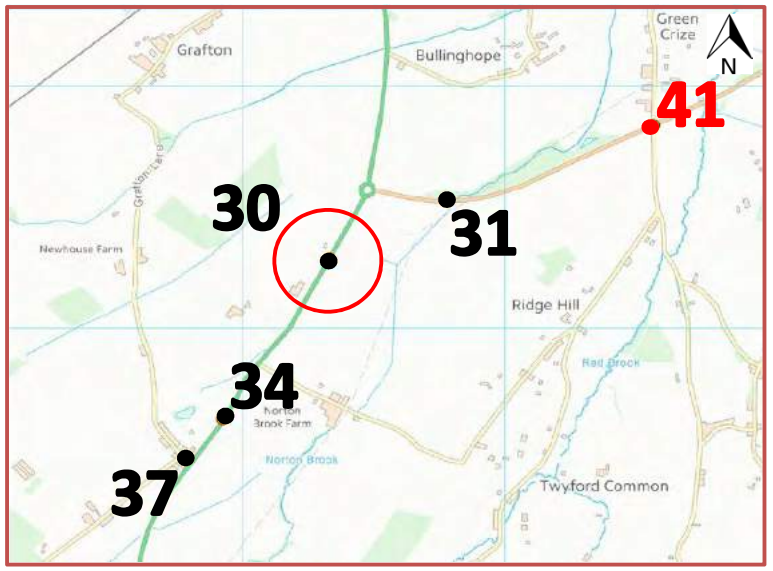
ATC SITE 30

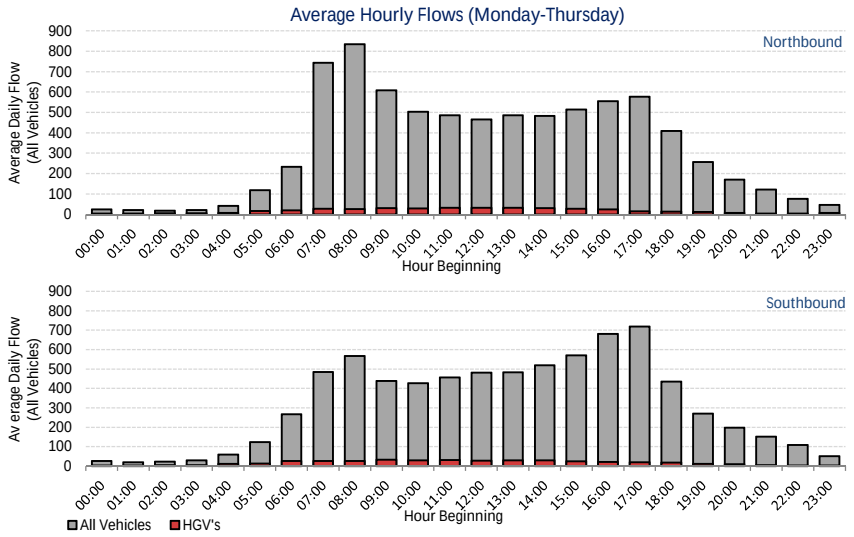
A49 by Norton Brook Farm



All Vehicles	%HGV
2,186	4%
2,936	6%
1,540	3%
7,813	5%

All Vehicles	%HGV
1,491	6%
2,936	6%
1,834	3%
7,585	5%





NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

REV	DATE	DESCRIPTION	BY	CHKD	APPD

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-31

• FIGURE TITLE

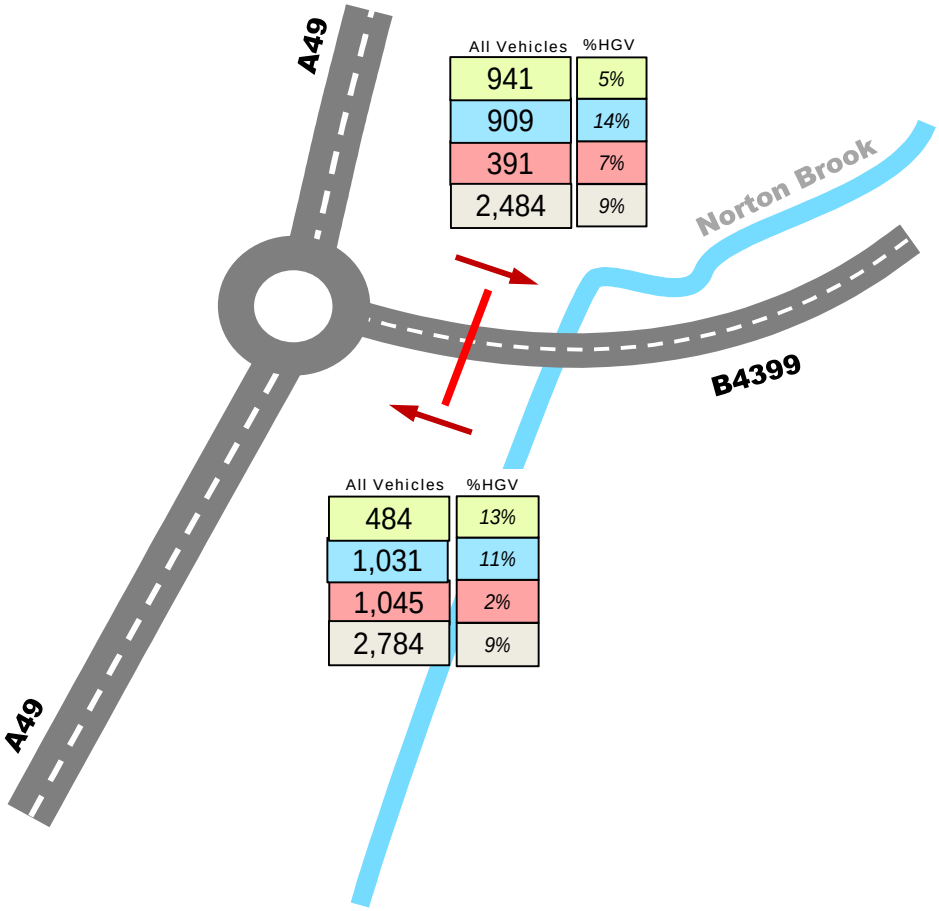
ATC SITE 30 Summary

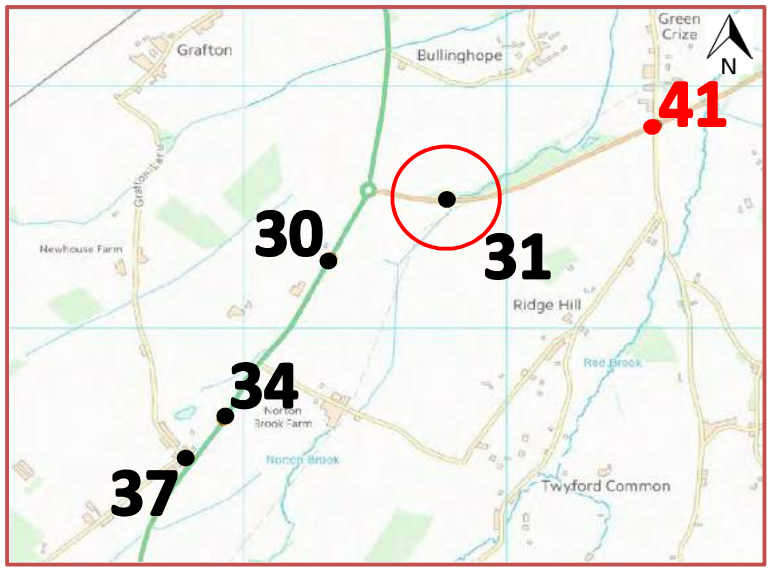
WSP | PARSONS BRINCKERHOFF

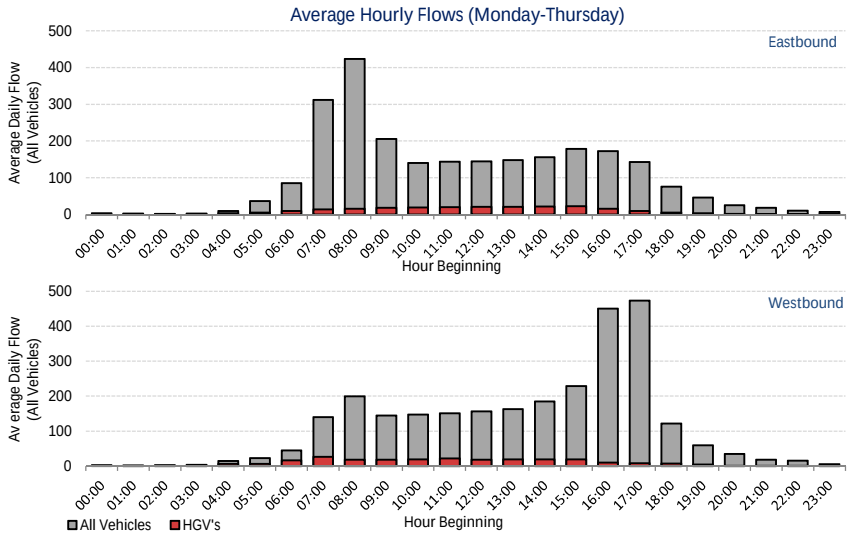
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 31

B4399 near Ridge Hill







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-32

• FIGURE TITLE

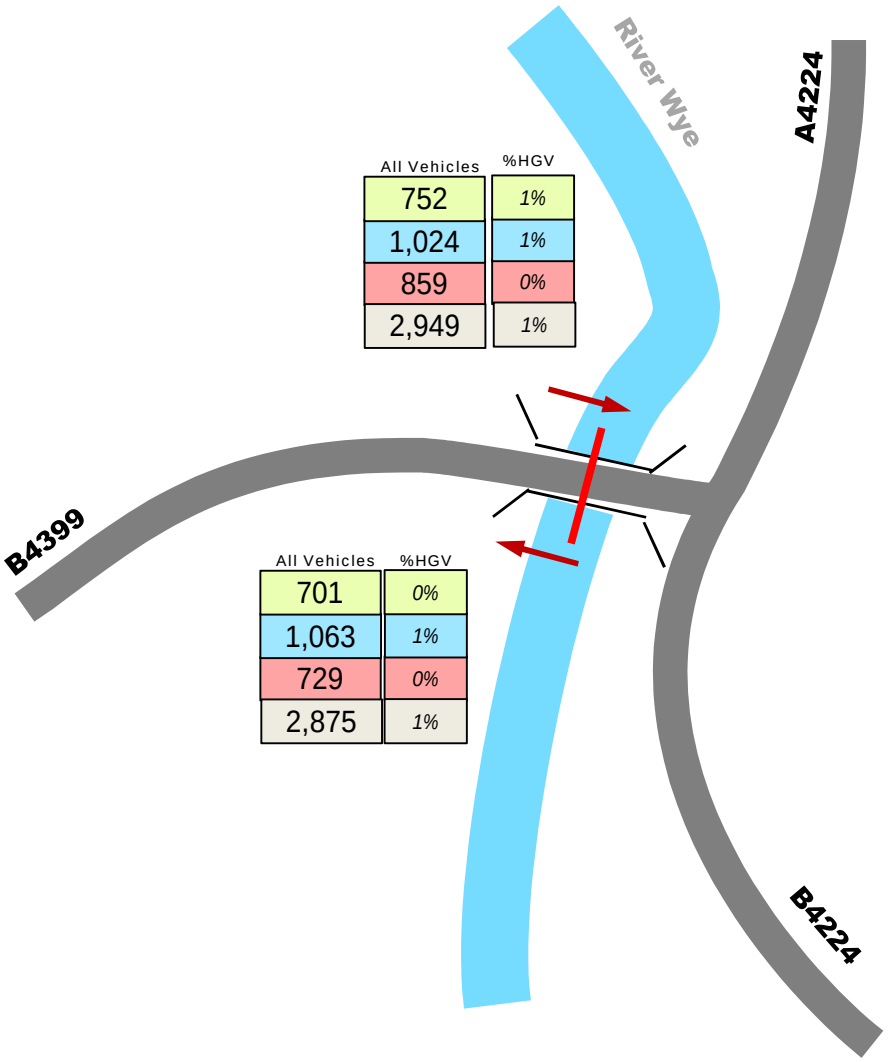
ATC SITE 31 Summary

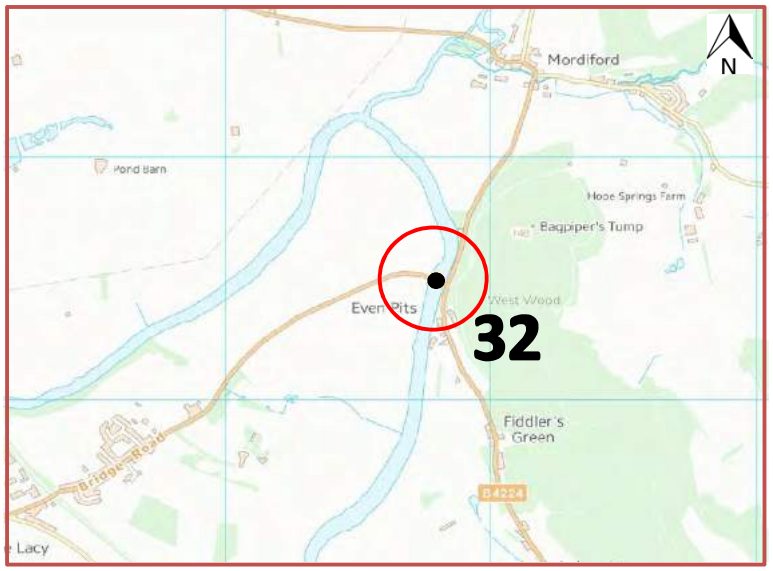
WSP | PARSONS BRINCKERHOFF

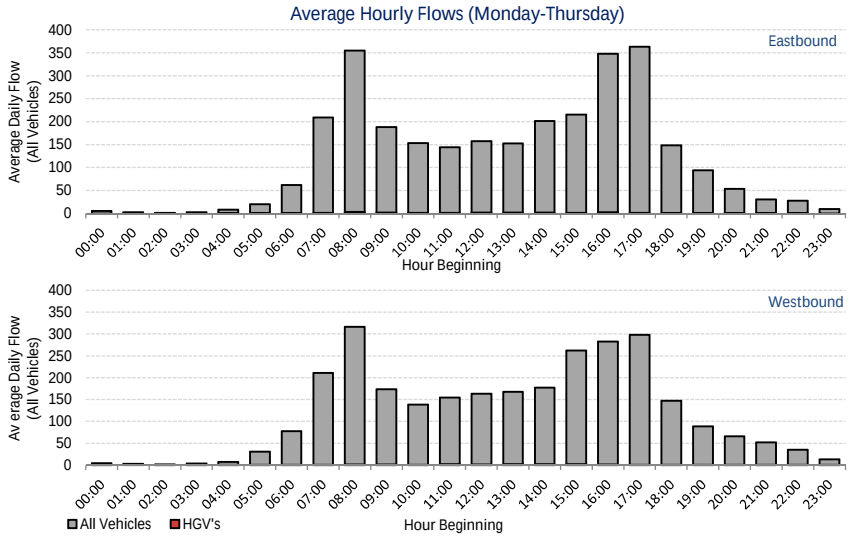
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 32

B4224 by West Wood







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-33

• FIGURE TITLE

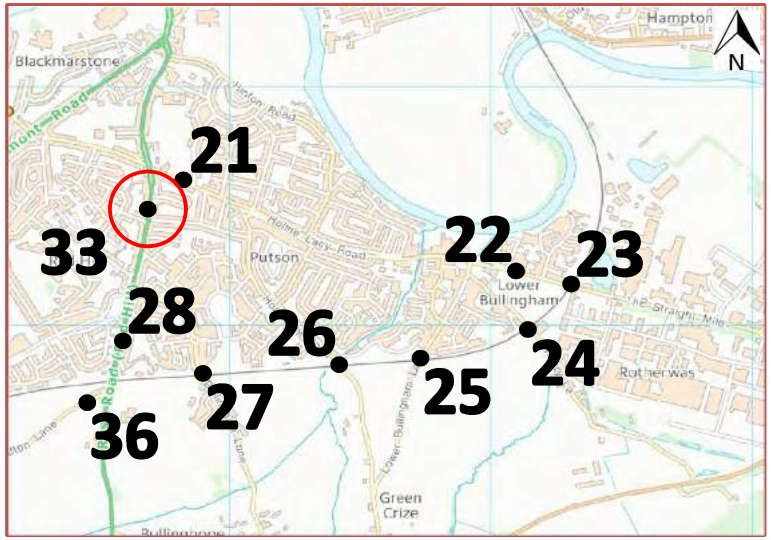
ATC SITE 32 Summary

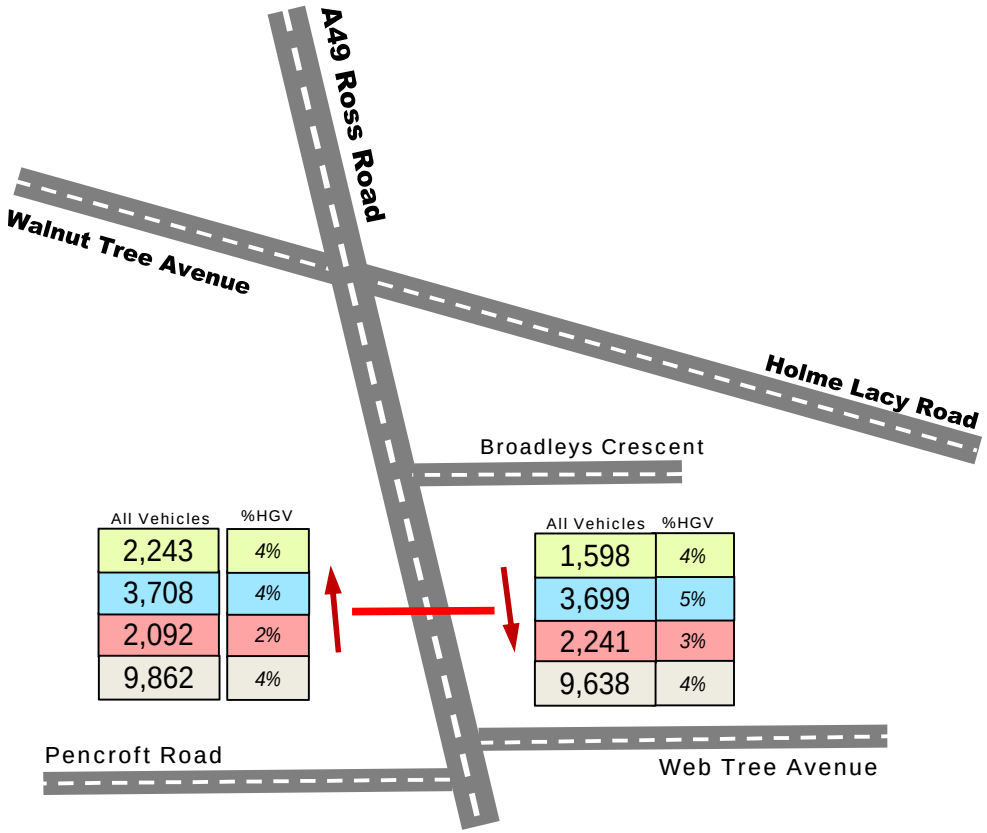
WSP | PARSONS BRINCKERHOFF

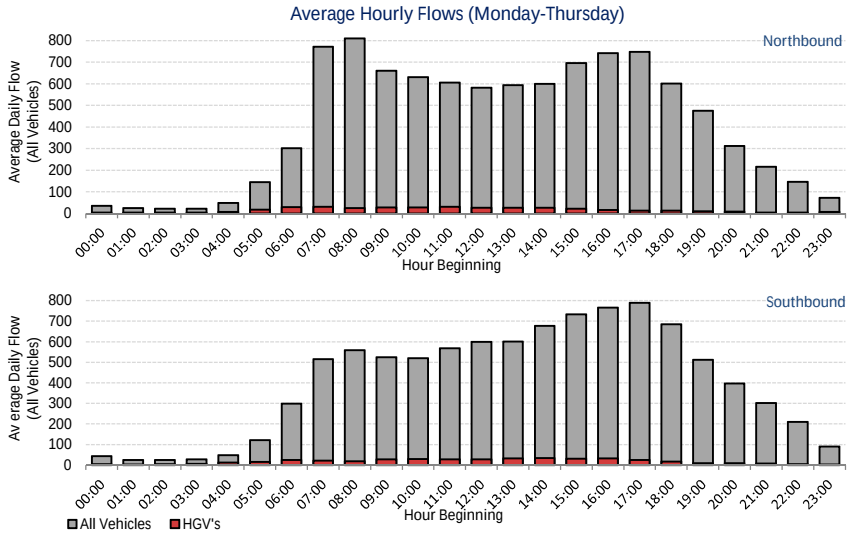
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 33

A49, South of Holme Lacy Road, North of Pencroft Road







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-34

• FIGURE TITLE

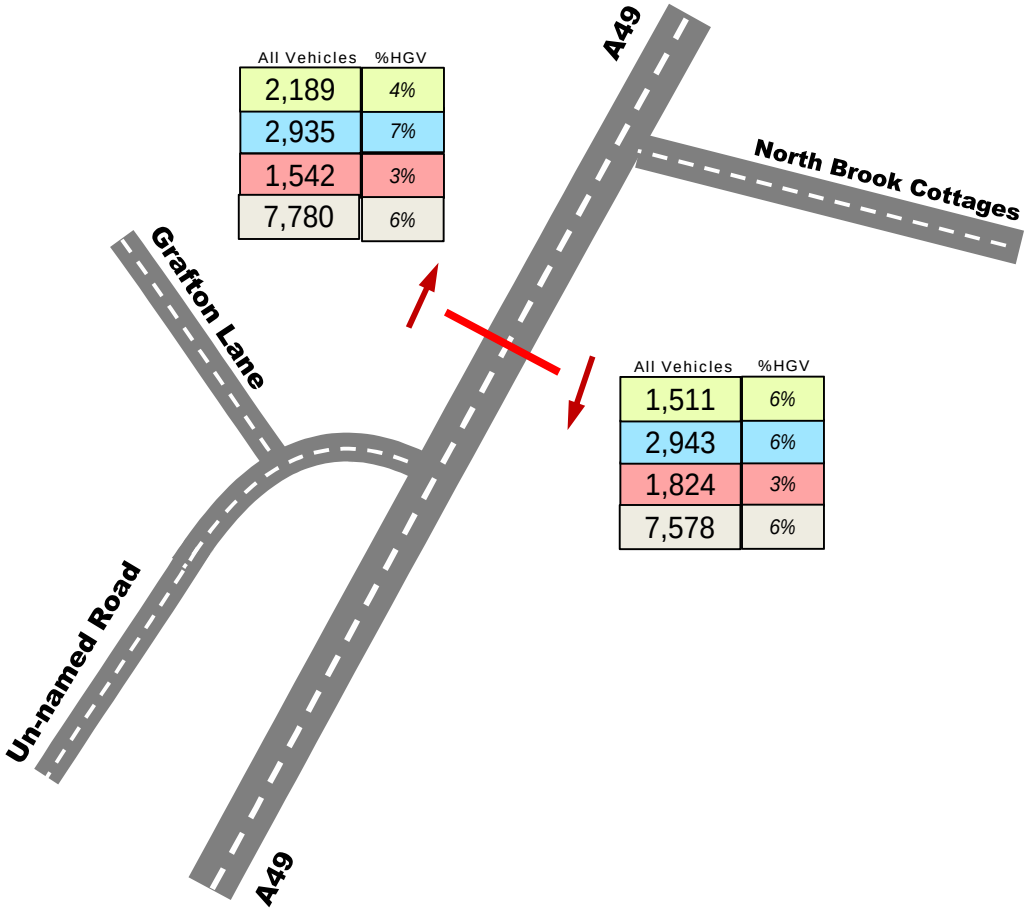
ATC SITE 33 Summary

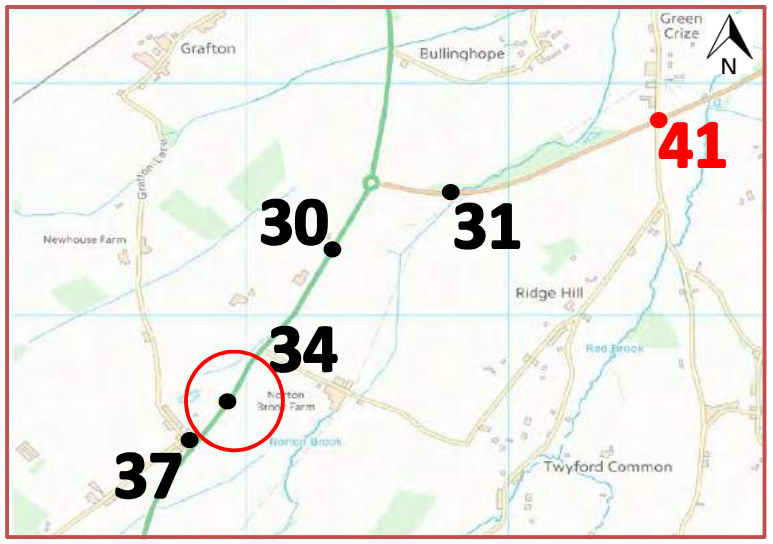
WSP | PARSONS BRINCKERHOFF

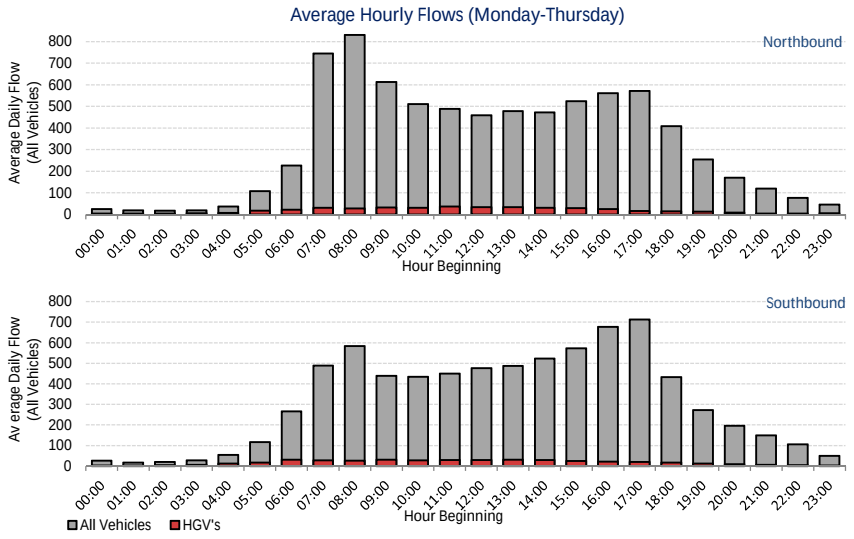
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 34

A49, North of Grafton Lane, South of A49 junction with B4399







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-35

• FIGURE TITLE

ATC SITE 34 Summary

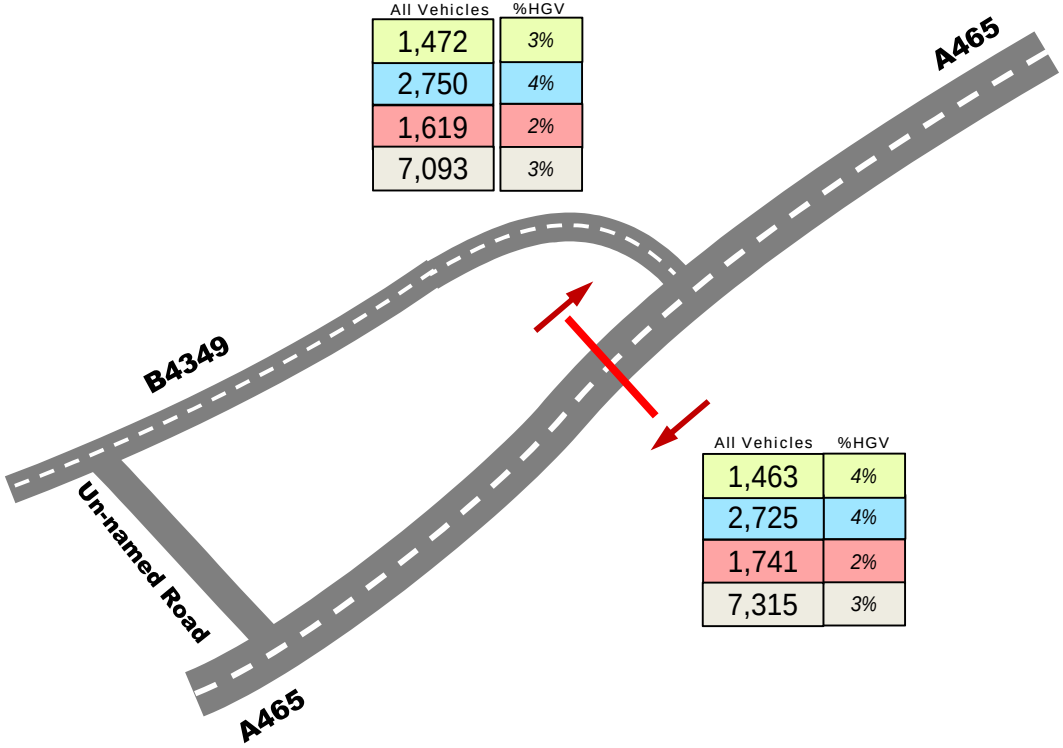
WSP | PARSONS BRINCKERHOFF

• DATE	18/11/2016
• SCALE	NTS
DRAWN BY	GS
CHECKED	DL
APPROVED	MH

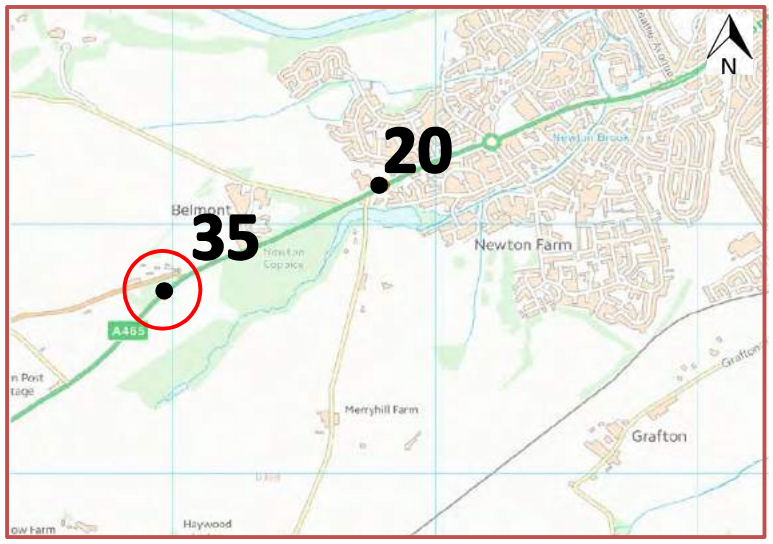
ATC SITE 35

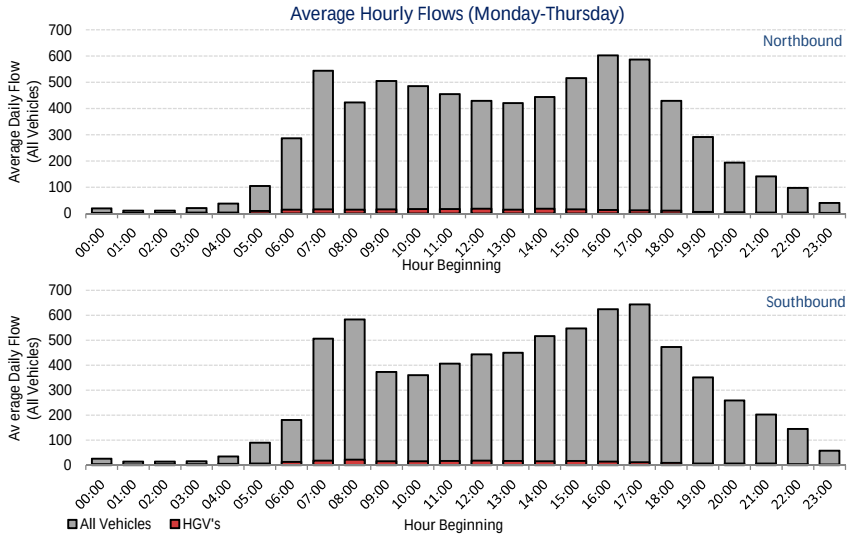
A465, North of junction with Church Road (Goose Pool)

All Vehicles	%HGV
1,472	3%
2,750	4%
1,619	2%
7,093	3%



All Vehicles	%HGV
1,463	4%
2,725	4%
1,741	2%
7,315	3%





REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-36

• FIGURE TITLE

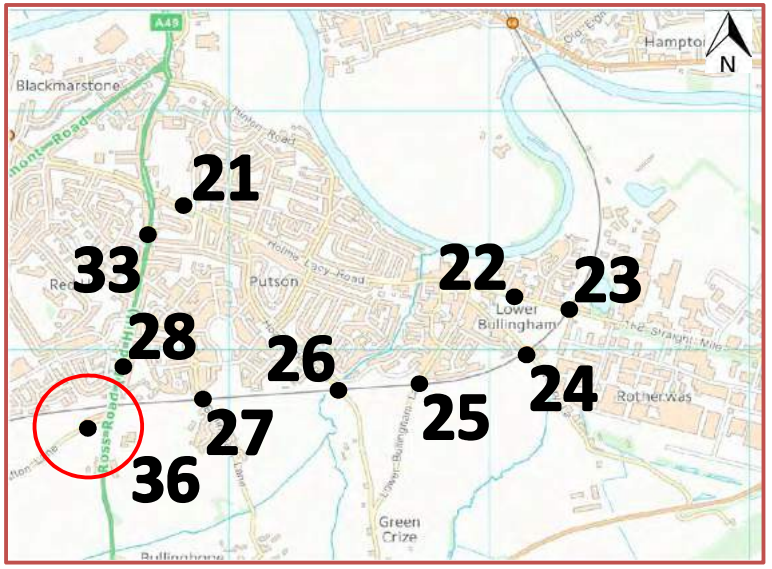
ATC SITE 35 Summary

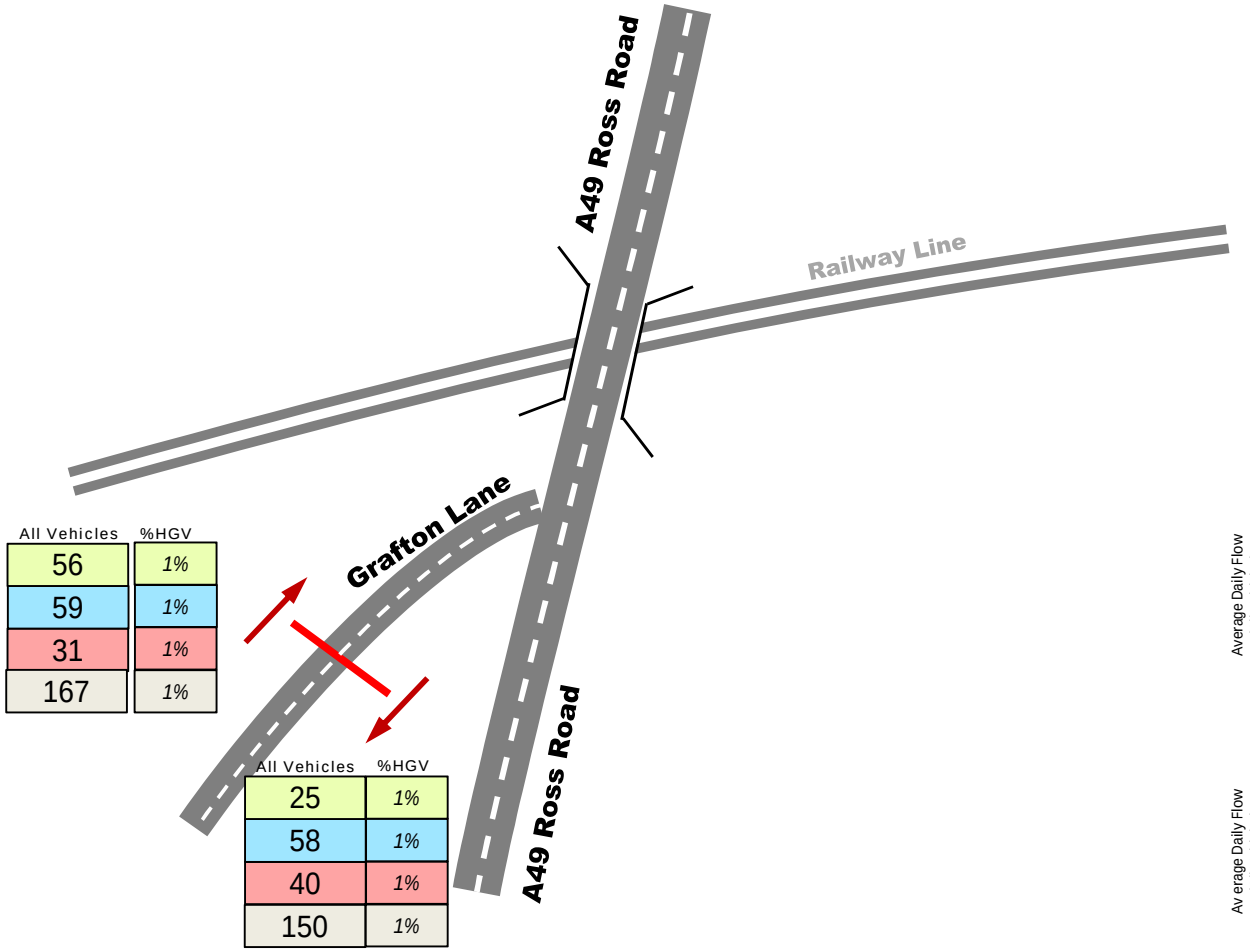
WSP | PARSONS BRINCKERHOFF

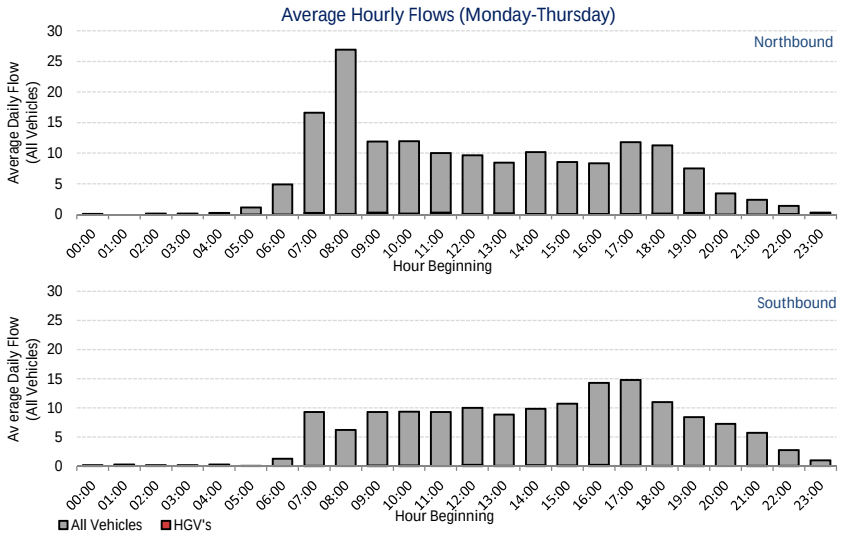
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 36

Grafton Lane (north), On approach to junction with A49(T)







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-37

• FIGURE TITLE

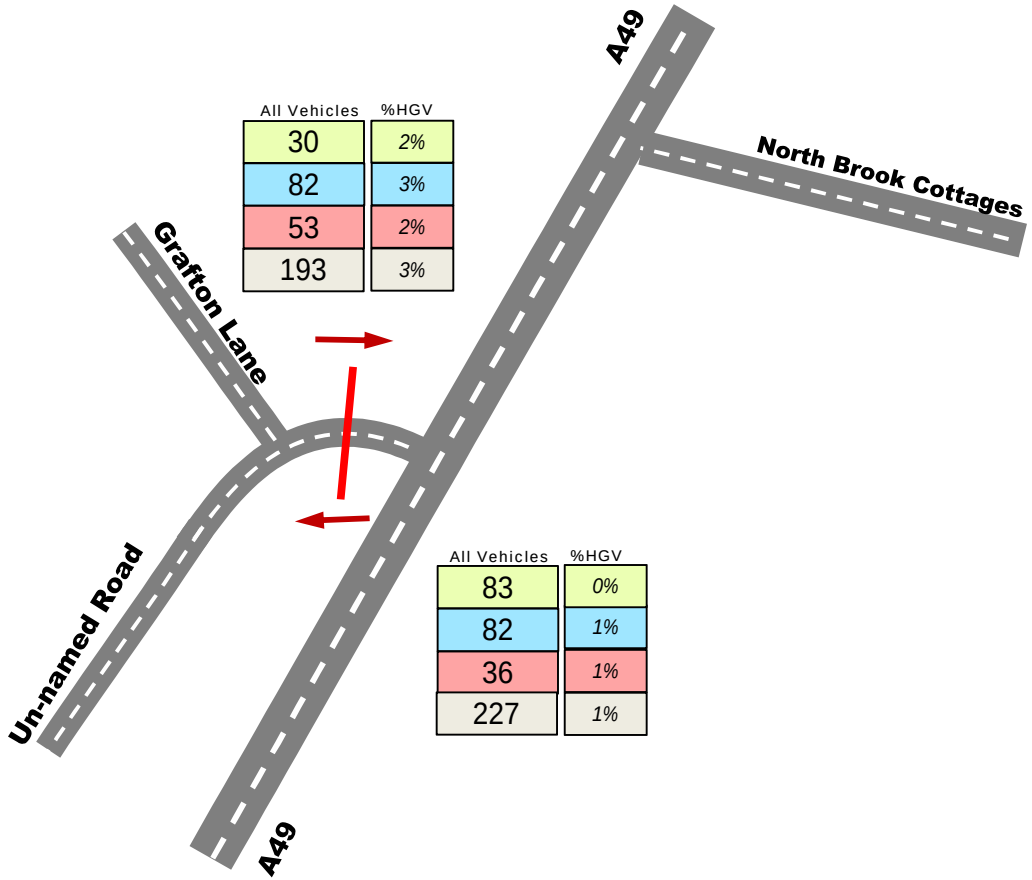
ATC SITE 36 Summary

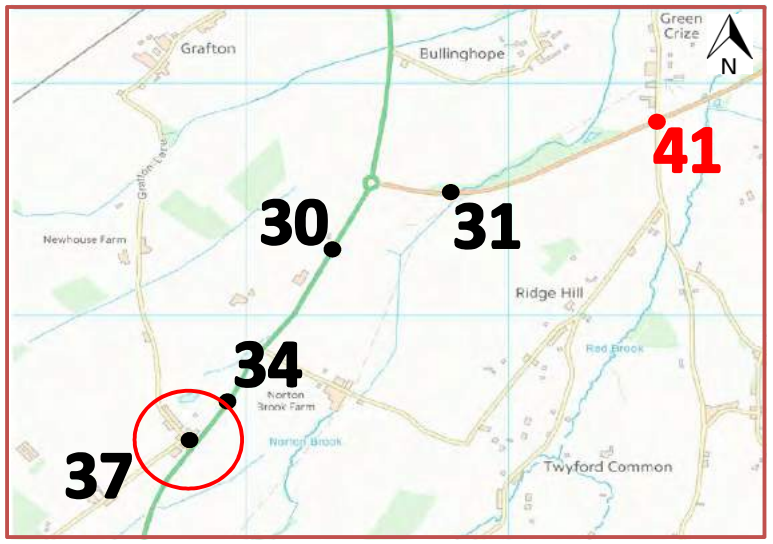
WSP | PARSONS BRINCKERHOFF

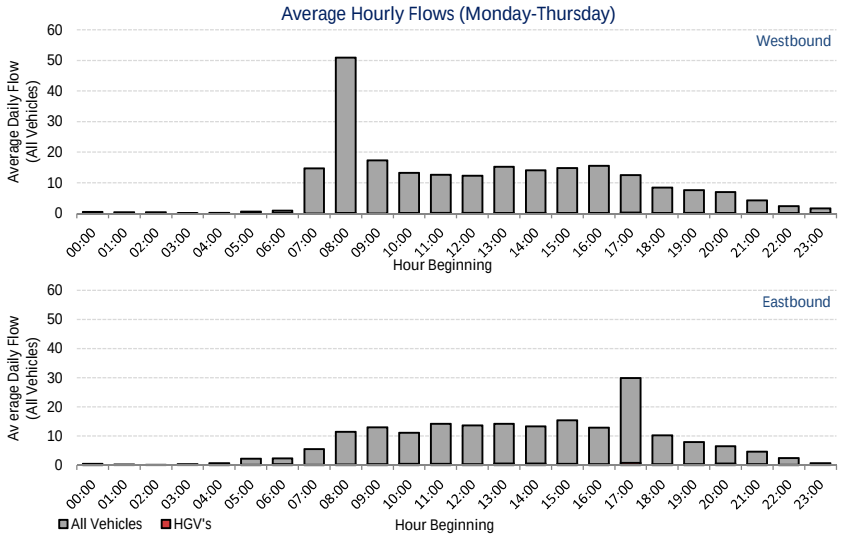
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 37

Grafton Lane (south), on approach to junction with A49(T)







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-38

• FIGURE TITLE

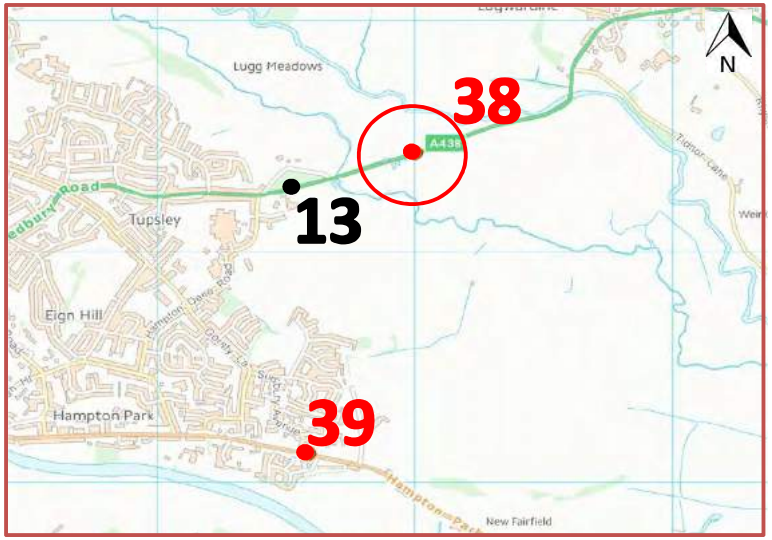
ATC SITE 37 Summary

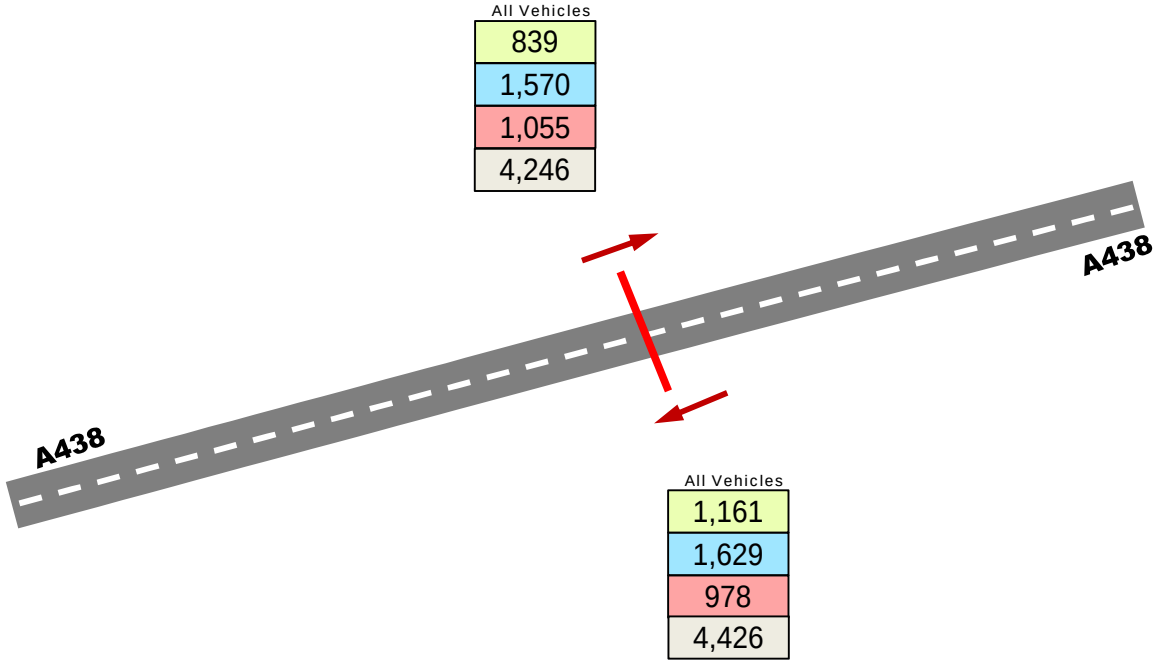
WSP | PARSONS BRINCKERHOFF

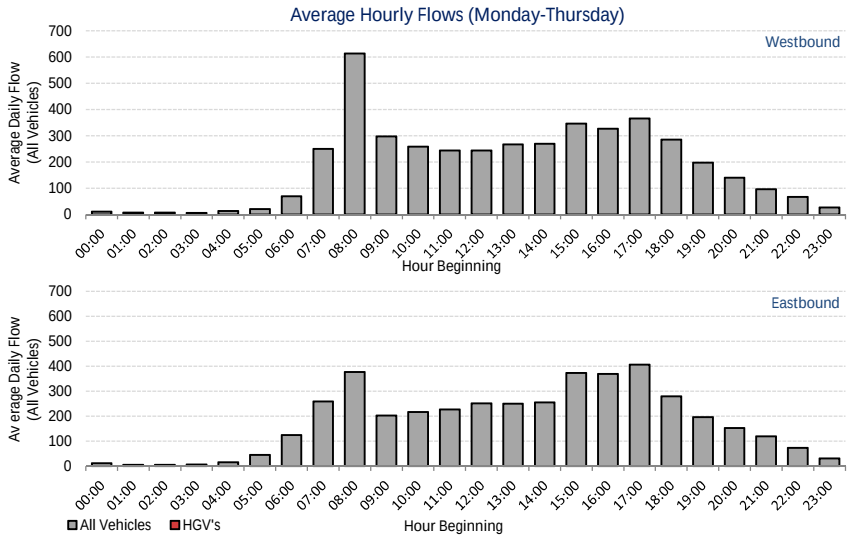
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 38

A438, West of Lugwardine







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-39

• FIGURE TITLE

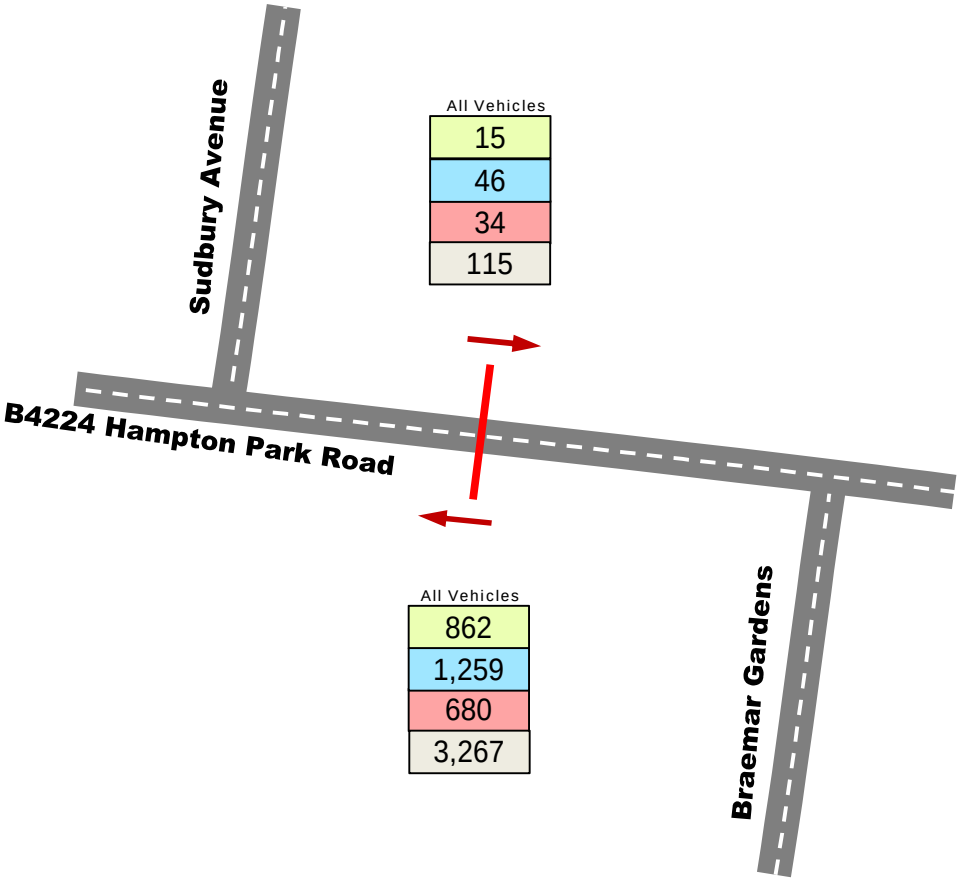
ATC SITE 38 HC Summary

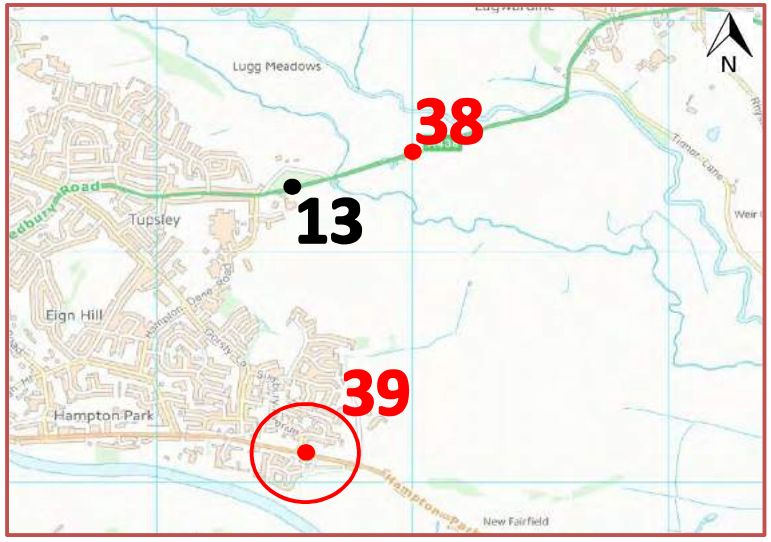
WSP | PARSONS BRINCKERHOFF

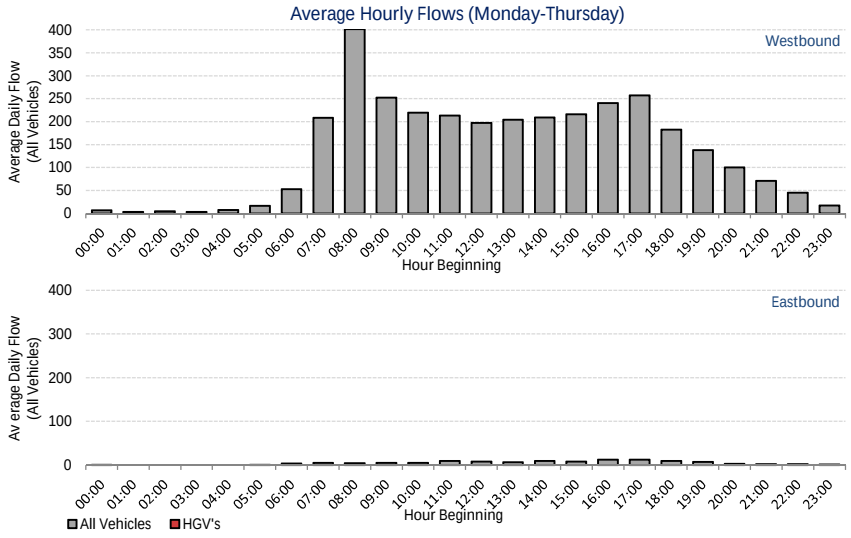
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 39

B4224 Hampton Park Road







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-40

• FIGURE TITLE

ATC SITE 39 HC Summary

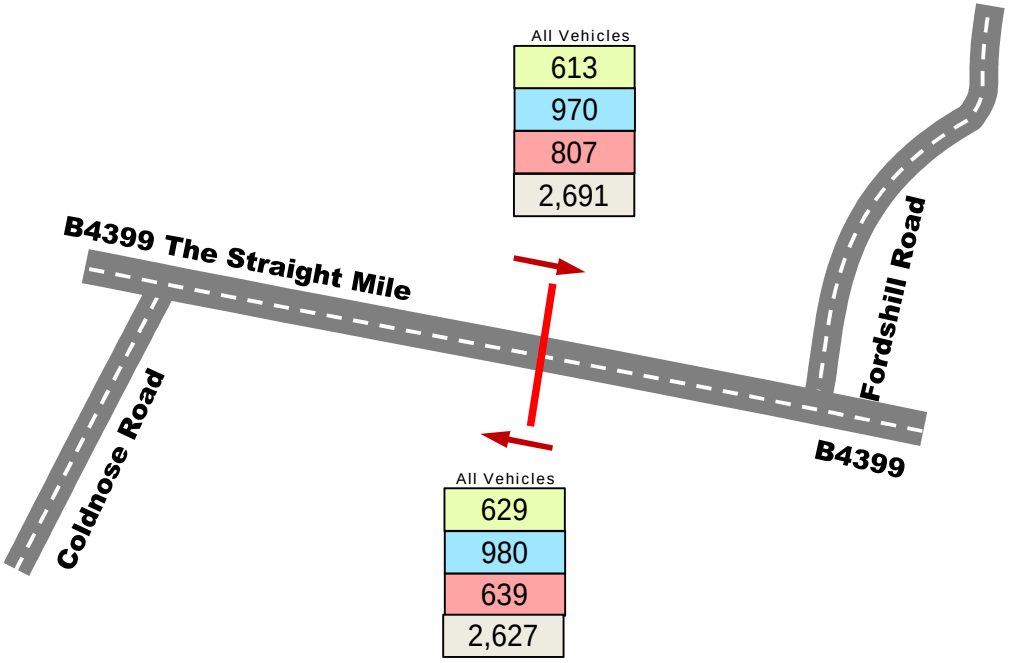
WSP | PARSONS BRINCKERHOFF

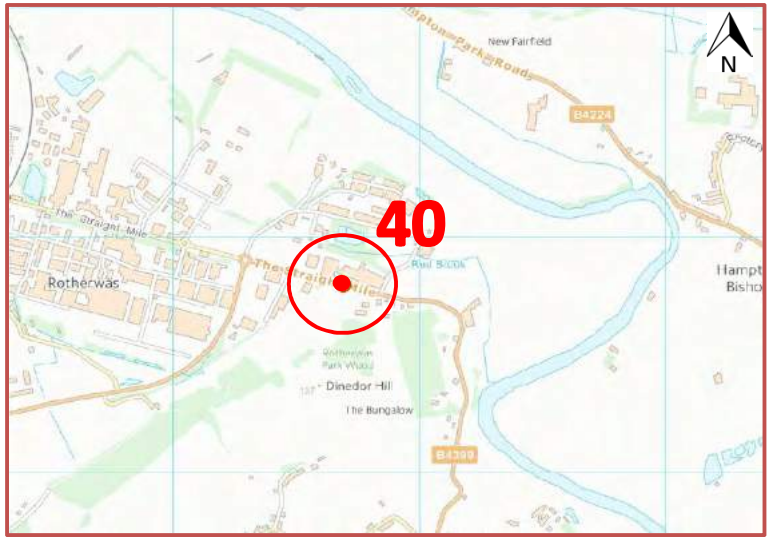
• DATE	18/11/2016
• SCALE	NTS

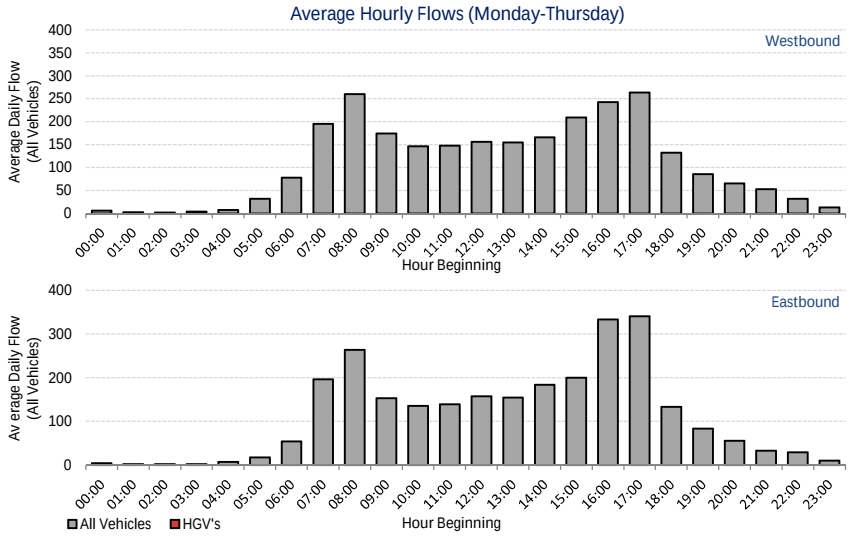
DRAWN BY	GS
CHECKED	DL
APPROVED	MH

ATC SITE 40

B4399, The Straight Mile, north of Dinedor Hill







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-41

• FIGURE TITLE

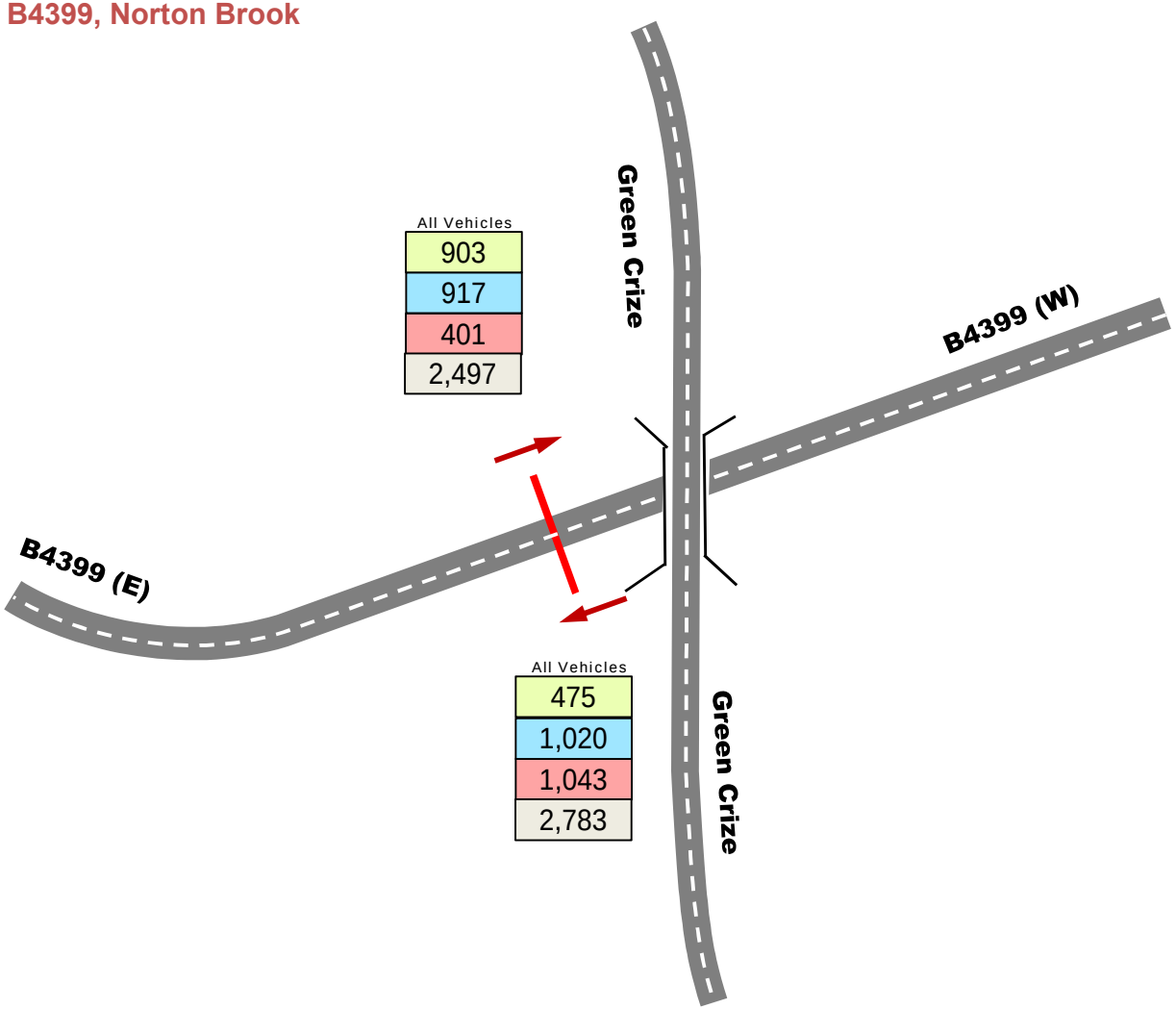
ATC SITE 40 HC Summary

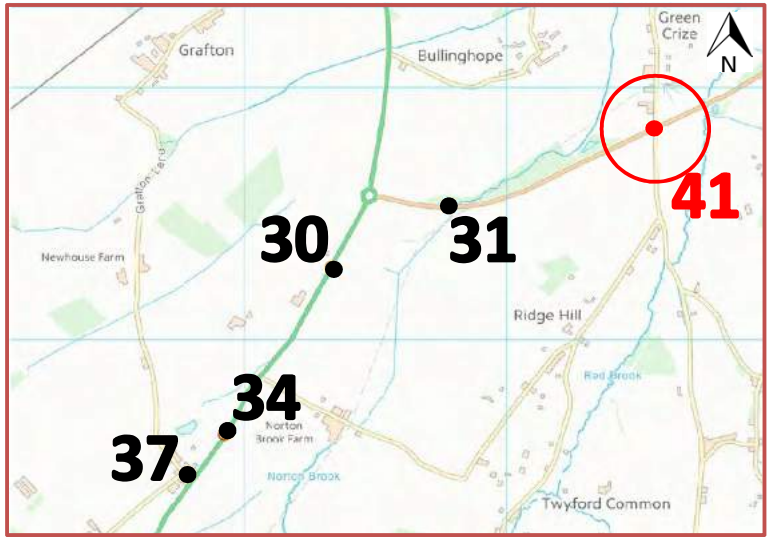
WSP | PARSONS BRINCKERHOFF

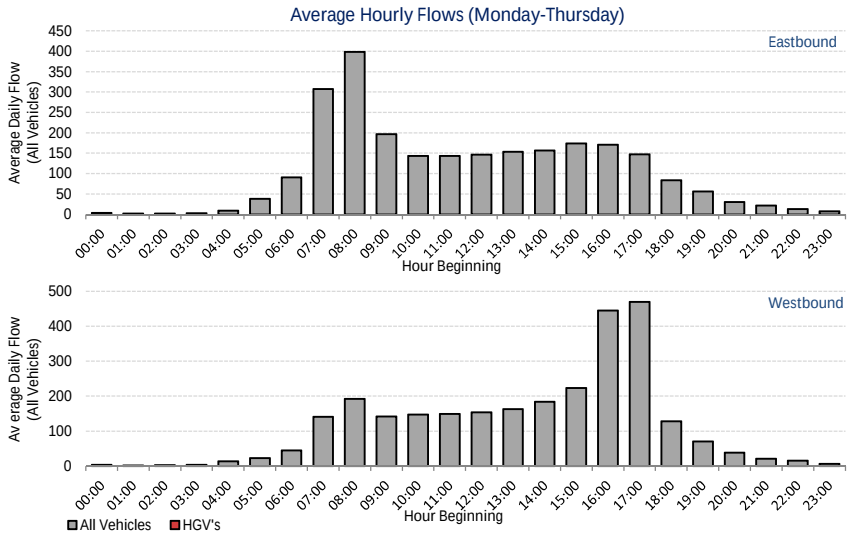
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 41

B4399, Norton Brook







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-42

• FIGURE TITLE

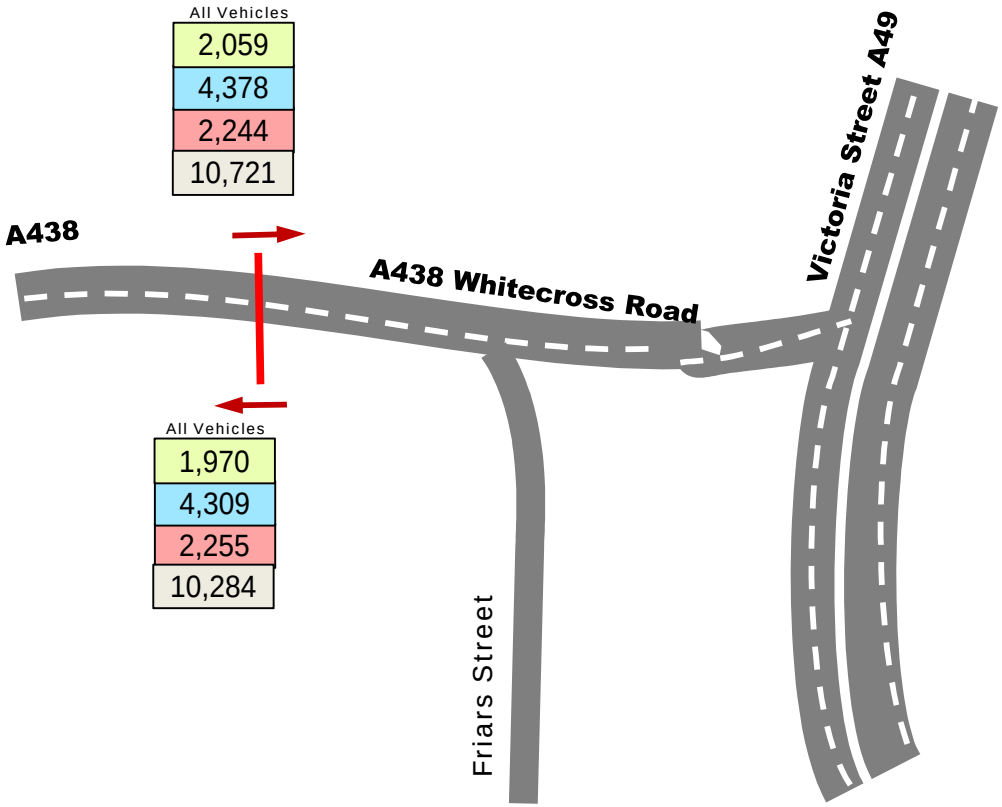
ATC SITE 41 HC Summary

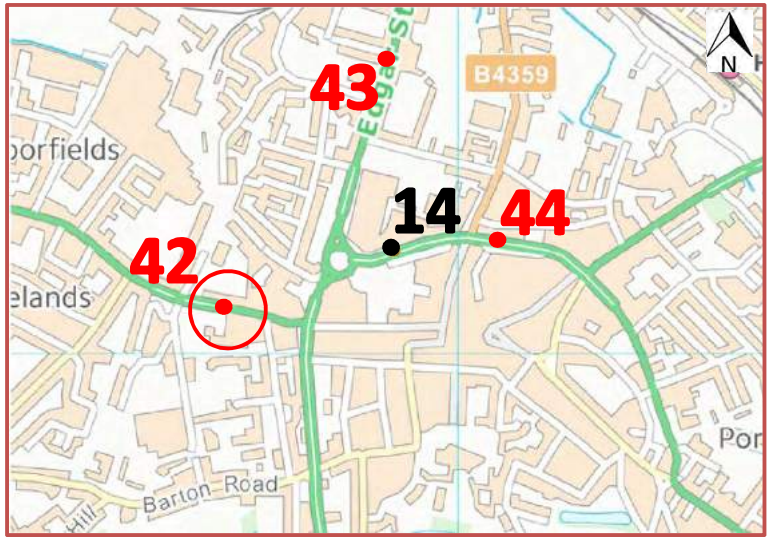
WSP | PARSONS BRINCKERHOFF

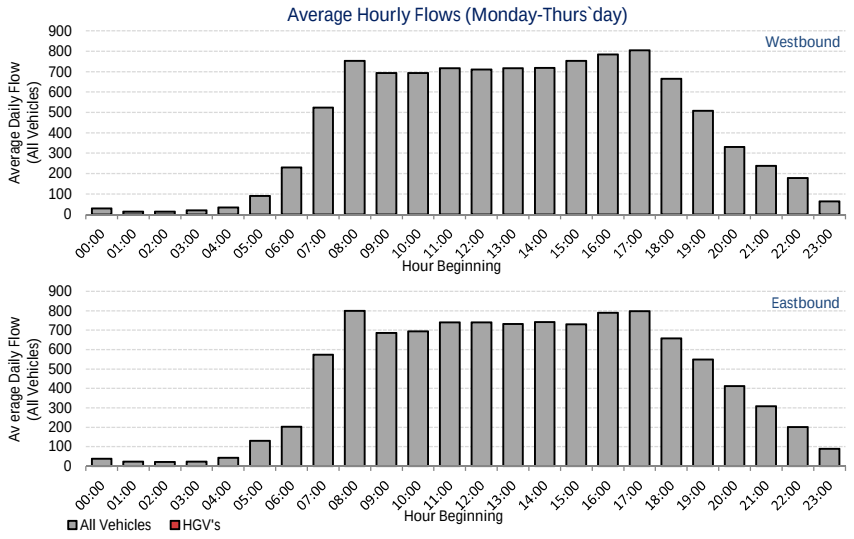
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 42

A438, By Broomy Hill







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-43

• FIGURE TITLE

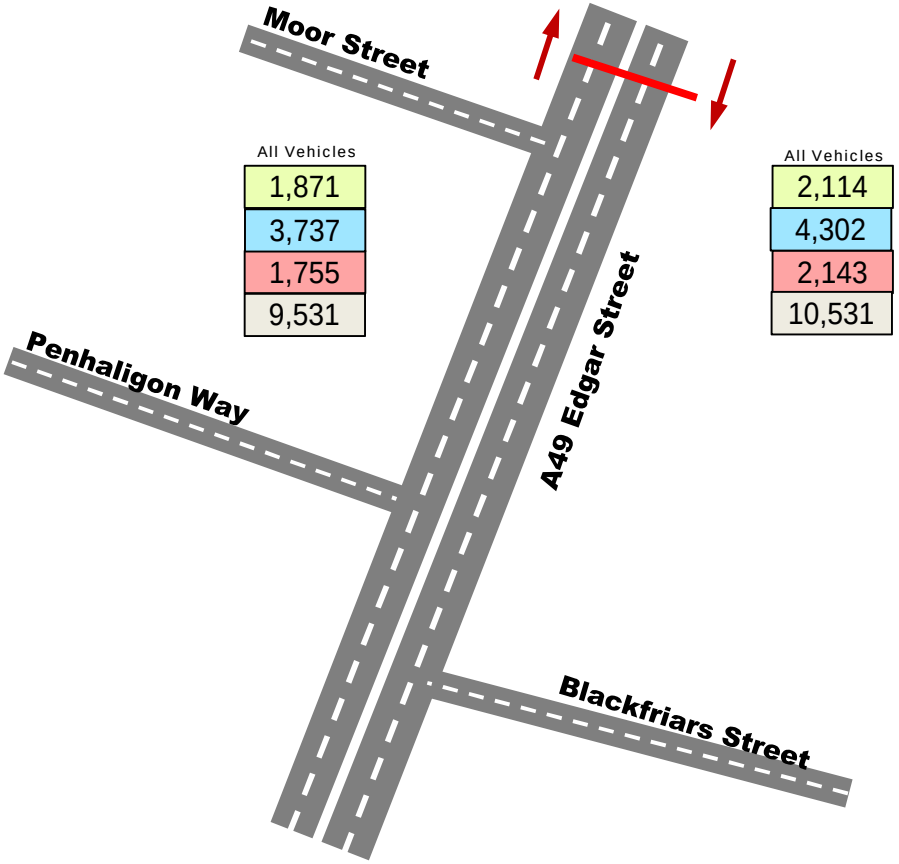
ATC SITE 42 HC Summary

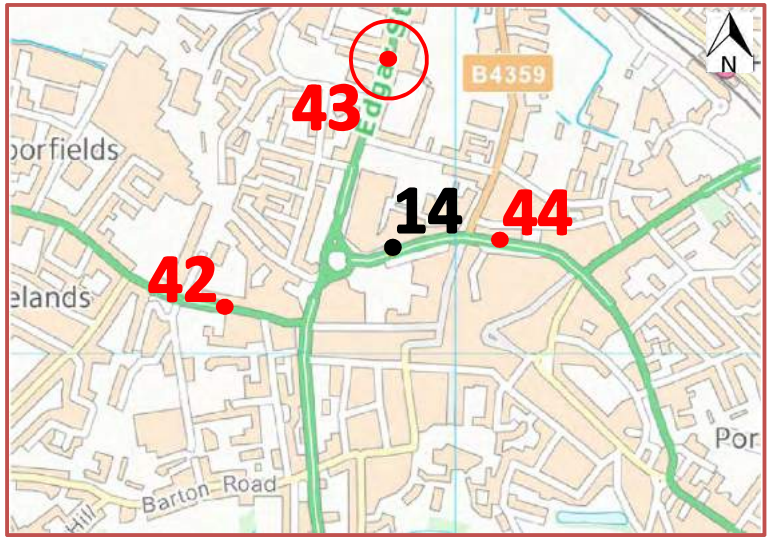
WSP | PARSONS BRINCKERHOFF

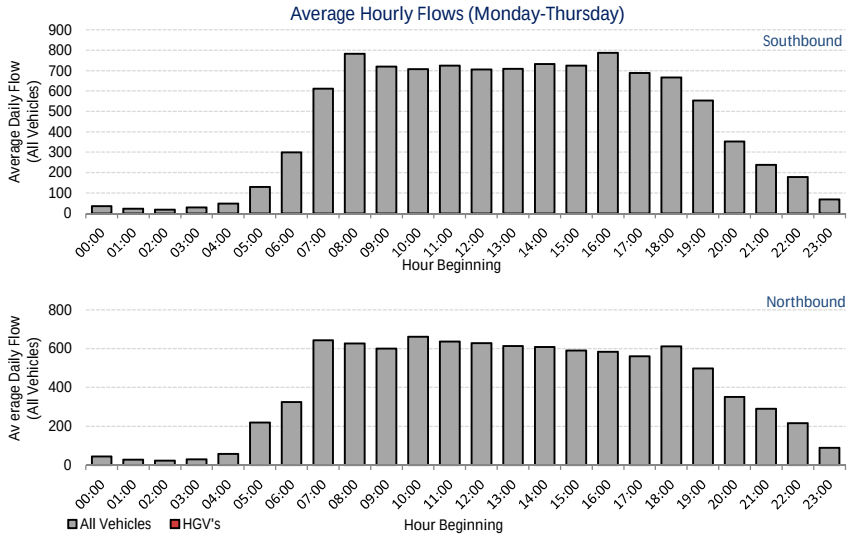
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 43

A49, Edgar Street







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-44

• FIGURE TITLE

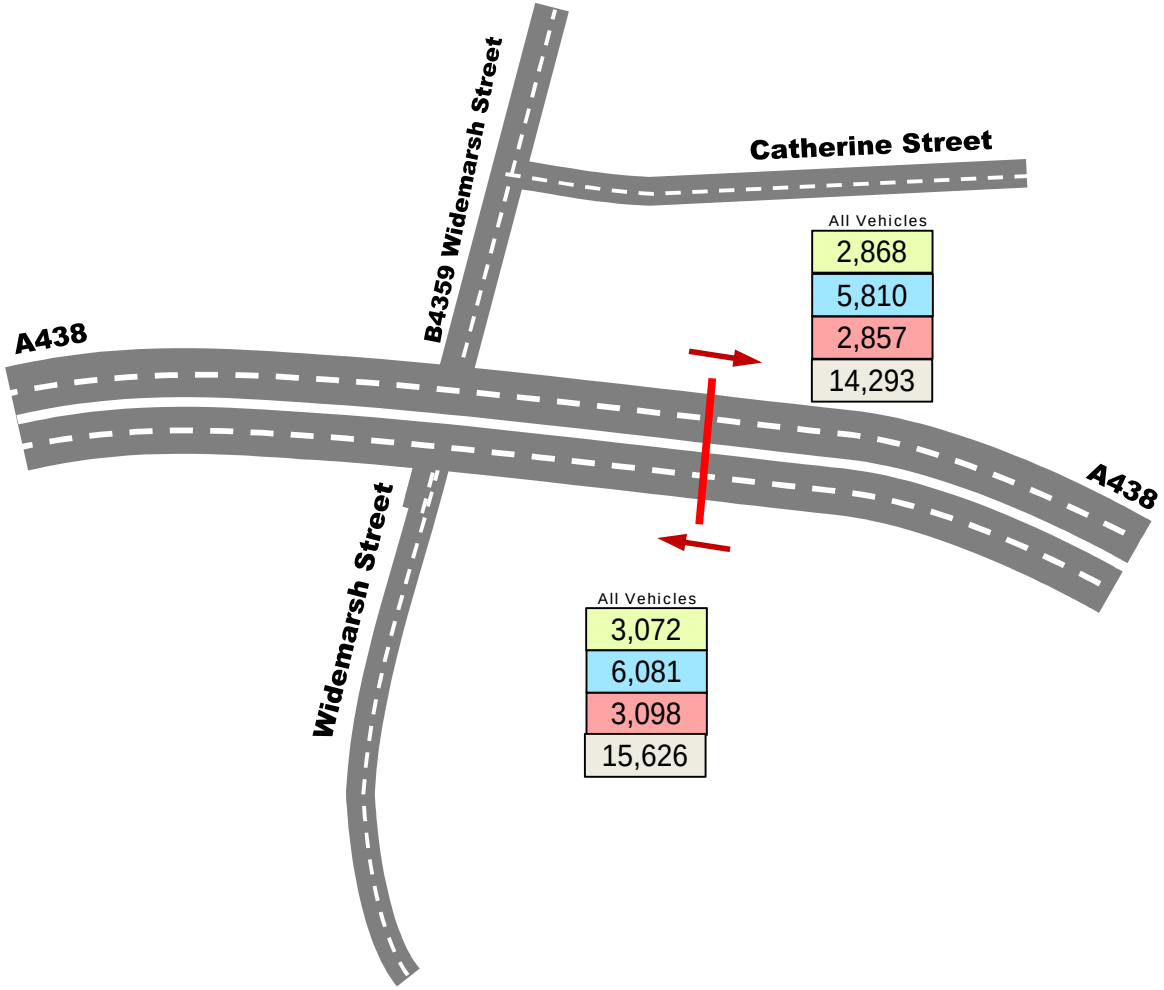
ATC SITE 43 HC Summary

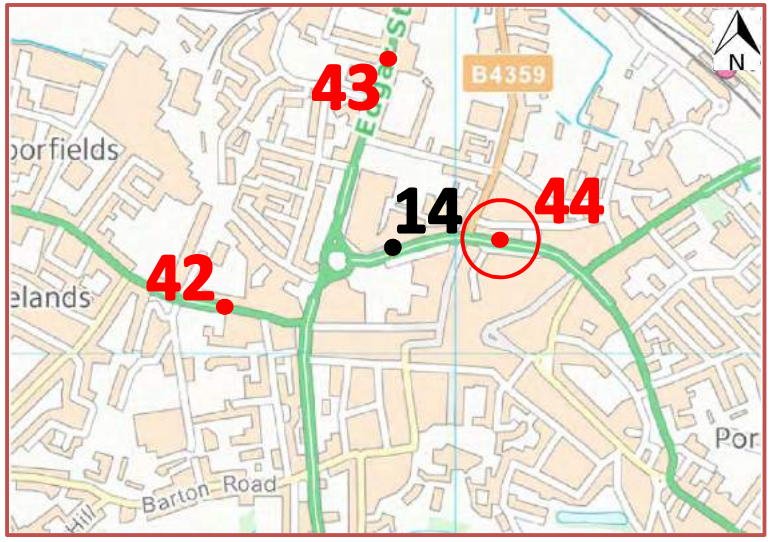
WSP | PARSONS BRINCKERHOFF

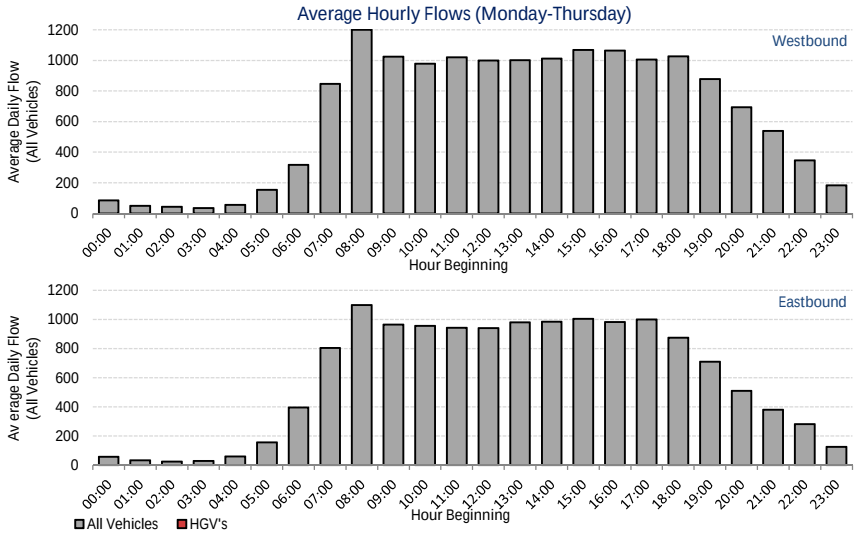
• DATE	18/11/2016
• SCALE	NTS
DRAWN BY	GS
CHECKED	DL
APPROVED	MH

ATC SITE 44

A438, Opposite Maylord Shopping Centre







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-45

• FIGURE TITLE

ATC SITE 44 HC Summary

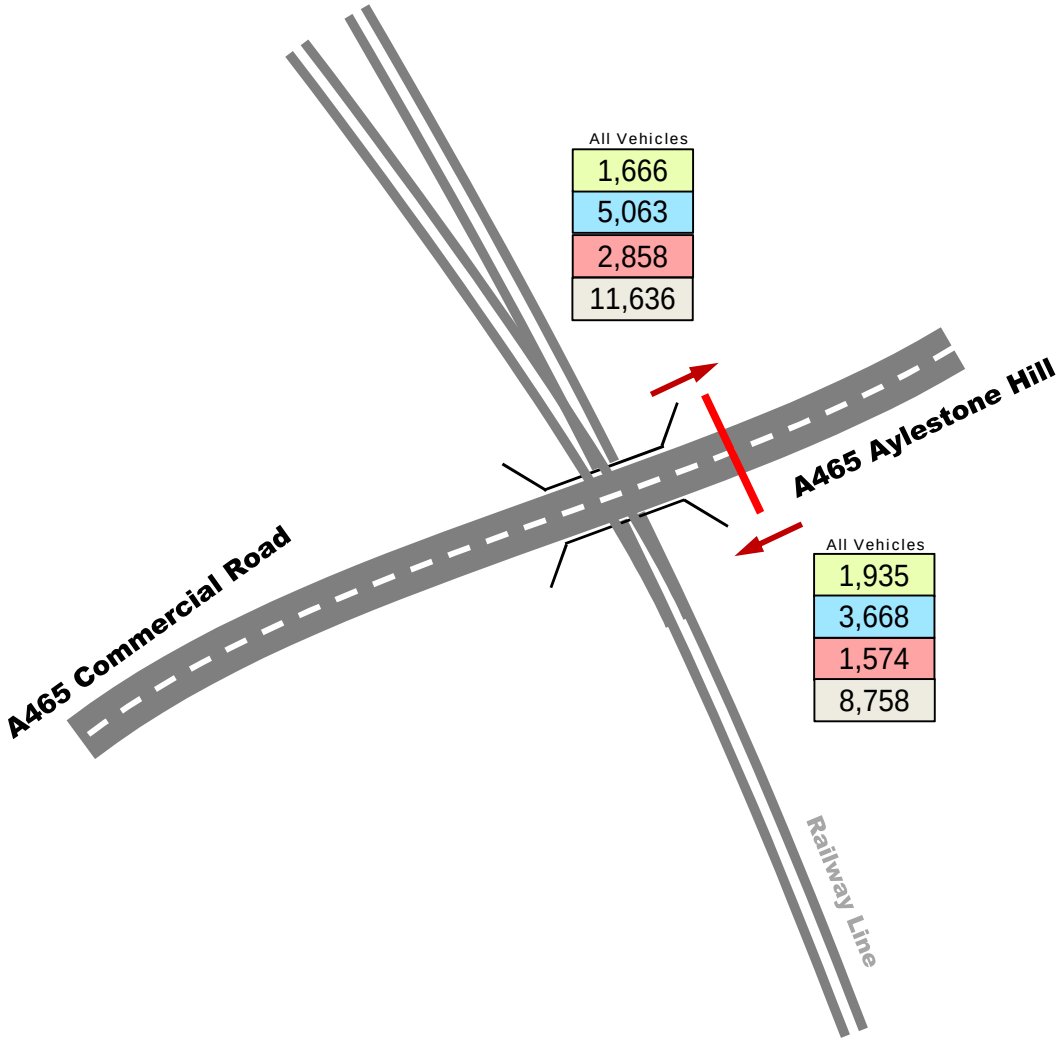
WSP | PARSONS BRINCKERHOFF

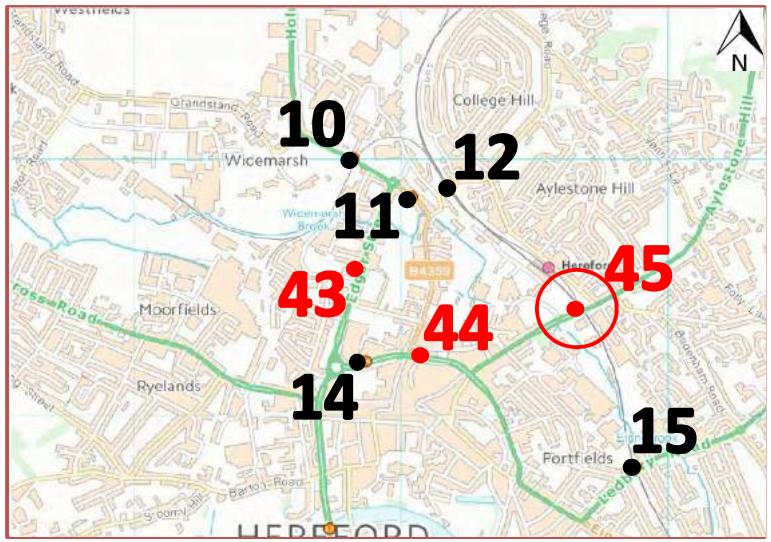
• DATE	18/11/2016
• SCALE	NTS

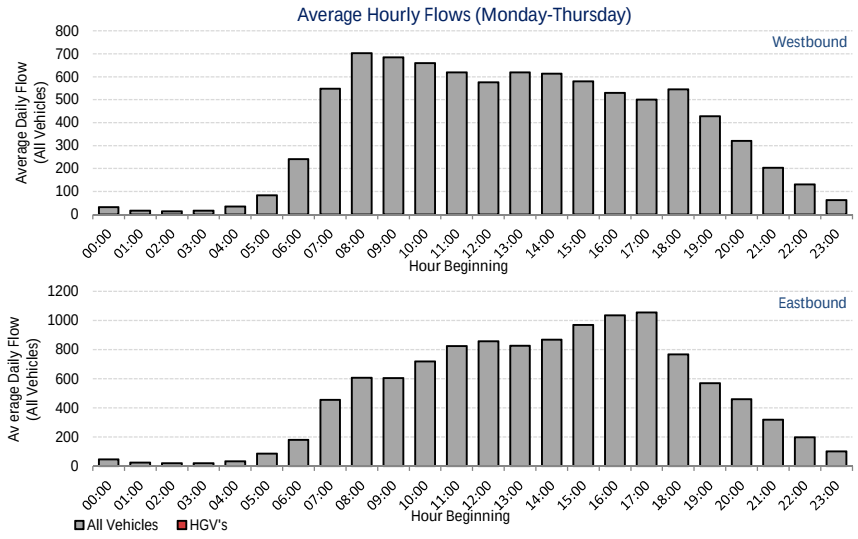
DRAWN BY	GS
CHECKED	DL
APPROVED	MH

ATC SITE 45

A465, on crossing with Railway Line







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-46

• FIGURE TITLE

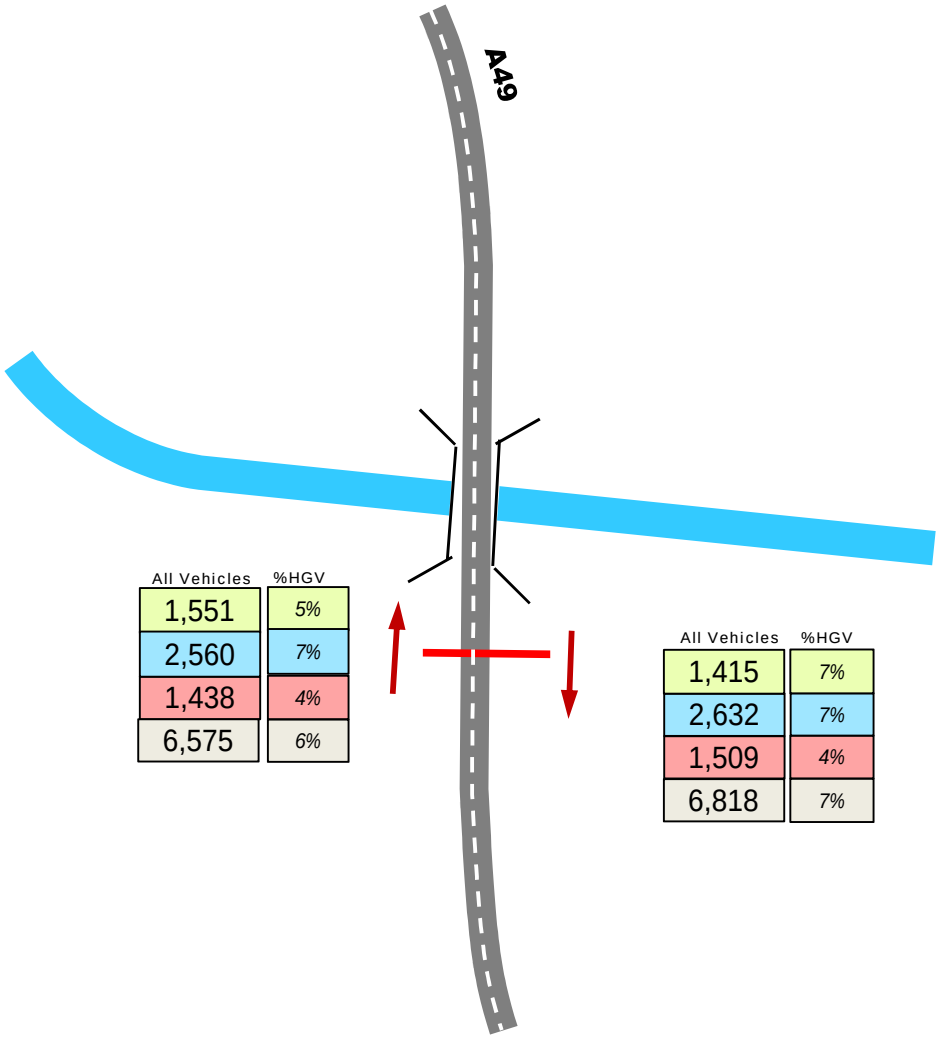
ATC SITE 45 HC Summary

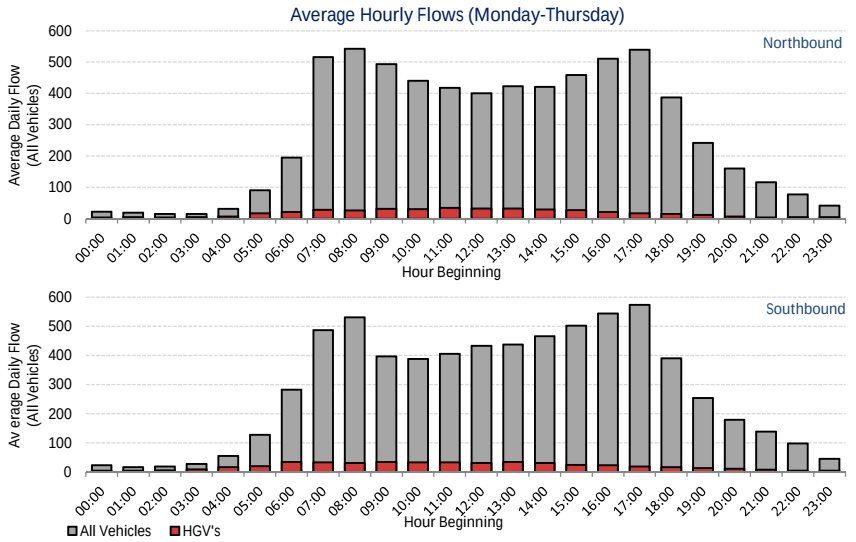
WSP | PARSONS BRINCKERHOFF

• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 46

A49 west of Aconbury Hill





REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-47

• FIGURE TITLE

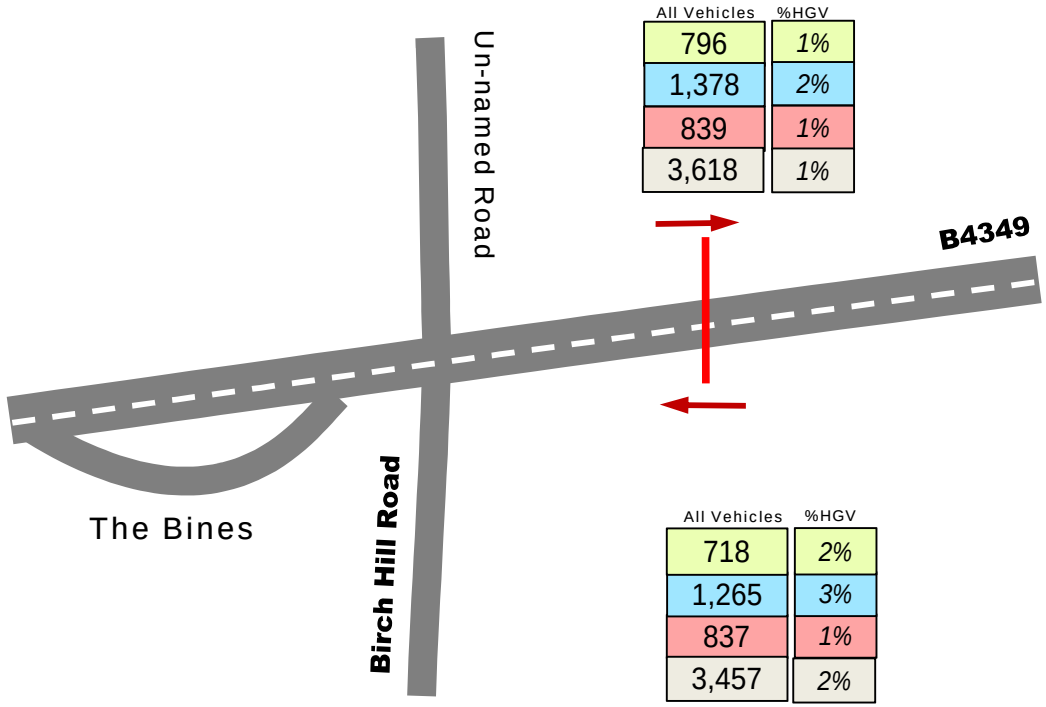
ATC SITE R1 Summary

WSP | PARSONS BRINCKERHOFF

• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

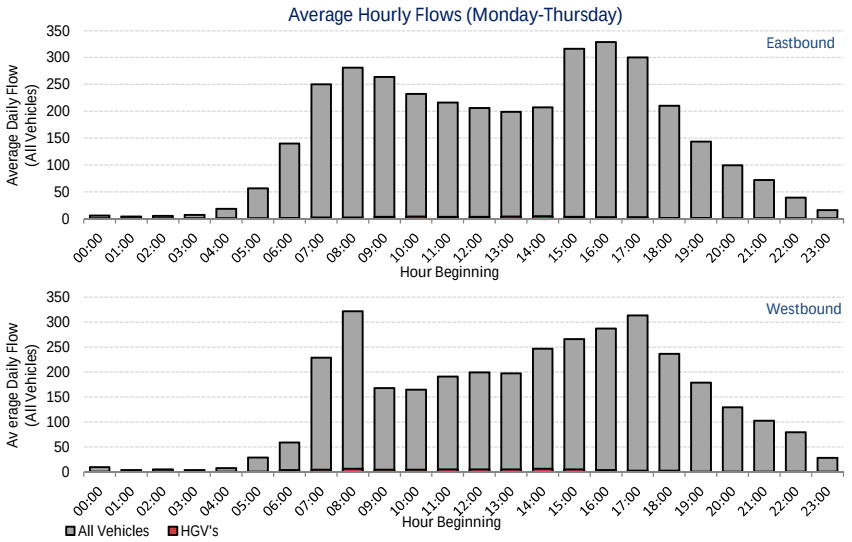
ATC SITE 47

B4349, The Bines in Clehonger



All Vehicles	%HGV
796	1%
1,378	2%
839	1%
3,618	1%

All Vehicles	%HGV
718	2%
1,265	3%
837	1%
3,457	2%



REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-48

• FIGURE TITLE

ATC SITE R2 Summary

WSP | PARSONS BRINCKERHOFF

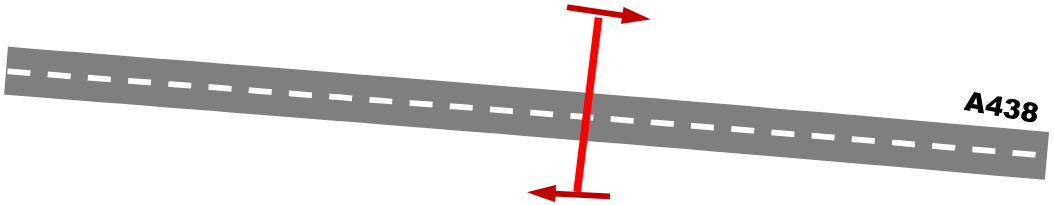
• DATE	18/11/2016
• SCALE	NTS

DRAWN BY	GS
CHECKED	DL
APPROVED	MH

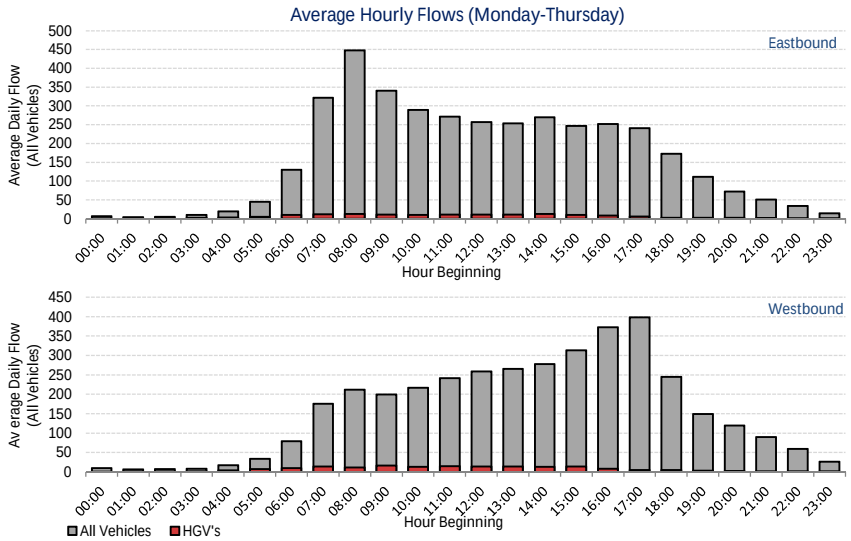
ATC SITE 48

A438, West of Stretton Sugwas Junction

All Vehicles	%HGV
1,110	3%
1,587	4%
665	2%
3,864	4%



All Vehicles	%HGV
587	7%
1,573	5%
1,016	2%
3,780	5%



REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-49

• FIGURE TITLE

ATC SITE R3 Summary

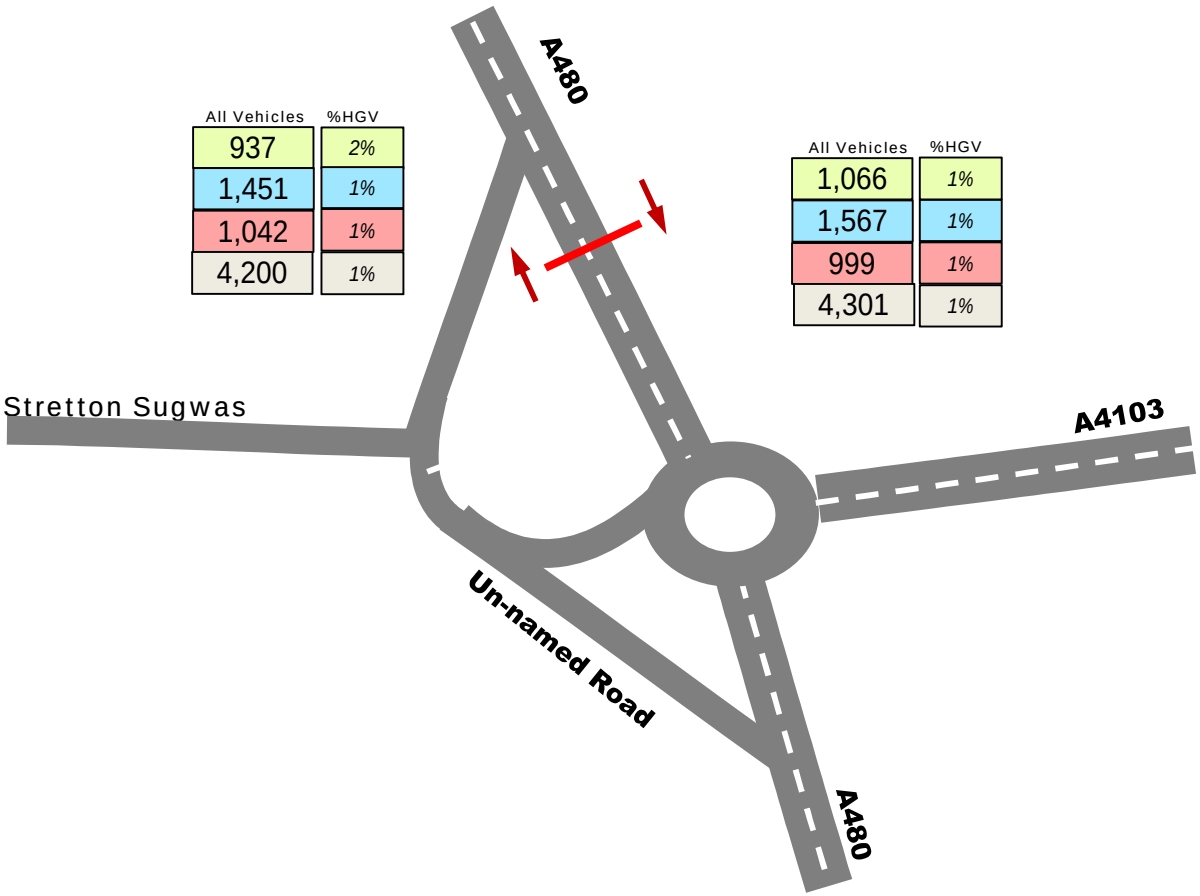
WSP | PARSONS BRINCKERHOFF

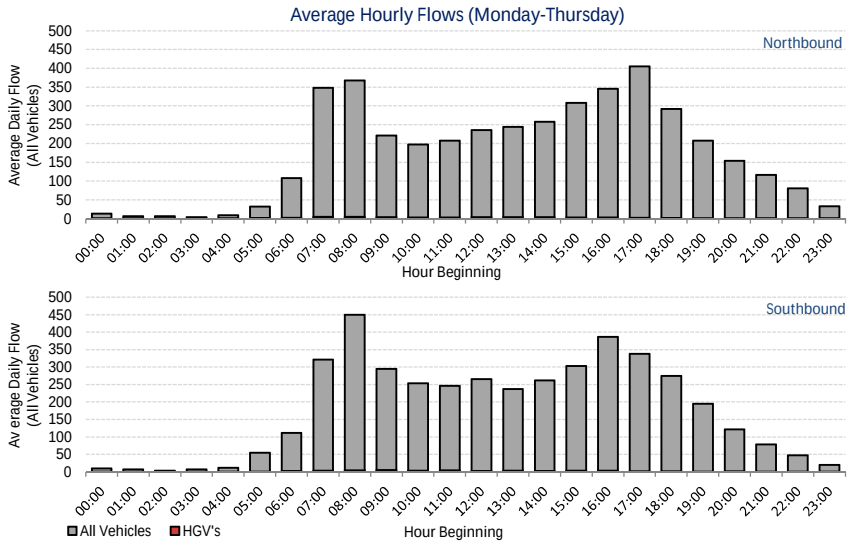
• DATE	18/11/2016
• SCALE	NTS

DRAWN BY	GS
CHECKED	DL
APPROVED	MH

ATC SITE 49

Stretton Sugwas roundabout, northern arm





REV	DATE	DESCRIPTION	BY	CHKD	APPD

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-50

• FIGURE TITLE

ATC SITE R4 Summary

WSP | PARSONS BRINCKERHOFF

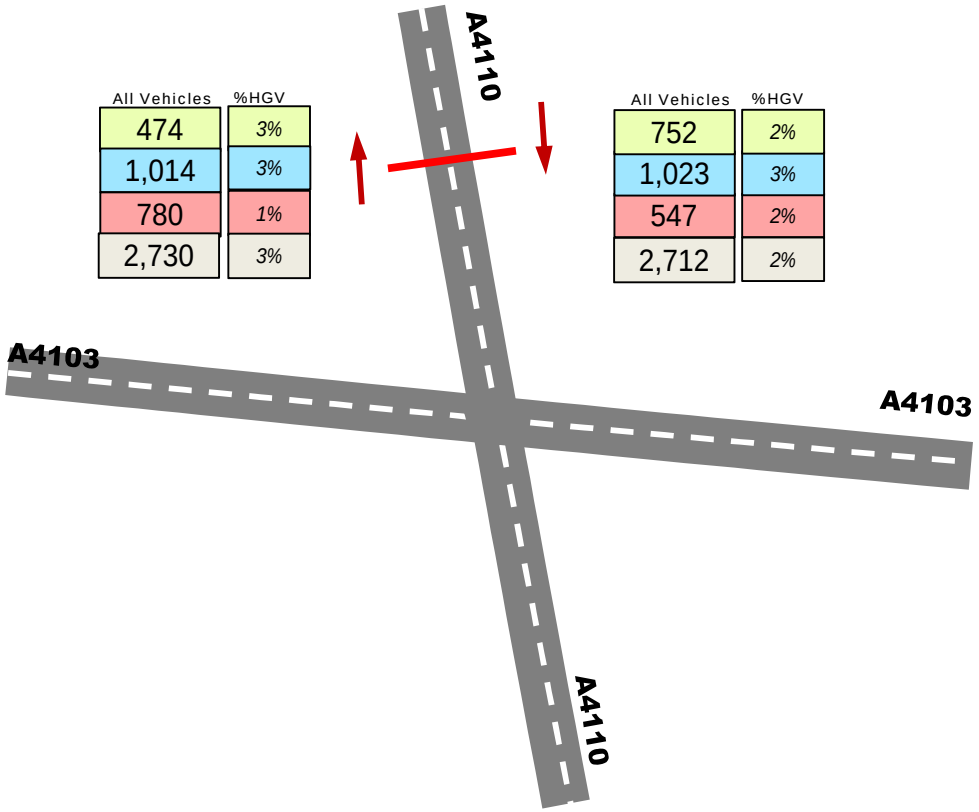
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

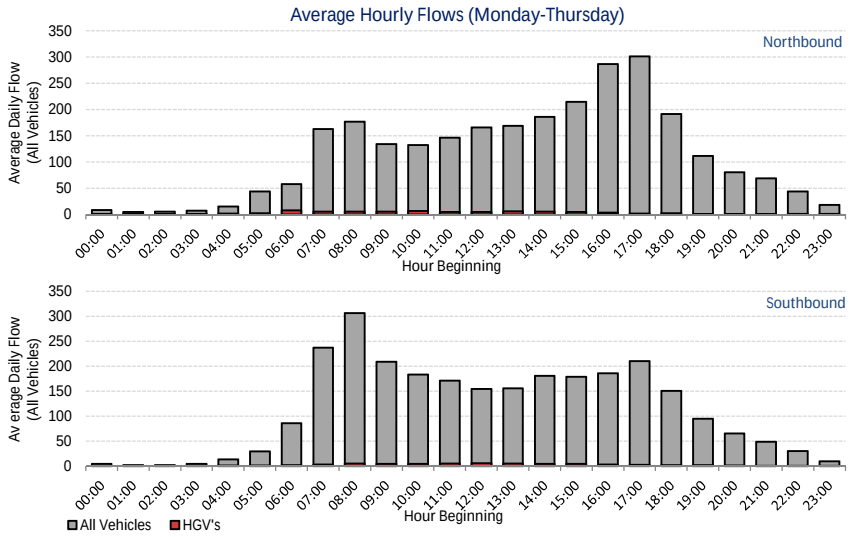
NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

ATC SITE 50

A4103/A4110 Signalised Junction, Northern arm





REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-51

• FIGURE TITLE

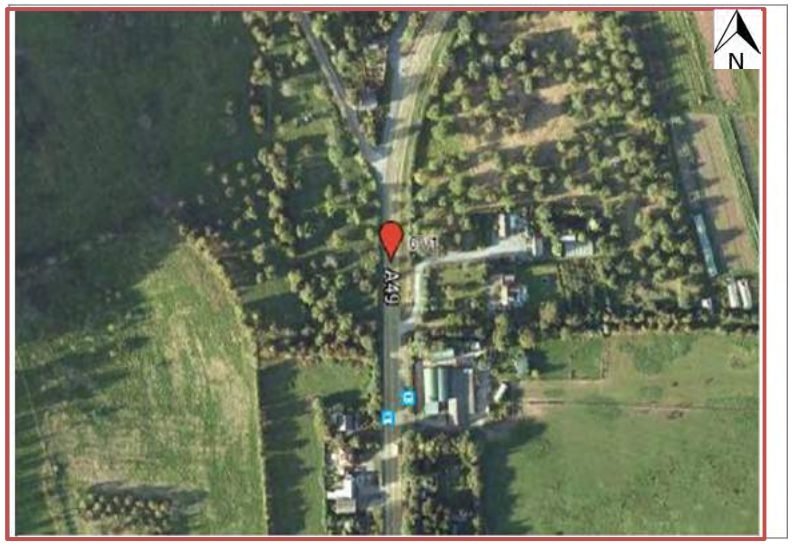
ATC SITE R5 Summary

WSP | PARSONS BRINCKERHOFF

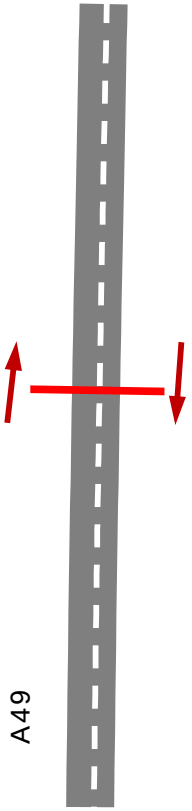
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 51

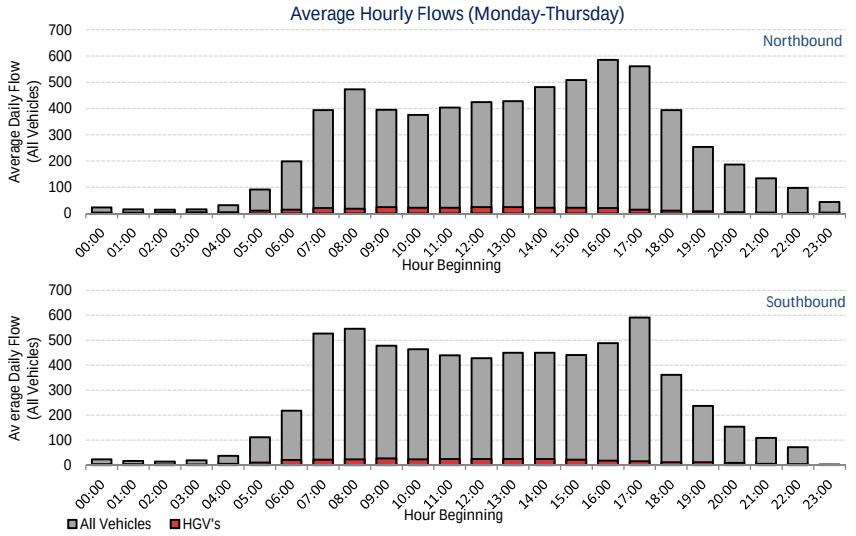
A49, East of Dinmore



All Vehicles	%HGV
1,263	5%
2,623	5%
1,540	3%
6,528	5%



All Vehicles	%HGV
1,552	5%
2,671	5%
1,440	3%
6,711	5%



REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-52

• FIGURE TITLE

ATC SITE R6 Summary

WSP | PARSONS BRINCKERHOFF

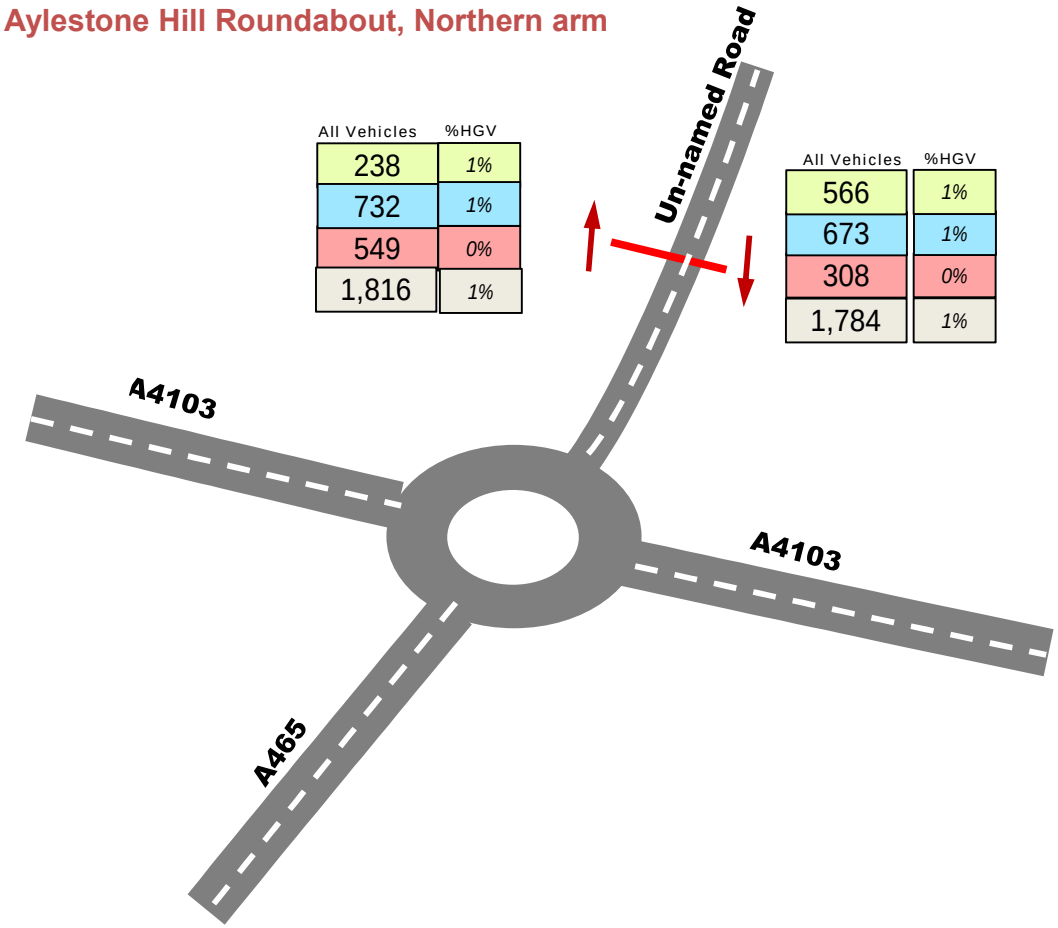
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

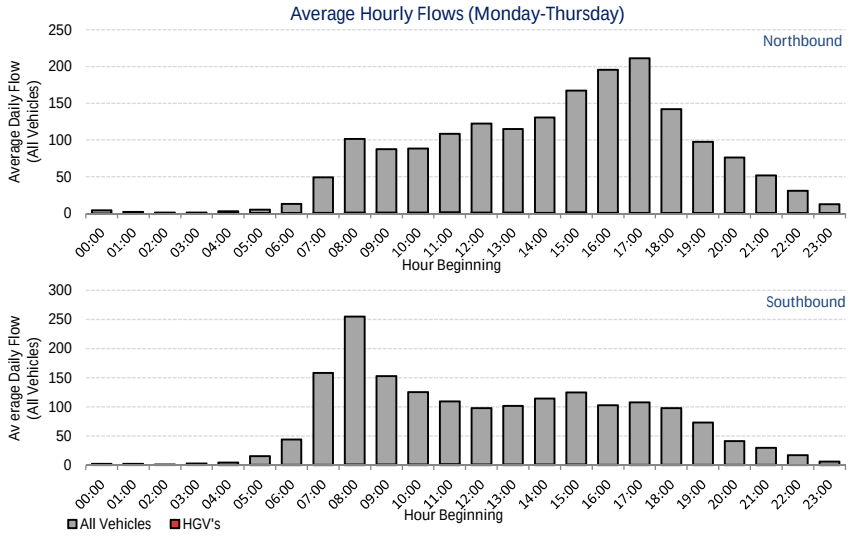
ATC SITE 52

Aylestone Hill Roundabout, Northern arm

All Vehicles	%HGV
238	1%
732	1%
549	0%
1,816	1%

All Vehicles	%HGV
566	1%
673	1%
308	0%
1,784	1%





REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-53

• FIGURE TITLE

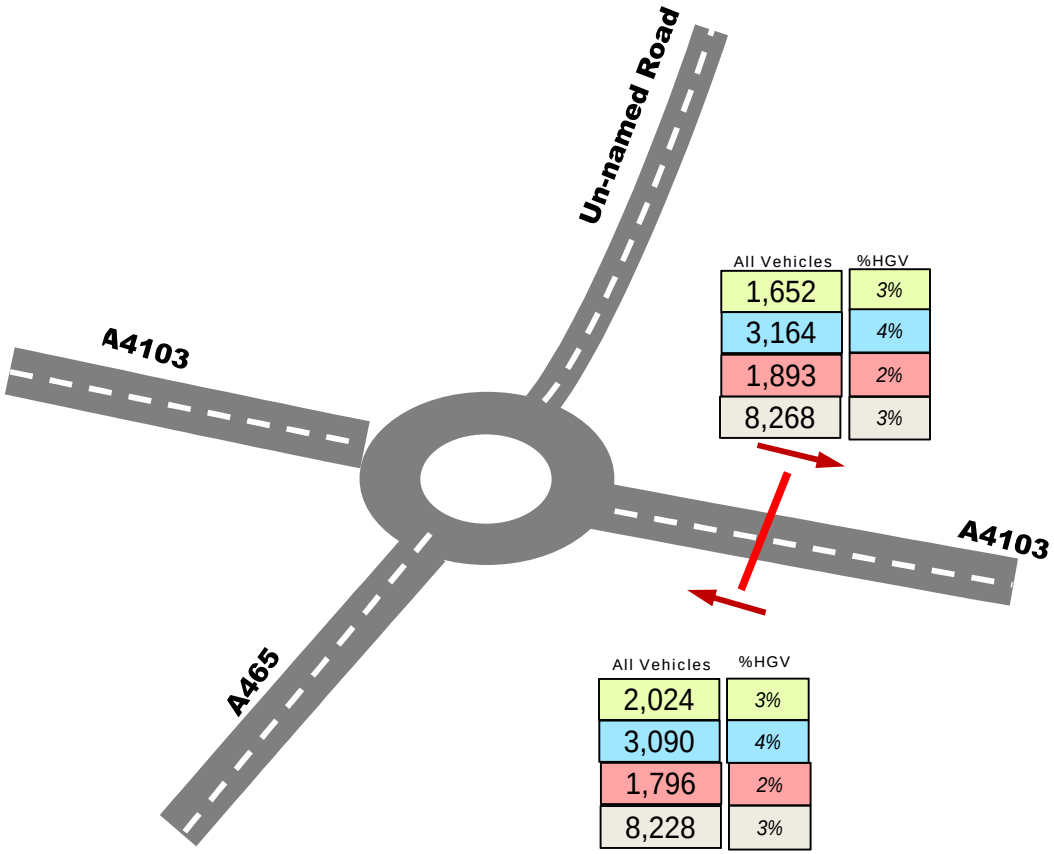
ATC SITE R7 Summary

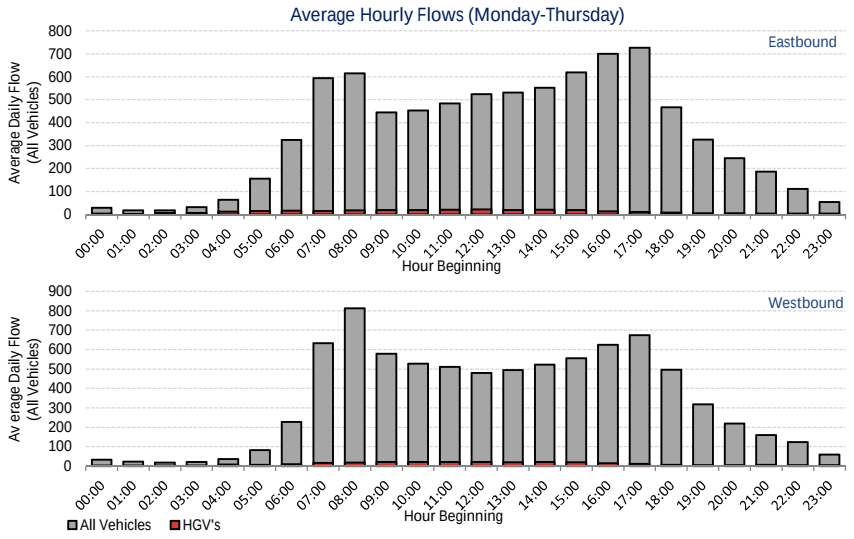
WSP | PARSONS BRINCKERHOFF

• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 53

Aylsetone Hill Roundabout, Eastern arm





REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-54

• FIGURE TITLE

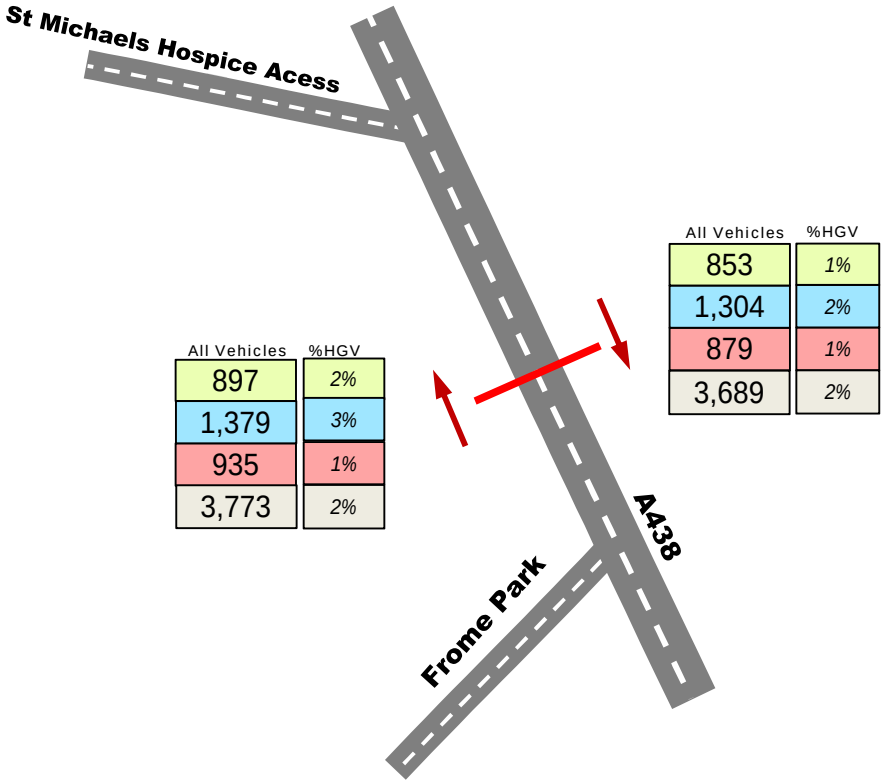
ATC SITE R8 Summary

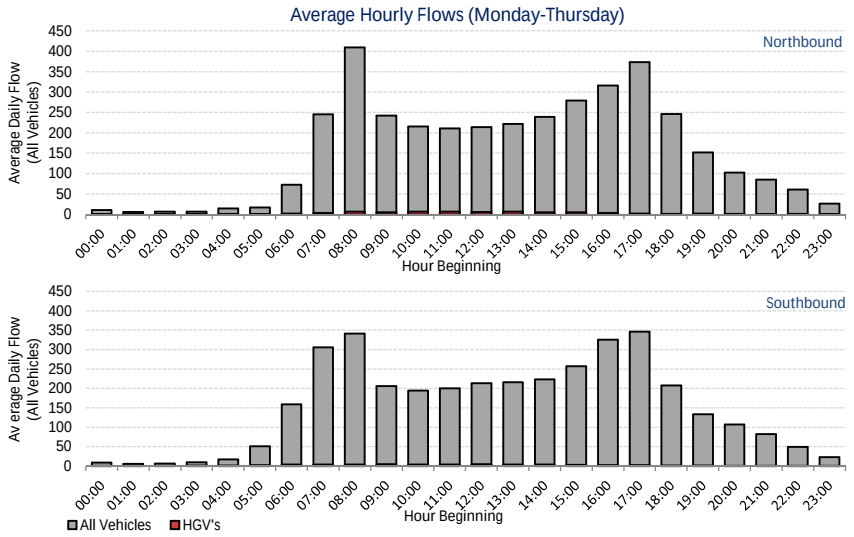
WSP | PARSONS BRINCKERHOFF

• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 54

A438, Frome Park





REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-55

• FIGURE TITLE

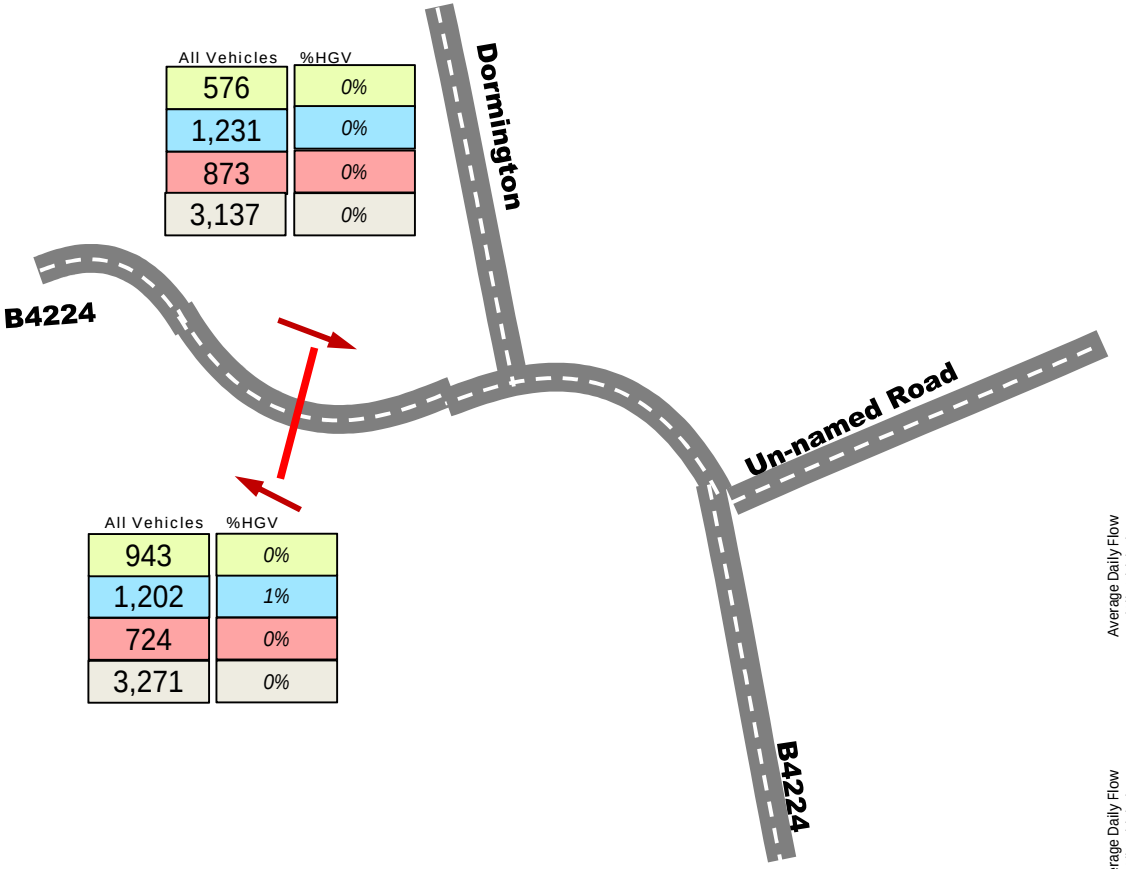
ATC SITE R9 Summary

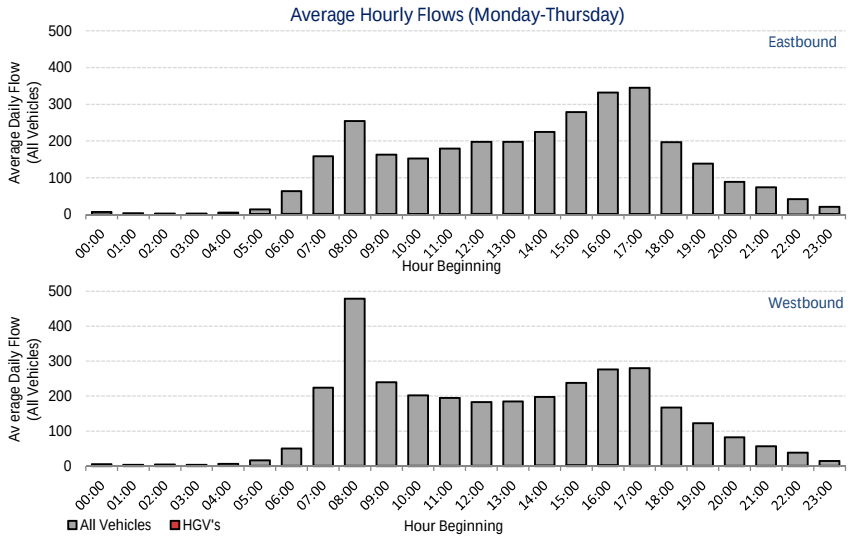
WSP | PARSONS BRINCKERHOFF

• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 55

B4224, North-east of Mordiford





REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-56

• FIGURE TITLE

ATC SITE R10 Summary

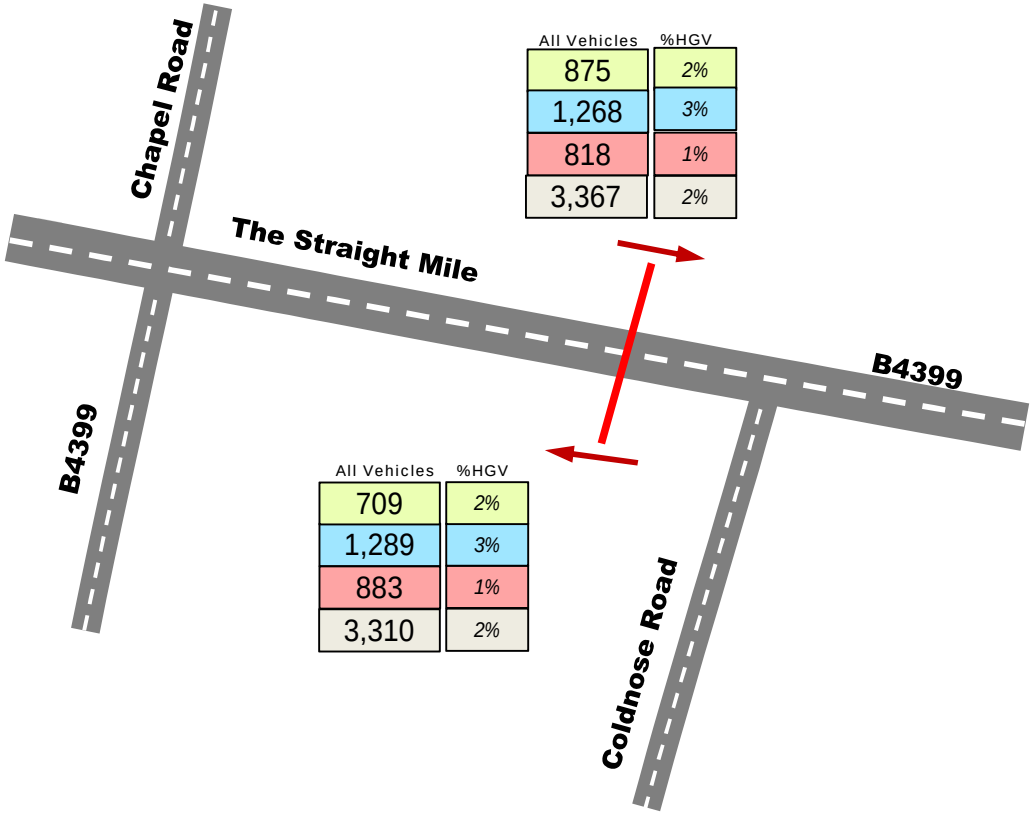
WSP | PARSONS BRINCKERHOFF

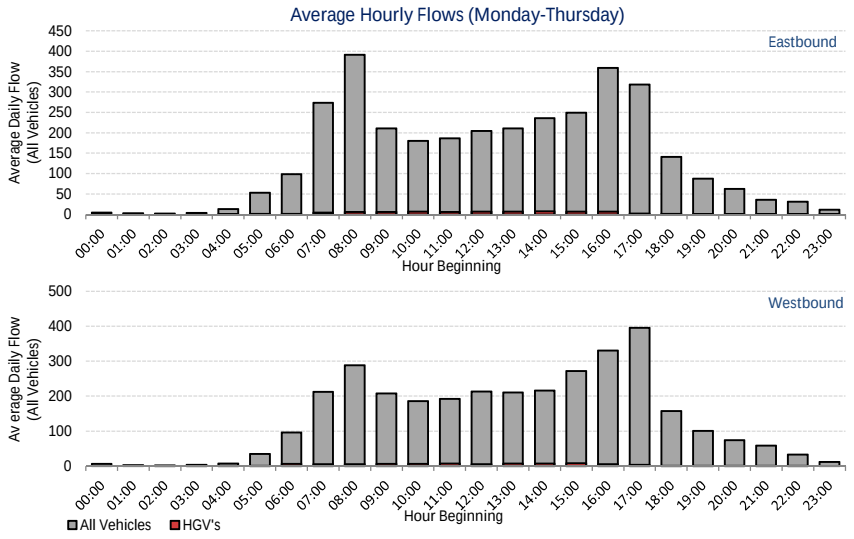
• DATE	18/11/2016
• SCALE	NTS

DRAWN BY	GS
CHECKED	DL
APPROVED	MH

ATC SITE 56

B4399, Straight Mile/Chapel Road Roundabout, Eastern arm





REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-57

• FIGURE TITLE

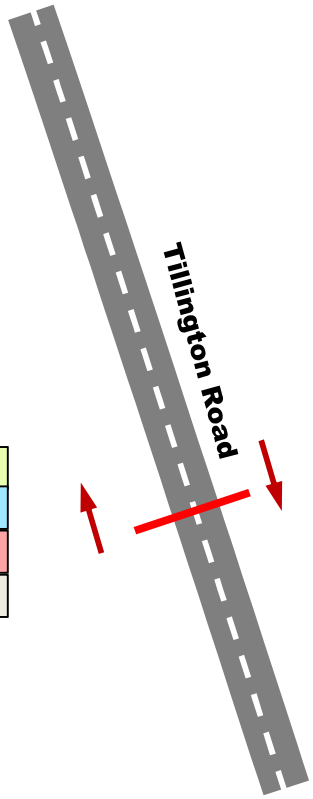
ATC SITE R11 Summary

WSP | PARSONS BRINCKERHOFF

• DATE	18/11/2016
• SCALE	NTS
DRAWN BY	GS
CHECKED	DL
APPROVED	MH

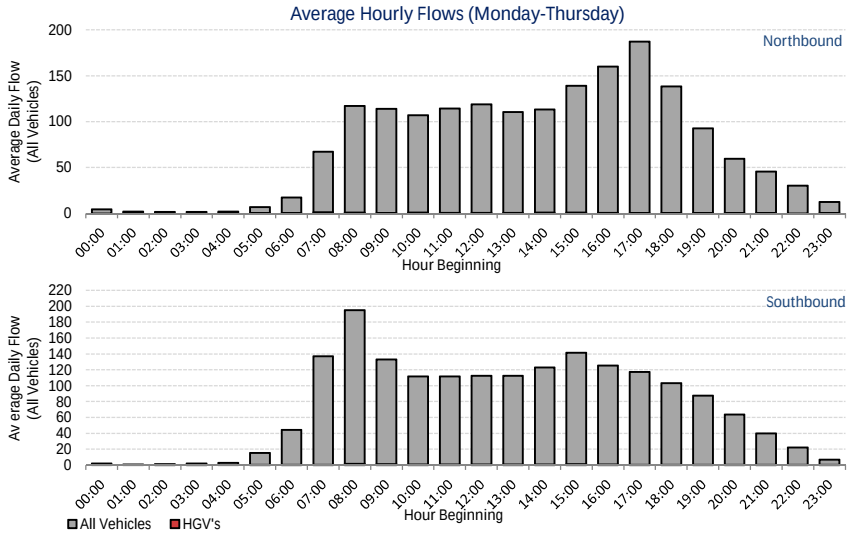
ATC SITE 57

Tillington Road by Bronte Cottages



All Vehicles	%HGV
298	1%
703	1%
486	0%
1,762	0%

All Vehicles	%HGV
465	1%
712	1%
345	0%
1,810	1%



REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-58

• FIGURE TITLE

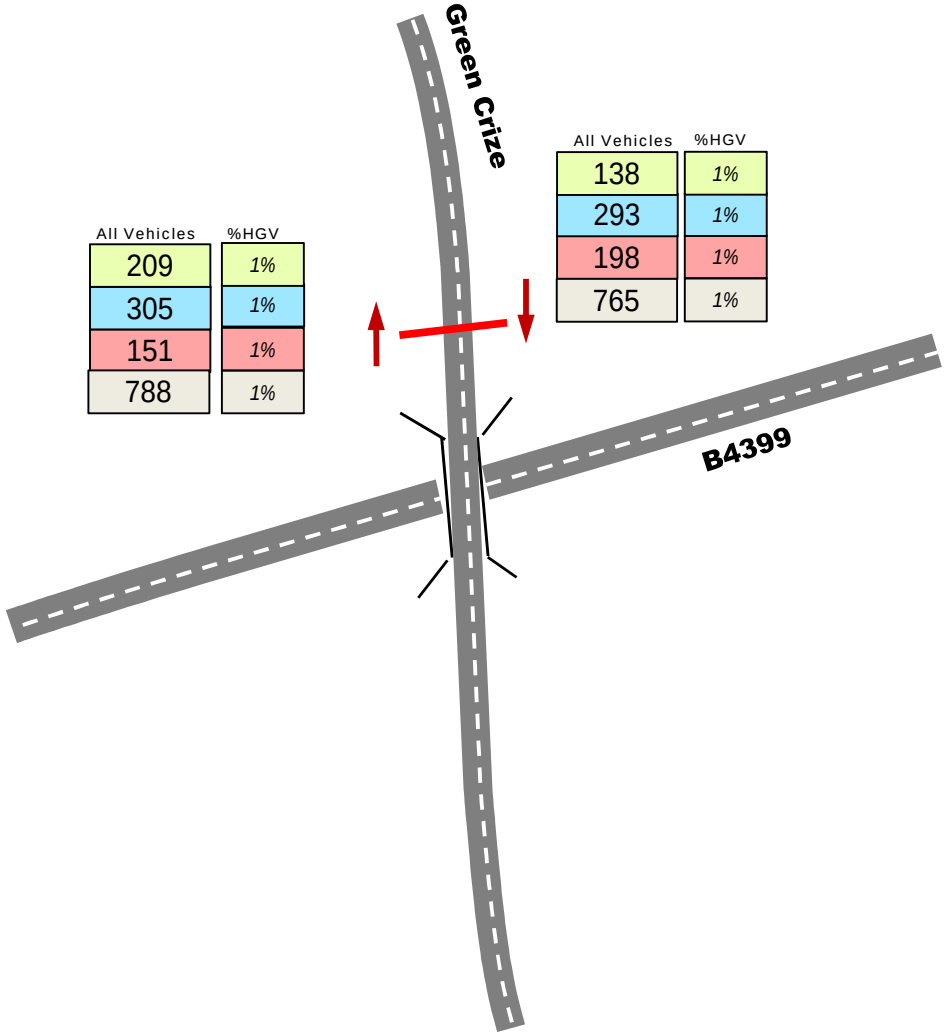
ATC SITE R12 Summary

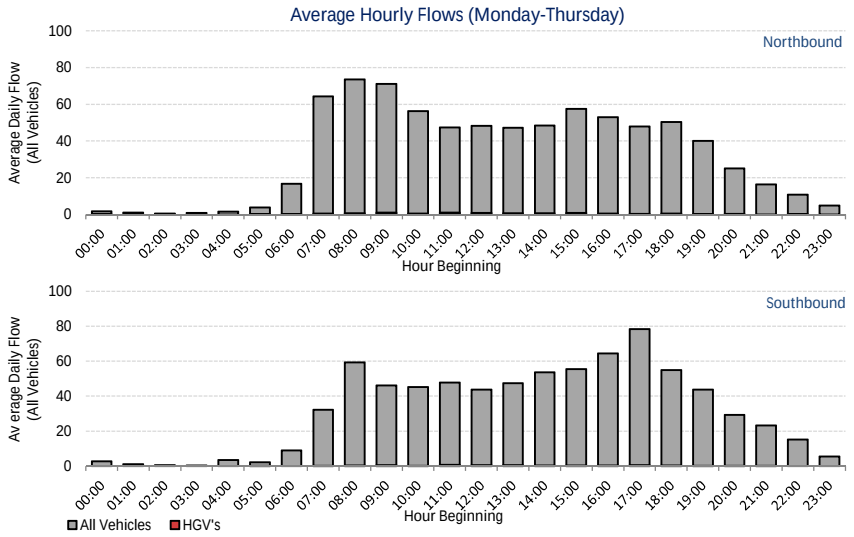
WSP | PARSONS BRINCKERHOFF

• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 58

A438, Green Crize





REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-59

• FIGURE TITLE

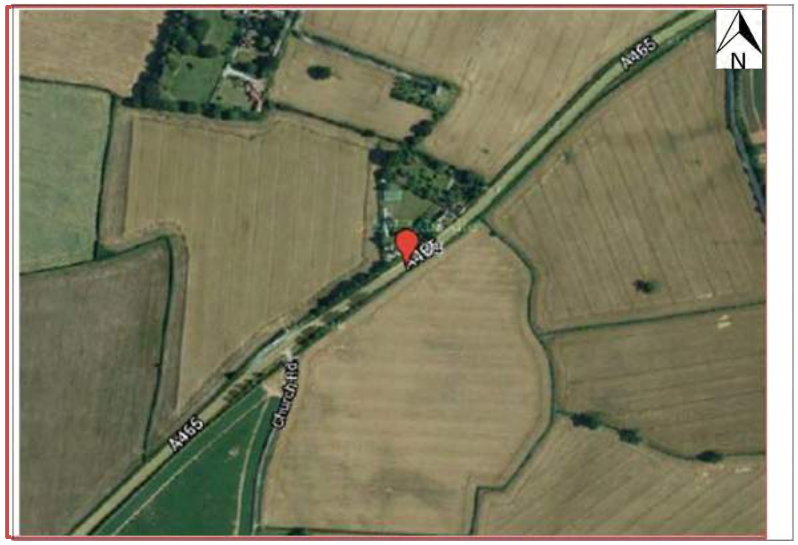
ATC SITE R13 Summary

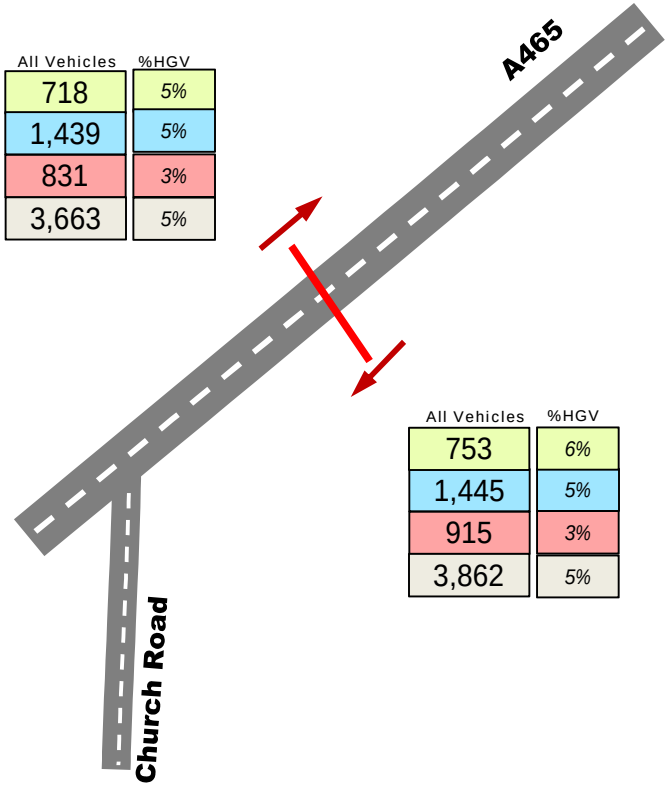
WSP | PARSONS BRINCKERHOFF

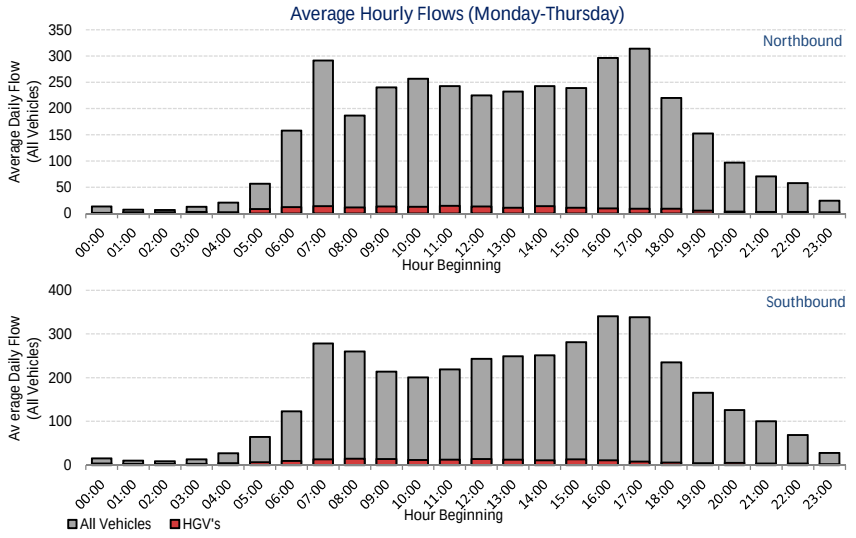
• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

ATC SITE 59

A465, North of Goose Pool







REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTE

- AM Peak Period (07:00 - 10:00), Mon-Thurs average
- Interpeak Period (10:00 - 16:00), Mon- Thurs average
- PM Peak Period (16:00 - 19:00), Mon-Thurs average
- 24-hour Period (00:00 - 00:00), Mon-Thurs average

• PROJECT

Hereford Bypass - Report of Surveys

• FIGURE NUMBER

Figure 2-60

• FIGURE TITLE

ATC SITE R14 Summary

WSP | PARSONS BRINCKERHOFF

• DATE	18/11/2016
• SCALE	NTS
DRAWN BY	GS
CHECKED	DL
APPROVED	MH

APPENDIX A-5

ATC – PEAK-HOUR ANALYSIS

Monday to Thursday Average, Peak Hours (15 minute intervals)

ATC Site	AM Peak Period		Inter Peak Period		PM Peak Period	
	Northbound / Eastbound	Southbound / Westbound	Northbound / Eastbound	Southbound / Westbound	Northbound / Eastbound	Southbound / Westbound
ATC 1	08:00	08:00	10:00	15:00	17:00	17:00
ATC 2	08:00	08:00	15:00	15:00	16:00	17:00
ATC 3	09:00	08:00	15:00	10:00	17:00	17:00
ATC 4	08:00	08:00	15:00	15:00	16:00	17:00
ATC 5	08:00	08:00	15:00	15:00	17:00	17:00
ATC 6	08:00	08:00	15:00	10:00	17:00	17:00
ATC 7	08:00	08:00	15:00	15:00	16:00	17:00
ATC 8	08:00	08:00	15:00	15:00	16:00	17:00
ATC 9	09:00	07:00	10:00	15:00	16:00	17:00
ATC 10	08:00	08:00	10:00	15:00	16:00	16:00
ATC 11	08:00	08:00	10:00	15:00	16:00	16:00
ATC 12	08:00	08:00	15:00	15:00	17:00	17:00
ATC 13	08:00	08:00	15:00	15:00	17:00	17:00
ATC 14	08:00	08:00	13:00	11:00	17:00	16:00
ATC 15	08:00	08:00	15:00	15:00	17:00	16:00
ATC 16	08:00	08:00	15:00	15:00	17:00	16:00
ATC 17	07:00	08:00	10:00	14:00	17:00	16:00
ATC 18	08:00	08:00	15:00	14:00	17:00	18:00
ATC 19	07:00	09:00	14:00	15:00	17:00	17:00
ATC 20	09:00	08:00	15:00	15:00	17:00	16:00
ATC 21	07:00	08:00	15:00	14:00	18:00	17:00
ATC 22	07:00	09:00	13:00	12:00	16:00	16:00
ATC 23	07:00	09:00	13:00	12:00	16:00	16:00
ATC 24	08:00	07:00	15:00	13:00	16:00	16:00
ATC 25	08:00	08:00	15:00	15:00	16:00	17:00
ATC 26	08:00	08:00	10:00	15:00	16:00	17:00
ATC 27	08:00	08:00	15:00	15:00	17:00	17:00
ATC 28	08:00	08:00	15:00	15:00	17:00	16:00
ATC 29	08:00	08:00	15:00	15:00	17:00	16:00
ATC 30	08:00	08:00	15:00	15:00	17:00	17:00
ATC 31	08:00	08:00	15:00	15:00	16:00	17:00
ATC 32	08:00	08:00	15:00	15:00	17:00	17:00
ATC 33	08:00	08:00	15:00	15:00	17:00	17:00
ATC 34	08:00	08:00	15:00	15:00	17:00	17:00
ATC 35	07:00	08:00	15:00	15:00	16:00	17:00
ATC 36	08:00	07:00	10:00	15:00	17:00	17:00
ATC 37	08:00	09:00	13:00	15:00	16:00	17:00
ATC 38	08:00	08:00	15:00	15:00	17:00	17:00
ATC 39	N/A	08:00	N/A	10:00	N/A	17:00
ATC 40	08:00	08:00	15:00	15:00	17:00	17:00
ATC 41	08:00	08:00	15:00	15:00	16:00	17:00
ATC 42	08:00	08:00	14:00	15:00	17:00	17:00
ATC 43	07:00	08:00	10:00	14:00	18:00	16:00
ATC 44	08:00	08:00	15:00	15:00	17:00	16:00
ATC 45	08:00	08:00	15:00	10:00	17:00	18:00
ATC 46	08:00	08:00	15:00	15:00	17:00	17:00
ATC 47	08:00	08:00	15:00	15:00	16:00	17:00
ATC 48	08:00	08:00	10:00	15:00	16:00	17:00
ATC 49	08:00	08:00	15:00	15:00	17:00	16:00
ATC 50	08:00	08:00	15:00	10:00	17:00	17:00
ATC 51	08:00	08:00	15:00	10:00	16:00	17:00
ATC 52	08:00	08:00	15:00	10:00	17:00	17:00
ATC 53	08:00	08:00	15:00	15:00	17:00	17:00
ATC 54	08:00	08:00	15:00	15:00	17:00	17:00
ATC 55	08:00	08:00	15:00	15:00	17:00	17:00
ATC 56	08:00	08:00	15:00	15:00	16:00	17:00
ATC 57	08:00	08:00	15:00	15:00	17:00	16:00
ATC 58	08:00	08:00	15:00	15:00	16:00	17:00
ATC 59	07:00	07:00	10:00	15:00	17:00	16:00

Monday to Thursday Average, Peak Hours (60 minute intervals)

ATC Site	AM Peak Period (0700-1000)		Inter Peak Period (1000-1600)		PM Peak Period (1600-1900)	
	Northbound / Eastbound	Southbound / Westbound	Northbound / Eastbound	Southbound / Westbound	Northbound / Eastbound	Southbound / Westbound
ATC 1	07:45	07:45	09:45	15:15	16:45	16:45
ATC 2	07:45	08:00	15:15	15:00	16:30	16:45
ATC 3	07:15	07:45	15:15	09:45	16:30	17:15
ATC 4	07:30	07:45	15:15	15:15	16:30	16:15
ATC 5	07:30	07:45	15:15	15:15	16:45	17:00
ATC 6	07:45	07:30	15:15	09:45	16:30	17:30
ATC 7	07:45	08:00	15:15	15:15	16:15	16:45
ATC 8	07:30	08:00	15:15	15:15	15:30	16:30
ATC 9	08:45	07:15	09:45	15:15	16:15	16:45
ATC 10	08:00	08:00	15:15	11:00	16:15	16:30
ATC 11	07:45	08:00	09:45	15:00	15:30	15:45
ATC 12	08:00	08:00	14:45	15:15	16:30	16:45
ATC 13	08:00	08:00	15:15	15:15	16:45	17:00
ATC 14	07:45	08:15	09:45	14:45	17:00	15:30
ATC 15	07:45	08:00	15:15	15:15	17:00	15:30
ATC 16	08:00	08:00	15:15	15:15	16:45	15:30
ATC 17	07:15	07:30	09:45	15:15	16:45	16:00
ATC 18	08:30	07:45	15:00	14:30	16:45	18:00
ATC 19	07:00	08:45	14:15	15:15	17:45	17:00
ATC 20	09:30	07:45	15:15	14:30	16:30	16:30
ATC 21	07:00	07:30	15:00	14:30	18:00	16:30
ATC 22	07:30	09:00	12:45	12:15	15:30	16:15
ATC 23	07:30	09:00	12:45	15:15	15:30	16:15
ATC 24	08:00	07:15	15:15	13:00	16:15	15:45
ATC 25	07:45	08:00	15:15	15:15	15:30	17:00
ATC 26	07:30	08:30	09:45	15:00	15:30	17:00
ATC 27	07:45	08:15	14:15	15:15	16:45	17:00
ATC 28	07:30	07:30	15:15	15:15	16:30	16:00
ATC 29	08:15	07:45	15:15	15:15	16:45	16:45
ATC 30	07:30	07:45	15:15	15:15	16:45	16:45
ATC 31	07:30	08:00	15:00	15:15	16:15	16:30
ATC 32	07:45	08:00	15:15	15:15	16:30	16:45
ATC 33	07:30	07:30	15:15	15:15	16:30	17:00
ATC 34	07:30	07:45	15:15	15:15	16:45	16:30
ATC 35	07:00	07:45	15:15	14:30	16:30	16:45
ATC 36	07:45	07:00	09:45	15:15	17:45	16:45
ATC 37	07:45	08:45	15:15	11:15	15:30	16:45
ATC 46	07:30	07:45	15:15	15:15	16:45	16:45
ATC 47	08:30	07:45	15:15	14:30	15:45	16:45
ATC 48	07:45	08:00	09:45	15:15	16:15	16:30
ATC 49	07:30	08:00	15:15	15:15	17:00	16:15
ATC 50	07:45	07:30	15:15	09:45	16:45	16:45
ATC 51	07:45	07:30	15:15	09:45	16:30	16:45
ATC 52	08:30	07:45	15:15	14:30	16:45	17:15
ATC 53	07:30	07:45	15:15	15:15	16:45	17:00
ATC 54	07:45	08:00	15:00	15:15	16:45	16:45
ATC 55	08:00	07:45	15:15	14:45	16:45	16:30
ATC 56	07:45	08:00	15:15	15:15	16:15	16:45
ATC 57	08:15	07:45	15:15	15:00	17:00	15:30
ATC 58	07:30	08:00	15:15	14:15	15:30	17:00
ATC 59	07:00	07:15	10:00	15:15	16:30	16:30

APPENDIX A-6

ATC – FLOWS USED FOR MODEL DEVELOPMENT

Monday to Thursday Average, Peak Hours (Modelled Flows)

ATC Site	AM Peak Period (0800-0900)		Interpeak Period (1000-1500 Hourly Average)		PM Peak Period (1700-1800)	
	Northbound / Eastbound	Southbound / Westbound	Northbound / Eastbound	Southbound / Westbound	Northbound / Eastbound	Southbound / Westbound
1	203	85	56	63	100	172
2	271	484	222	307	337	362
3	556	1002	649	755	782	715
4	757	740	602	598	701	776
5	416	332	353	203	455	288
6	342	532	363	369	560	374
7	164	418	151	232	179	303
8	293	333	257	197	318	271
9	444	338	429	432	404	629
10	870	891	839	843	897	906
11	589	296	367	332	323	377
12	390	853	389	590	504	708
13	397	663	237	265	398	383
14	730	898	661	940	680	864
15	339	783	326	336	568	372
16	257	423	228	225	377	247
17	1450	1377	1386	1370	1543	1578
18	68	166	70	73	126	73
19	774	587	848	806	852	1236
20	320	769	499	504	723	656
21	413	575	407	585	420	714
22	619	287	365	369	241	574
23	609	257	342	356	203	558
24	13	19	11	13	20	9
25	11	11	5	5	6	12
26	72	53	51	50	49	76
27	33	10	12	11	18	23
28	578	488	458	433	688	497
29	82	304	55	72	181	95
30	835	567	485	473	574	717
31	424	201	146	161	143	474
32	355	318	161	160	361	298
33	815	559	604	593	748	786
34	832	583	482	474	571	712
35	424	582	447	435	584	644
36	27	6	10	9	12	15
37	51	12	13	13	12	30
38	377	614	239	257	406	366
39	5	402	8	209	12	257
40	264	260	154	154	341	264
41	399	192	149	159	147	470
42	800	754	729	711	798	806
43	627	783	629	716	561	688
44	1099	1201	961	1003	1001	1006
45	608	702	818	618	1055	500
46	540	530	421	426	538	573
47	281	320	212	199	299	314
48	448	213	269	252	239	398
49	368	452	229	253	404	335
50	177	307	160	169	300	210
51	473	546	423	445	559	589
52	102	256	113	110	212	108
53	615	811	509	508	726	671
54	409	340	221	209	371	346
55	255	479	190	193	345	280
56	390	289	203	204	318	394
57	116	196	113	114	185	115
58	72	55	48	47	44	75
59	188	260	240	233	313	338

Appendix B

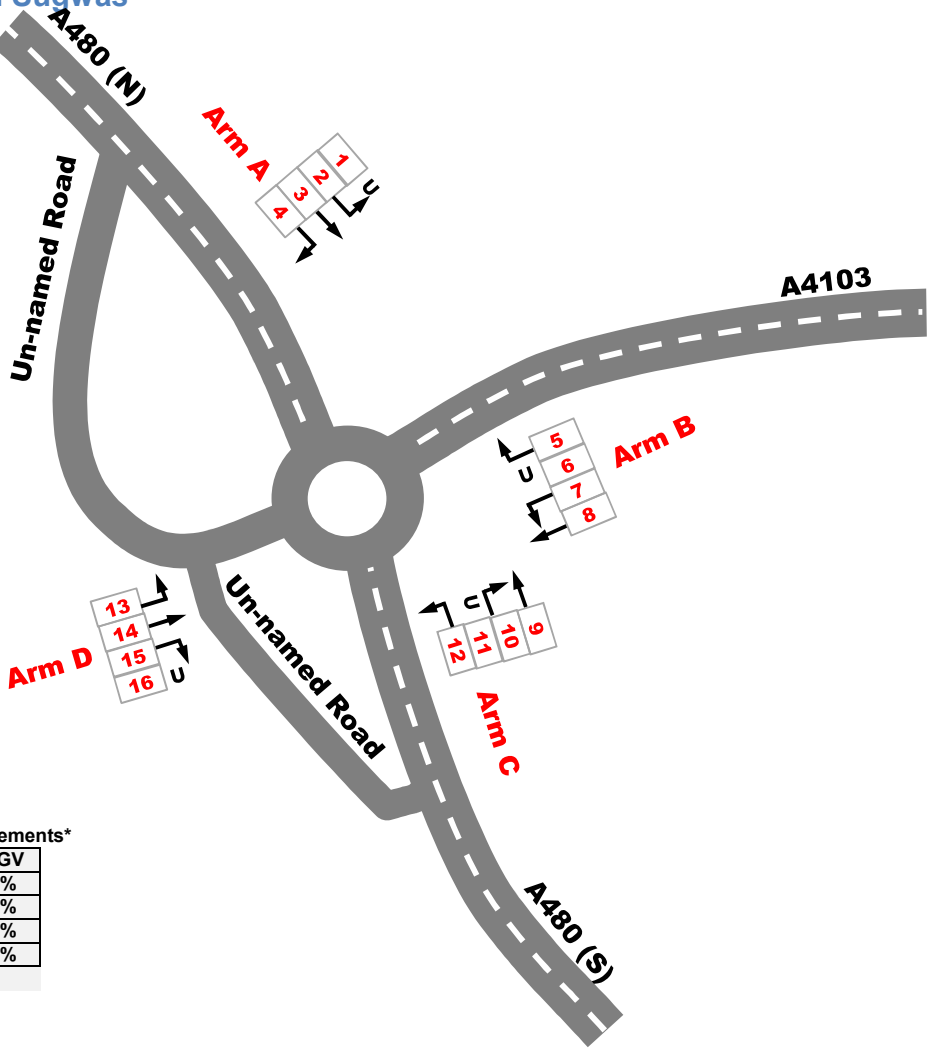
APPENDICES FOR SECTION 3 – MCJC DATA

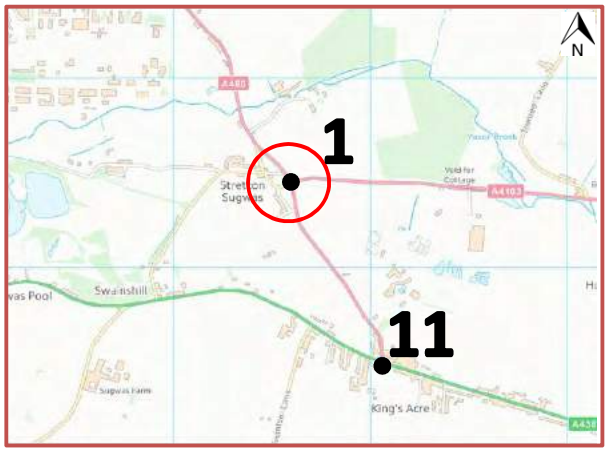
APPENDIX B-1

MCJC – LOCATION PLAN AND DETAILED SUMMARY OF MCJC SITES

MCC SITE 1

A480 Stretton Sugwas





Total HGV Movements*

ARM	%HGV
A	3.2%
B	3.3%
C	4.5%
D	1.7%

Period	ARM A					
	Movement				Total	
	1	2	3	4	From	To
AM Peak	1	588	426	57	**1072**	**954**
Inter Peak	1	844	719	84	**1648**	**1450**
PM Peak	2	539	398	35	**974**	**997**

Period	ARM B					
	Movement				Total	
	5	6	7	8	From	To
AM Peak	471	2	148	259	**880**	**1107**
Inter Peak	739	15	331	541	**1626**	**1704**
PM Peak	512	5	121	415	**1053**	**985**

Period	ARM C					
	Movement				Total	
	9	10	11	12	From	To
AM Peak	475	112	2	72	**661**	**610**
Inter Peak	701	334	13	92	**1140**	**1094**
PM Peak	477	168	1	42	**688**	**524**

Period	ARM D					
	Movement				Total	
	13	14	15	16	From	To
AM Peak	7	405	34	0	**446**	**388**
Inter Peak	9	511	31	2	**553**	**719**
PM Peak	6	273	4	1	**284**	**493**

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

*** Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period**

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-1

• FIGURE TITLE

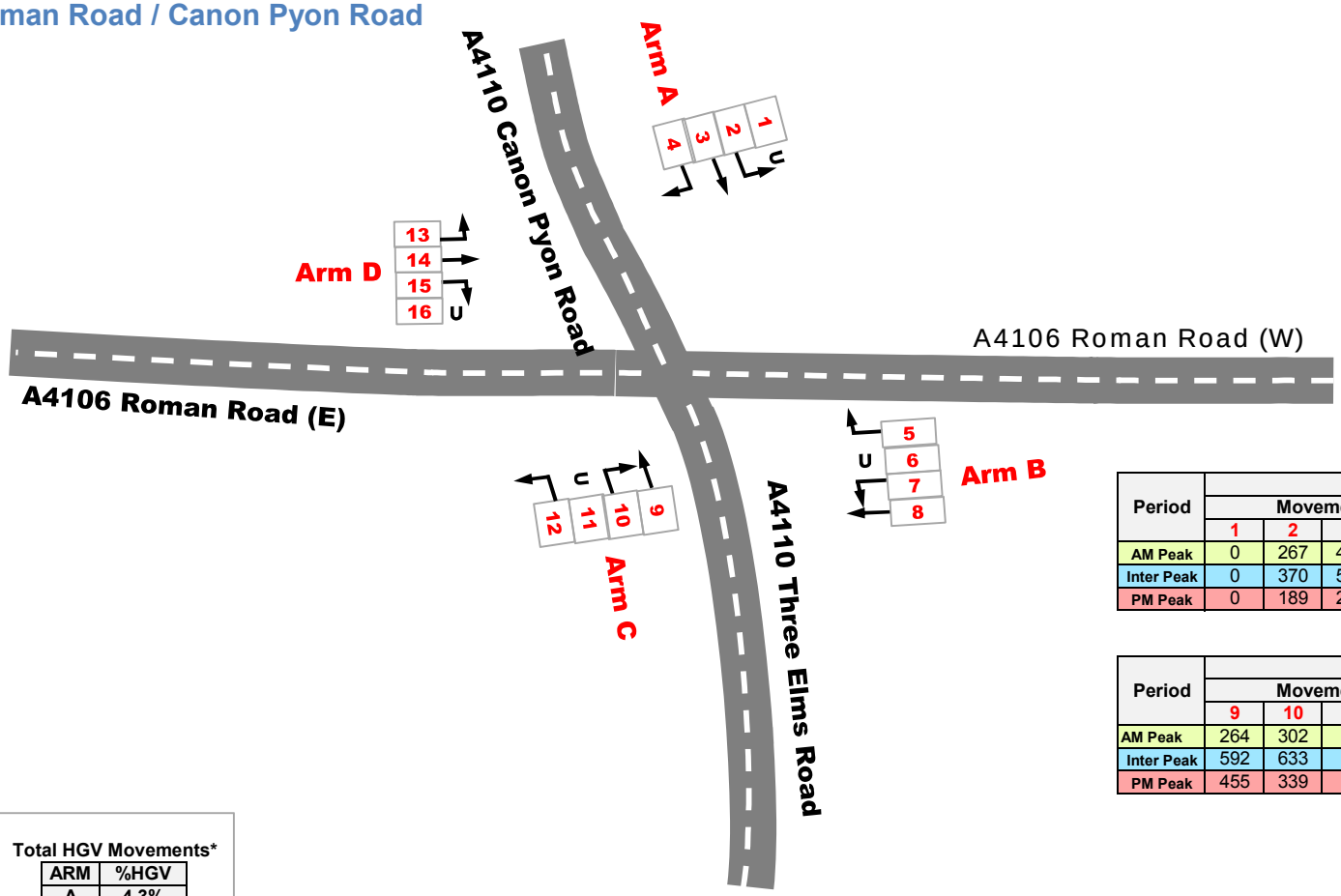
MCC SITE 1 Summary

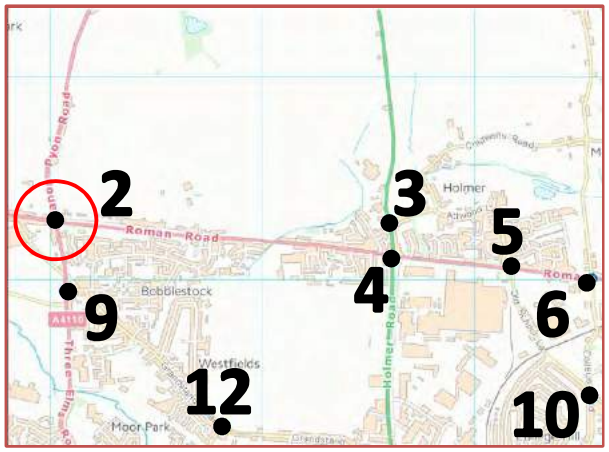
WSP | PARSONS BRINCKERHOFF

• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

MCC SITE 2

Roman Road / Canon Pyon Road





Period	ARM A					
	Movement				Total	
	1	2	3	4	From	To
AM Peak	0	267	426	66	**759**	**468**
Inter Peak	0	370	557	82	**1009**	**1000**
PM Peak	0	189	267	36	**492**	**756**

Period	ARM B					
	Movement				Total	
	5	6	7	8	From	To
AM Peak	150	0	283	821	**1254**	**1606**
Inter Peak	336	0	540	1509	**2385**	**2631**
PM Peak	239	0	349	964	**1552**	**1467**

Period	ARM C					
	Movement				Total	
	9	10	11	12	From	To
AM Peak	264	302	0	49	**615**	**1127**
Inter Peak	592	633	0	167	**1392**	**1730**
PM Peak	455	339	0	84	**878**	**881**

Period	ARM D					
	Movement				Total	
	13	14	15	16	From	To
AM Peak	54	1037	418	0	**1509**	**936**
Inter Peak	72	1628	633	0	**2333**	**1758**
PM Peak	62	939	265	0	**1266**	**1084**

Total HGV Movements*

ARM	%HGV
A	4.3%
B	3.1%
C	3.4%
D	2.6%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-2

• FIGURE TITLE

MCC SITE 2 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

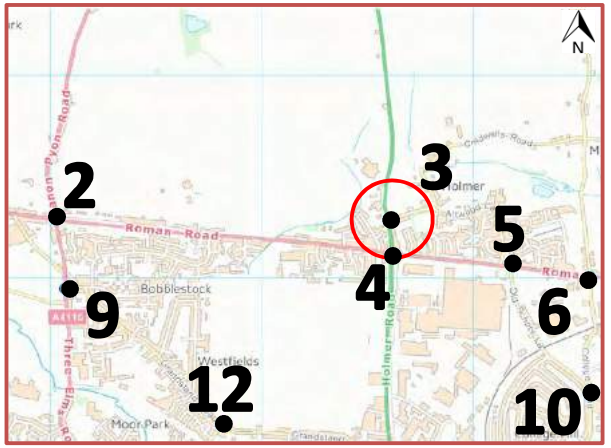
DRAWN BY GS

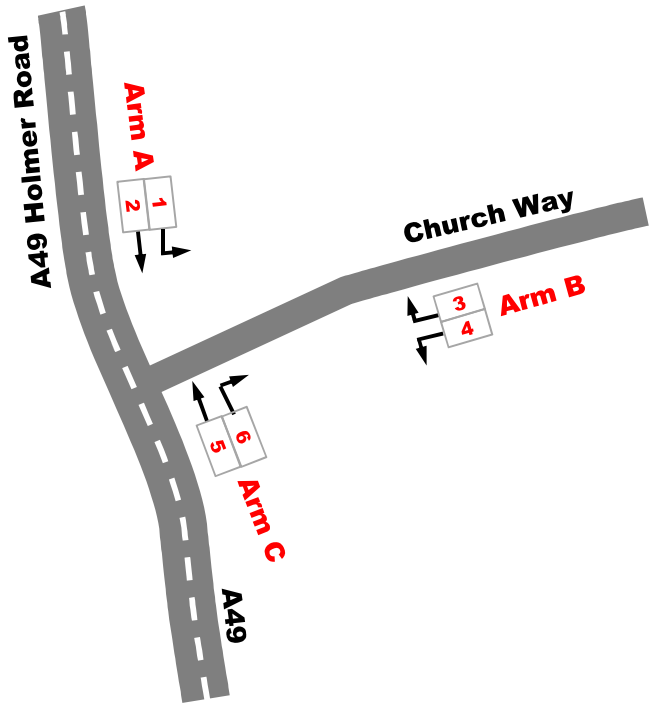
CHECKED DL

APPROVED MH

MCC SITE 3

Holmer Road / Attwood Lane





Period	ARM A			
	Movement		Total	
	1	2	From	To
AM Peak	45	1752	**1797**	**1394**
Inter Peak	40	3164	**3204**	**3108**
PM Peak	29	1612	**1641**	**1814**

Period	ARM B			
	Movement		Total	
	3	4	From	To
AM Peak	22	133	**155**	**83**
Inter Peak	47	135	**182**	**133**
PM Peak	126	142	**268**	**96**

Period	ARM C			
	Movement		Total	
	5	6	From	To
AM Peak	1372	38	**1410**	**1885**
Inter Peak	3061	93	**3154**	**3299**
PM Peak	1688	67	**1755**	**1754**

Total HGV Movements*

ARM	%HGV
A	7.2%
B	0.8%
C	6.7%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-3

• FIGURE TITLE

MCC SITE 3 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

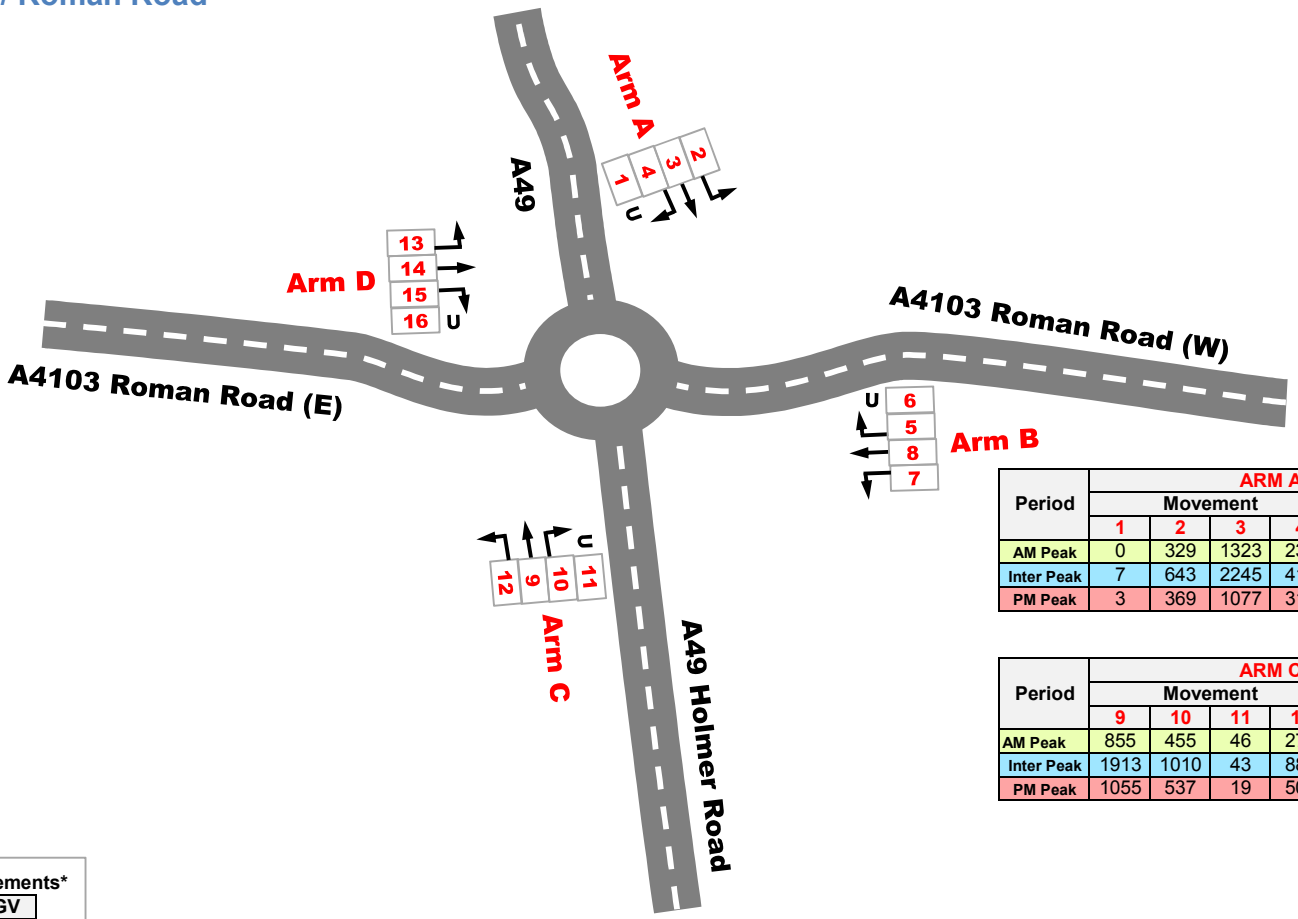
DRAWN BY GS

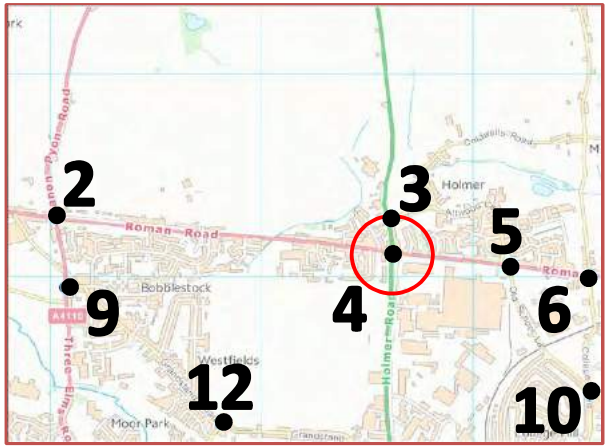
CHECKED DL

APPROVED MH

MCC SITE 4

Holmer Road / Roman Road





Period	ARM A					
	Movement				Total	
	1	2	3	4	From	To
AM Peak	0	329	1323	239	**1891**	**1419**
Inter Peak	7	643	2245	418	**3313**	**3168**
PM Peak	3	369	1077	317	**1766**	**1758**

Period	ARM B					
	Movement				Total	
	5	6	7	8	From	To
AM Peak	355	60	657	1019	**2091**	**2149**
Inter Peak	816	247	1246	1962	**4271**	**3752**
PM Peak	468	123	533	1452	**2576**	**2150**

Period	ARM C					
	Movement				Total	
	9	10	11	12	From	To
AM Peak	855	455	46	273	**1629**	**2623**
Inter Peak	1913	1010	43	887	**3853**	**4482**
PM Peak	1055	537	19	505	**2116**	**2065**

Period	ARM D					
	Movement				Total	
	13	14	15	16	From	To
AM Peak	209	1305	597	2	**2113**	**1533**
Inter Peak	432	1852	948	4	**3236**	**3271**
PM Peak	232	1121	436	3	**1792**	**2277**

Total HGV Movements*

ARM	%HGV
A	6.8%
B	3.5%
C	7.2%
D	2.3%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-4

• FIGURE TITLE

MCC SITE 4 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

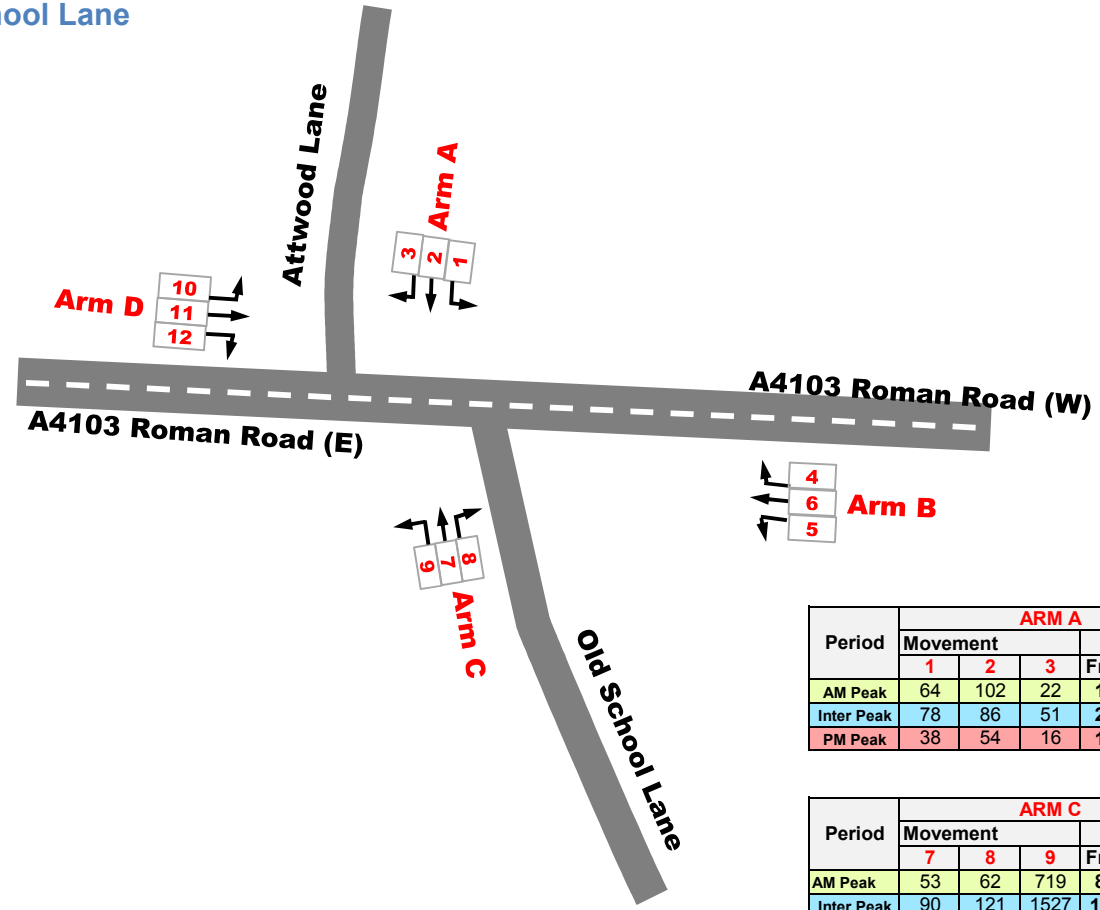
DRAWN BY GS

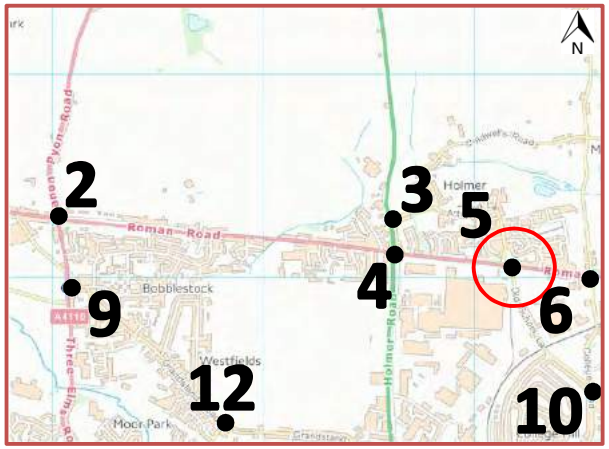
CHECKED DL

APPROVED MH

MCC SITE 5

Roman Road / Old School Lane





Period	ARM A				
	Movement			Total	
	1	2	3	From	To
AM Peak	64	102	22	**188**	**124**
Inter Peak	78	86	51	**215**	**254**
PM Peak	38	54	16	**108**	**357**

Period	ARM B				
	Movement			Total	
	4	5	6	From	To
AM Peak	35	171	1177	**1383**	**1732**
Inter Peak	78	196	2170	**2444**	**2980**
PM Peak	139	107	1278	**1524**	**1643**

Period	ARM C				
	Movement			Total	
	7	8	9	From	To
AM Peak	53	62	719	**834**	**873**
Inter Peak	90	121	1527	**1738**	**1217**
PM Peak	144	58	831	**1033**	**764**

Period	ARM D				
	Movement			Total	
	10	11	12	From	To
AM Peak	36	1606	600	**2242**	**1918**
Inter Peak	86	2781	935	**3802**	**3748**
PM Peak	74	1547	603	**2224**	**2125**

Total HGV Movements*

ARM	%HGV
A	0.4%
B	5.8%
C	2.8%
D	4.4%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

*** Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period**

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-5

• FIGURE TITLE

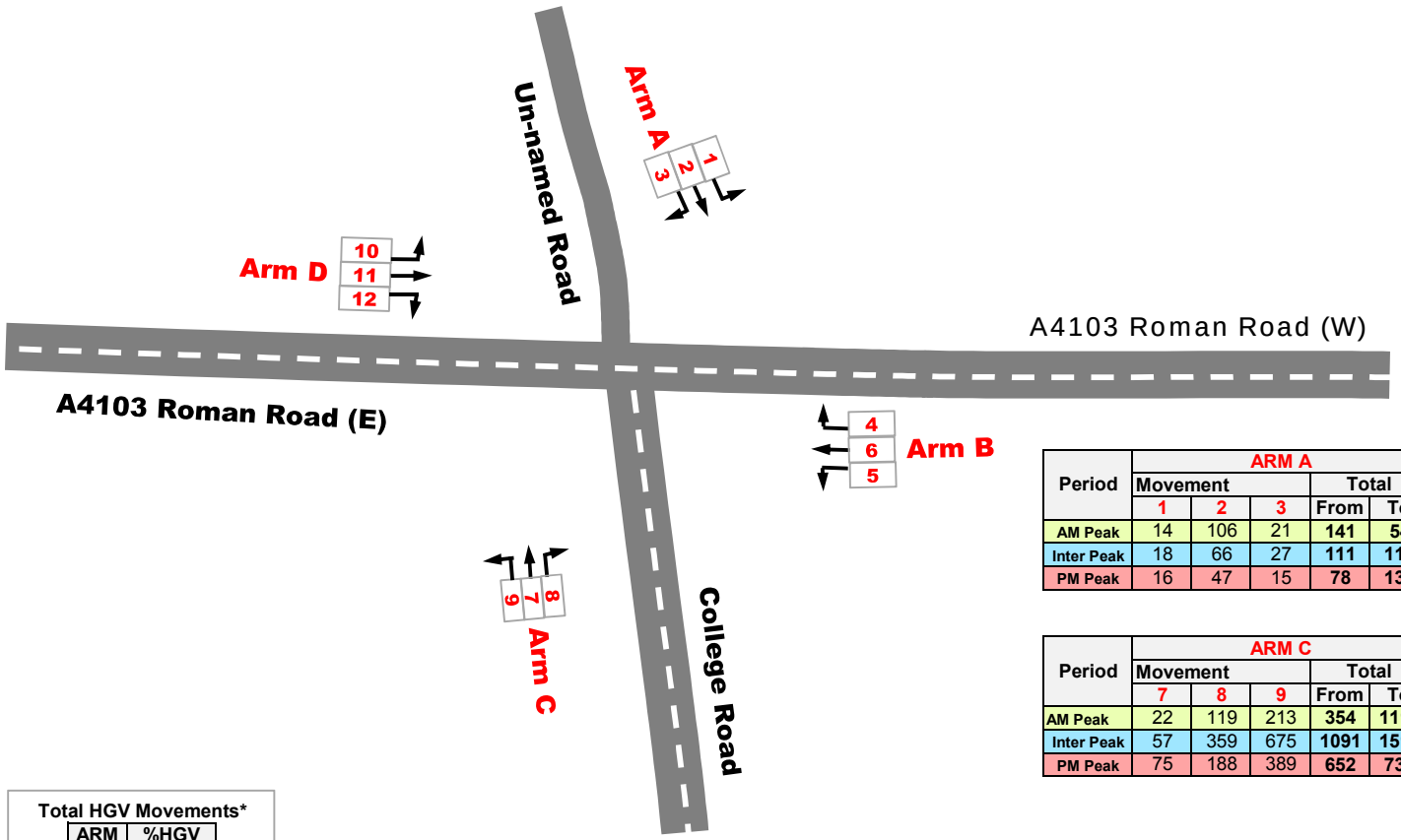
MCC SITE 5 Summary

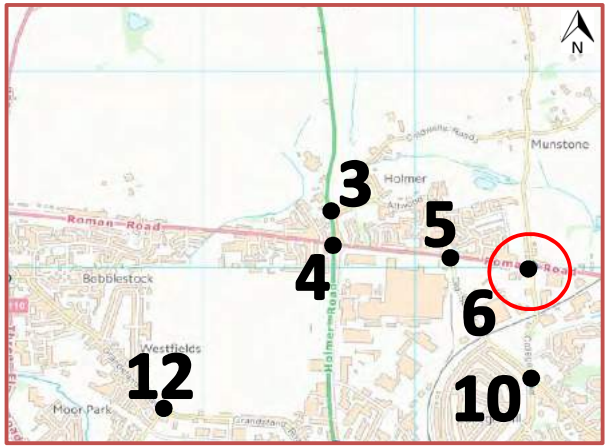
WSP | PARSONS BRINCKERHOFF

• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

MCC SITE 6

Roman Road / College Road





Period	ARM A				
	Movement			Total	
	1	2	3	From	To
AM Peak	14	106	21	**141**	**54**
Inter Peak	18	66	27	**111**	**117**
PM Peak	16	47	15	**78**	**137**

Period	ARM B				
	Movement			Total	
	4	5	6	From	To
AM Peak	7	366	998	**1371**	**1235**
Inter Peak	24	413	1672	**2109**	**2201**
PM Peak	16	198	1172	**1386**	**1253**

Period	ARM C				
	Movement			Total	
	7	8	9	From	To
AM Peak	22	119	213	**354**	**1113**
Inter Peak	57	359	675	**1091**	**1510**
PM Peak	75	188	389	**652**	**735**

Period	ARM D				
	Movement			Total	
	10	11	12	From	To
AM Peak	25	1102	641	**1768**	**1232**
Inter Peak	36	1824	1031	**2891**	**2374**
PM Peak	46	1049	490	**1585**	**1576**

Total HGV Movements*

ARM	%HGV
A	1.2%
B	6.4%
C	1.9%
D	4.9%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-6

• FIGURE TITLE

MCC SITE 6 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

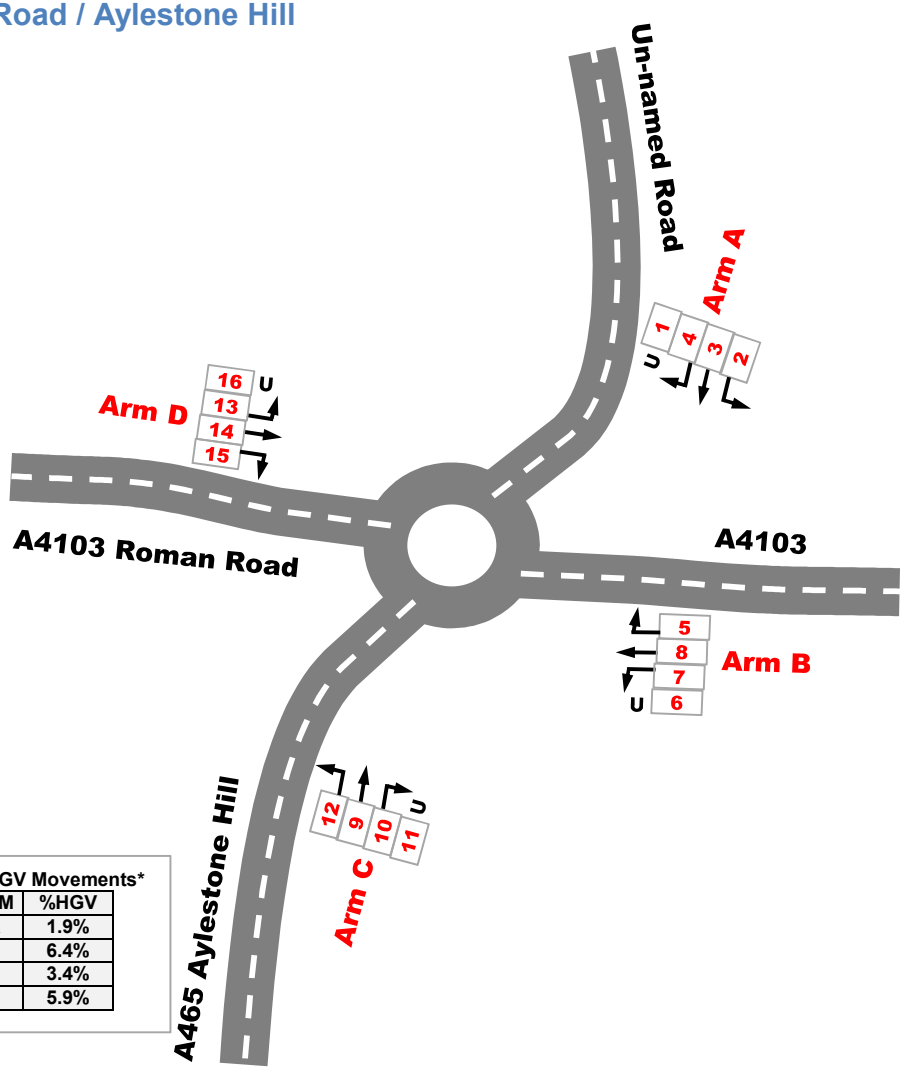
DRAWN BY GS

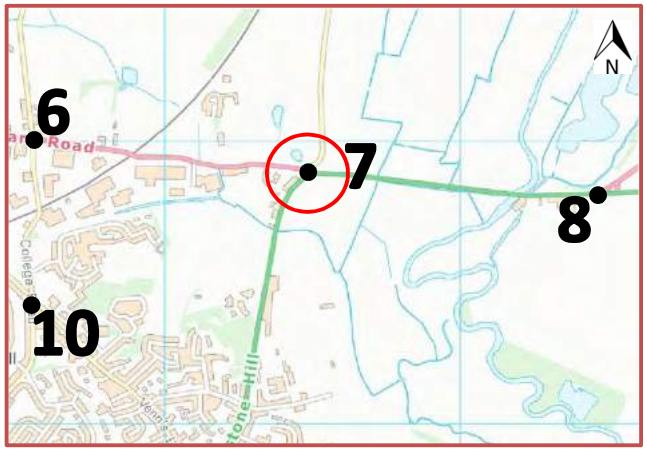
CHECKED DL

APPROVED MH

MCC SITE 7

Roman Road / Aylestone Hill





Total HGV Movements*

ARM	%HGV
A	1.9%
B	6.4%
C	3.4%
D	5.9%

Period	ARM A					
	Movement				Total	
	1	2	3	4	From	To
AM Peak	0	45	357	174	**576**	**238**
Inter Peak	0	33	442	182	**657**	**678**
PM Peak	1	16	212	68	**297**	**537**

Period	ARM B					
	Movement				Total	
	5	6	7	8	From	To
AM Peak	15	1	922	1117	**2055**	**1683**
Inter Peak	36	4	1393	1604	**3037**	**3066**
PM Peak	35	1	779	1068	**1883**	**1909**

Period	ARM C					
	Movement				Total	
	9	10	11	12	From	To
AM Peak	161	638	5	164	**968**	**1409**
Inter Peak	436	1417	16	348	**2217**	**2227**
PM Peak	393	918	3	179	**1493**	**1211**

Period	ARM D					
	Movement				Total	
	13	14	15	16	From	To
AM Peak	62	999	125	0	**1186**	**1455**
Inter Peak	206	1612	376	6	**2200**	**2140**
PM Peak	108	974	217	3	**1302**	**1318**

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

*** Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period**

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-7

• FIGURE TITLE

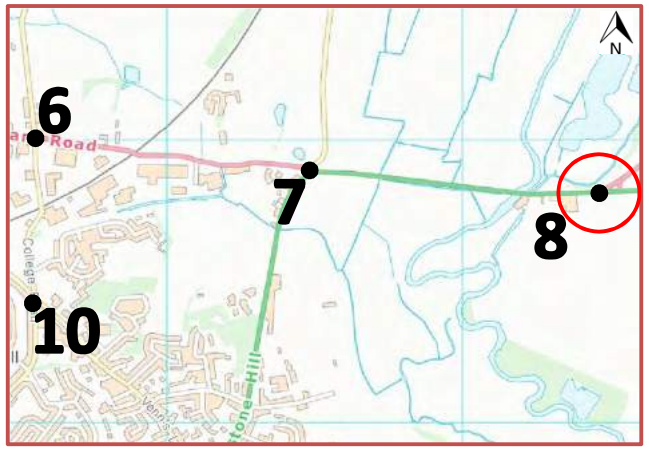
MCC SITE 7 Summary

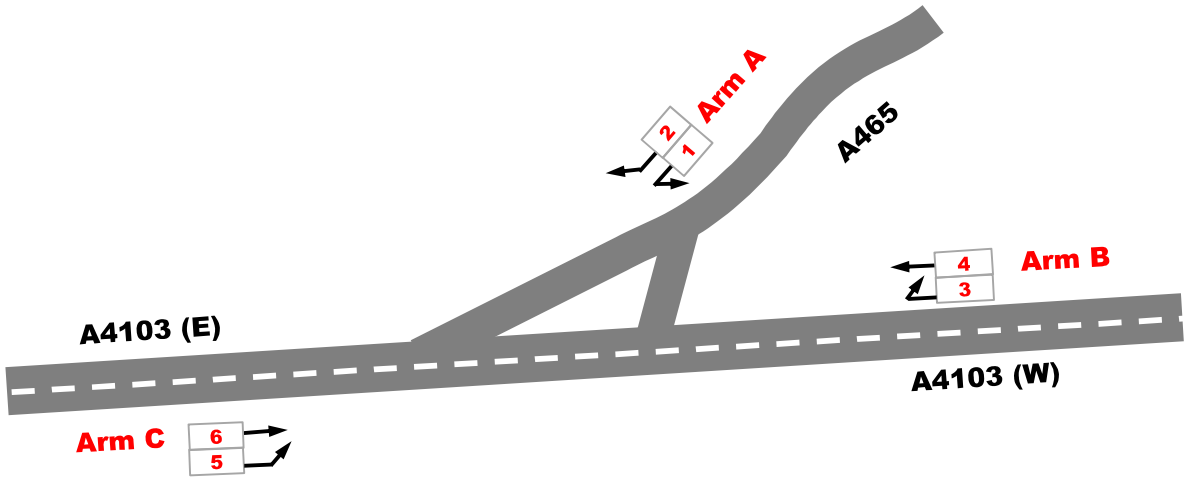
WSP | PARSONS BRINCKERHOFF

• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

MCC SITE 8

A465 / A4103





Period	ARM A			
	Movement		Total	
	1	2	From	To
AM Peak	14	424	**438**	**392**
Inter Peak	33	805	**838**	**917**
PM Peak	10	426	**436**	**557**

Period	ARM B			
	Movement		Total	
	3	4	From	To
AM Peak	20	1618	**1638**	**1346**
Inter Peak	30	2212	**2242**	**2200**
PM Peak	9	1435	**1444**	**1359**

Period	ARM C			
	Movement		Total	
	5	6	From	To
AM Peak	372	1332	**1704**	**2042**
Inter Peak	887	2167	**3054**	**3017**
PM Peak	548	1349	**1897**	**1861**

Total HGV Movements*

ARM	%HGV
A	7.0%
B	6.5%
C	6.6%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-8

• FIGURE TITLE

MCC SITE 8 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

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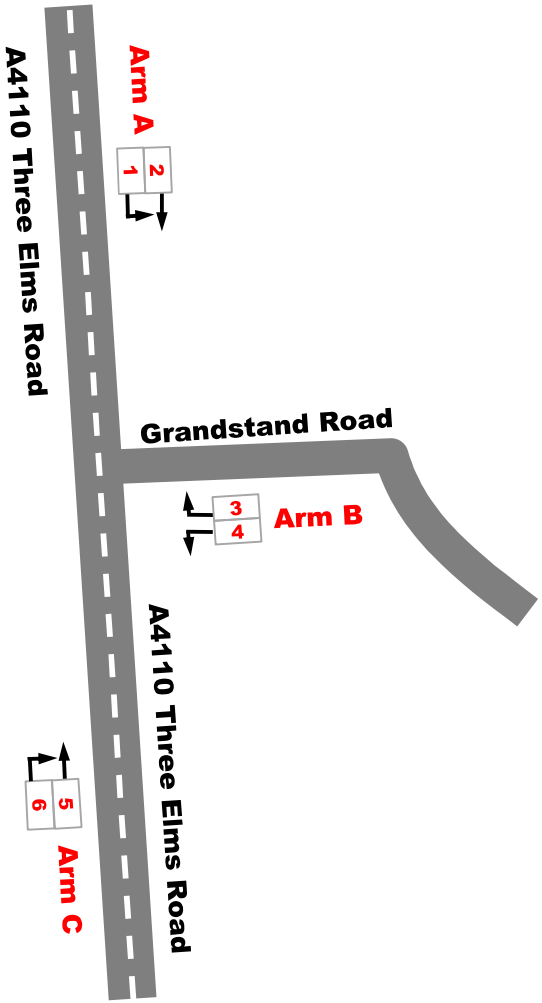
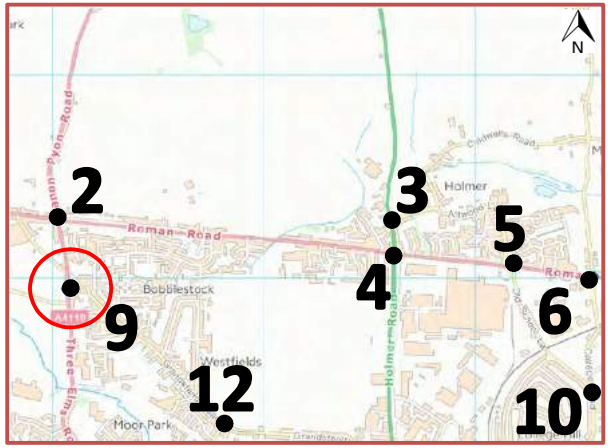
APPROVED MH

MCC SITE 9

Three Elms Road / Grandstand Road





Period	ARM A			
	Movement		Total	
	1	2	From	To
AM Peak	470	850	**1320**	**1027**
Inter Peak	696	1404	**2100**	**2223**
PM Peak	368	686	**1054**	**1392**

Period	ARM B			
	Movement		Total	
	3	4	From	To
AM Peak	300	303	**603**	**691**
Inter Peak	728	593	**1321**	**1304**
PM Peak	467	322	**789**	**723**

Period	ARM C			
	Movement		Total	
	5	6	From	To
AM Peak	727	221	**948**	**1153**
Inter Peak	1495	608	**2103**	**1997**
PM Peak	925	355	**1280**	**1008**

Total HGV Movements*

ARM	%HGV
A	2.5%
B	1.1%
C	2.3%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-9

• FIGURE TITLE

MCC SITE 9 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

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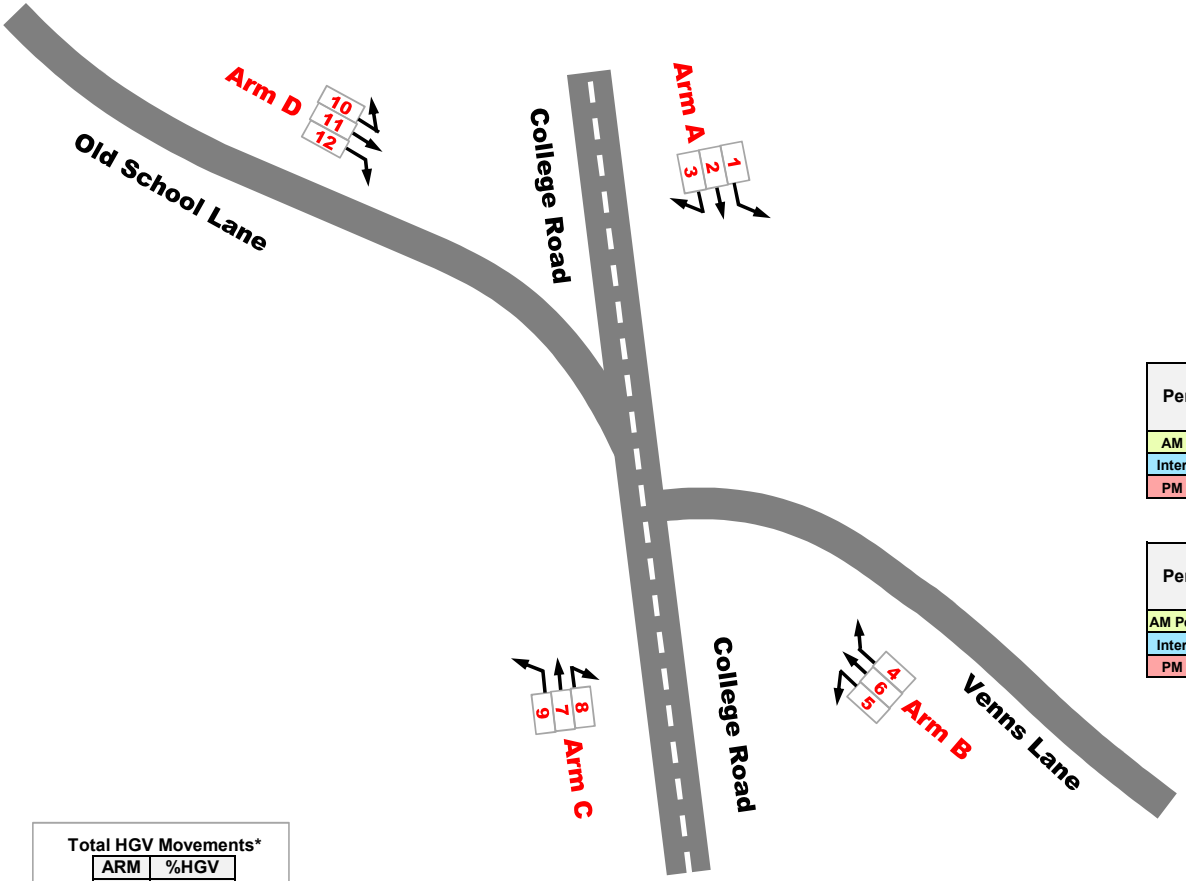
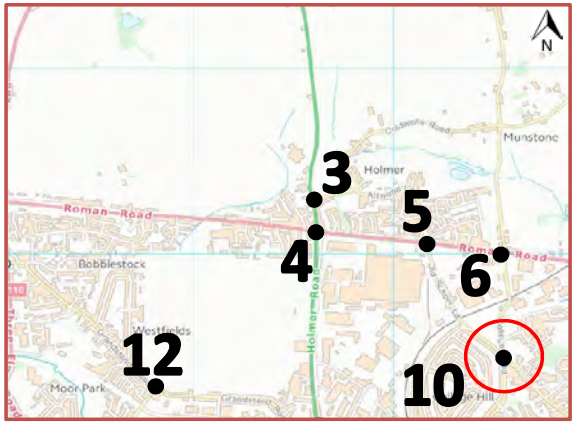
MCC SITE 10

College Road / Old School Lane





Period	ARM A				
	Movement			Total	
	1	2	3	From	To
AM Peak	494	466	16	**976**	**496**
Inter Peak	725	754	32	**1511**	**984**
PM Peak	464	418	17	**899**	**531**

Period	ARM B				
	Movement			Total	
	4	5	6	From	To
AM Peak	168	277	528	**973**	**1005**
Inter Peak	284	418	1011	**1713**	**1722**
PM Peak	190	286	610	**1086**	**1197**

Period	ARM C				
	Movement			Total	
	7	8	9	From	To
AM Peak	290	199	82	**571**	**803**
Inter Peak	612	445	212	**1269**	**1302**
PM Peak	311	319	128	**758**	**779**

Period	ARM D				
	Movement			Total	
	10	11	12	From	To
AM Peak	38	312	60	**410**	**626**
Inter Peak	88	552	130	**770**	**1255**
PM Peak	30	414	75	**519**	**755**

Total HGV Movements*

ARM	%HGV
A	1.4%
B	0.8%
C	1.4%
D	1.5%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-10

• FIGURE TITLE

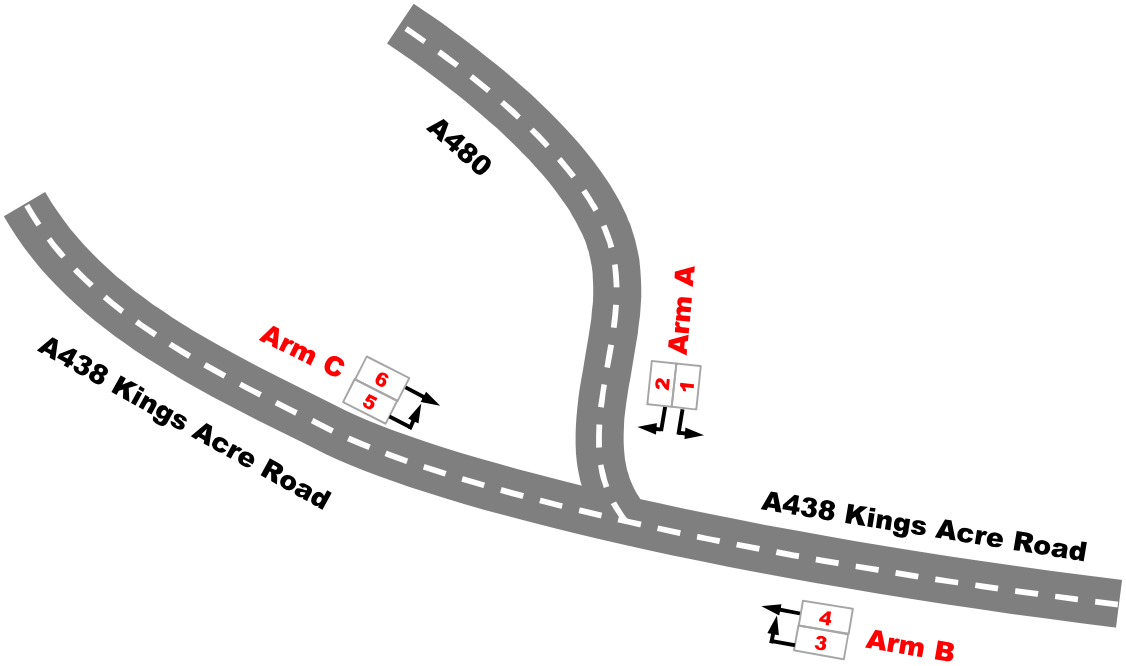
MCC SITE 10 Summary

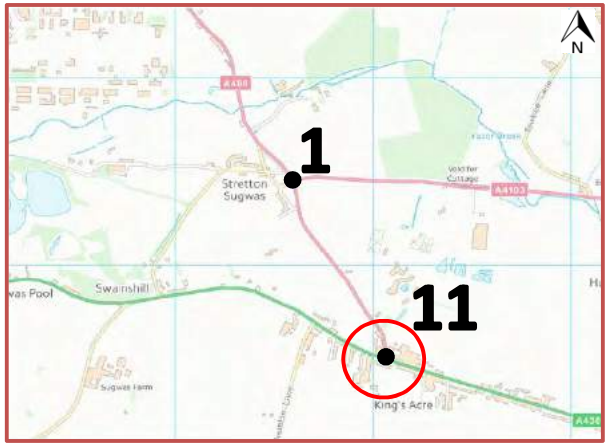
WSP | PARSONS BRINCKERHOFF

• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

MCC SITE 11

A438 / A480 by Kings Acre





Period	ARM A			
	Movement		Total	
	1	2	From	To
AM Peak	558	72	**630**	**705**
Inter Peak	1244	221	**1465**	**957**
PM Peak	579	93	**672**	**599**

Period	ARM B			
	Movement		Total	
	3	4	From	To
AM Peak	630	405	**1035**	**1336**
Inter Peak	815	1099	**1914**	**2446**
PM Peak	544	658	**1202**	**1048**

Period	ARM C			
	Movement		Total	
	5	6	From	To
AM Peak	75	778	**853**	**477**
Inter Peak	142	1202	**1344**	**1320**
PM Peak	55	469	**524**	**751**

Total HGV Movements*

ARM	%HGV
A	4.6%
B	4.9%
B	7.0%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-11

• FIGURE TITLE

MCC SITE 11 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

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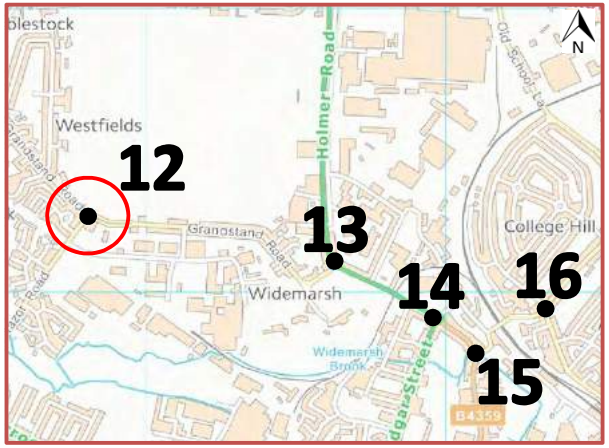
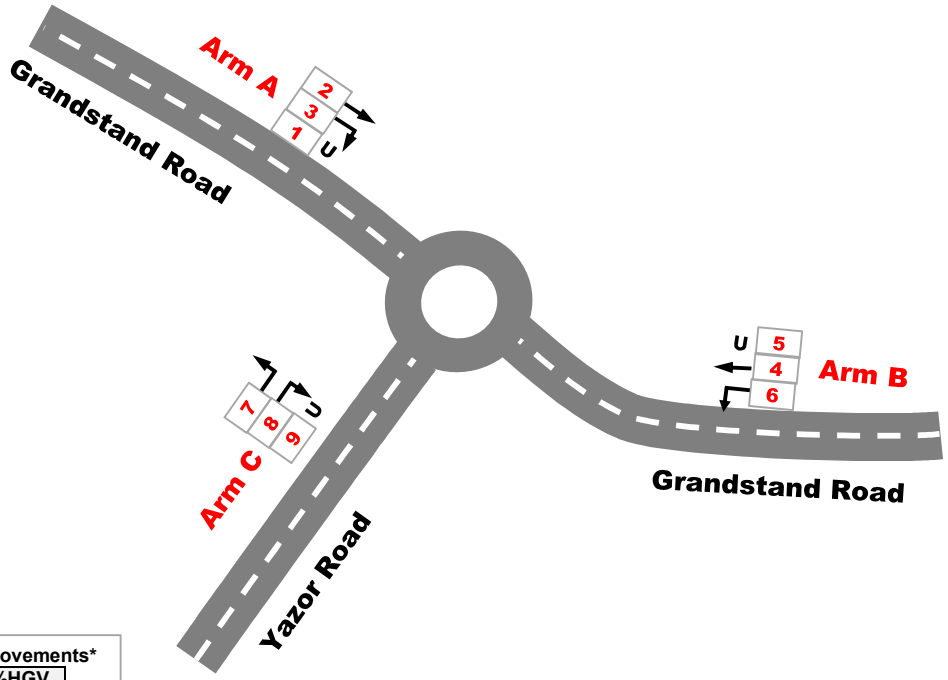
APPROVED MH

MCC SITE 12

A4A87 / A499 Rbt





Period	ARM A				
	Movement			Total	
	1	2	3	From	To
AM Peak	0	663	332	**995**	**387**
Inter Peak	1	874	533	**1408**	**1363**
PM Peak	2	415	270	**687**	**888**

Period	ARM B				
	Movement			Total	
	4	5	6	From	To
AM Peak	236	0	423	**659**	**1494**
Inter Peak	809	8	1314	**2131**	**2242**
PM Peak	560	2	855	**1417**	**1128**

Period	ARM C				
	Movement			Total	
	7	8	9	From	To
AM Peak	151	831	0	**982**	**755**
Inter Peak	553	1360	9	**1922**	**1856**
PM Peak	326	711	1	**1038**	**1126**

Total HGV Movements*

ARM	%HGV
A	1.7%
B	2.6%
C	3.3%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-12

• FIGURE TITLE

MCC SITE 12 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

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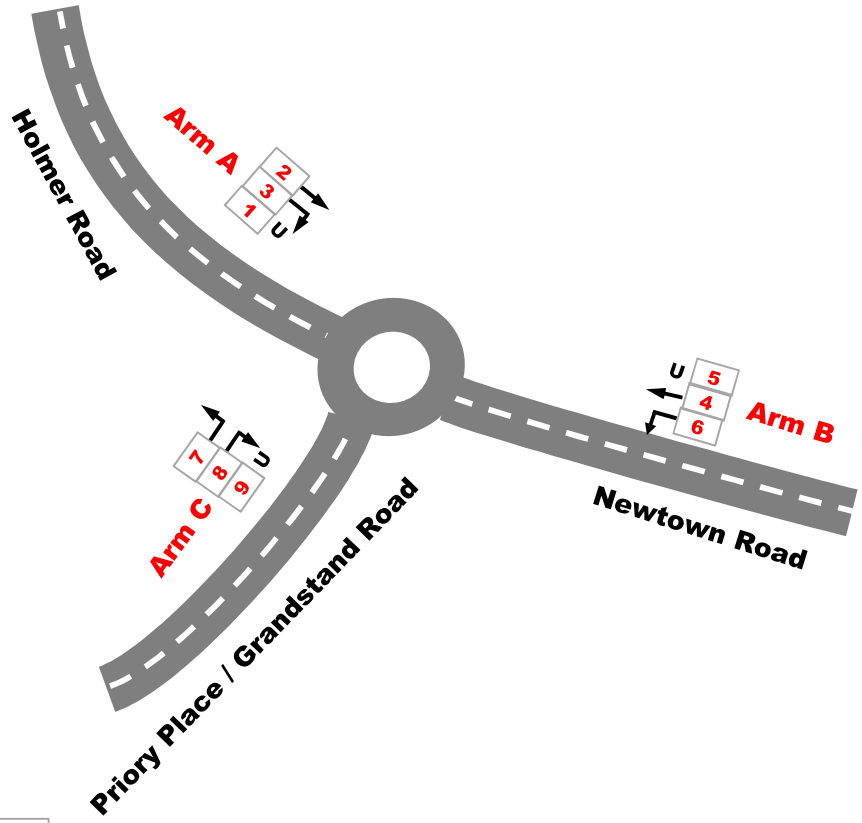
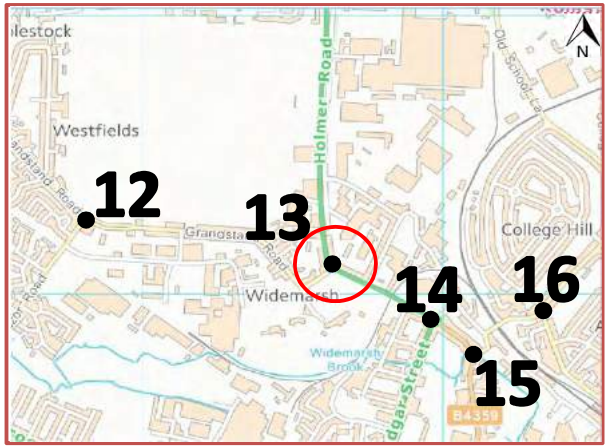
MCC SITE 13

Grandstand Road / Holmer Road





Period	ARM A				
	Movement			Total	
	1	2	3	From	To
AM Peak	2	1664	436	2102	2187
Inter Peak	6	3740	1192	4938	4829
PM Peak	4	1729	669	2402	2295

Period	ARM B				
	Movement			Total	
	4	5	6	From	To
AM Peak	1522	1	593	2116	2689
Inter Peak	3585	9	1554	5148	5447
PM Peak	1691	2	996	2689	2621

Period	ARM C				
	Movement			Total	
	7	8	9	From	To
AM Peak	663	1024	2	1689	1031
Inter Peak	1238	1698	1	2937	2747
PM Peak	600	890	0	1490	1665

Total HGV Movements*

ARM	%HGV
A	6.1%
B	2.0%
C	3.2%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-13

• FIGURE TITLE

MCC SITE 13 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

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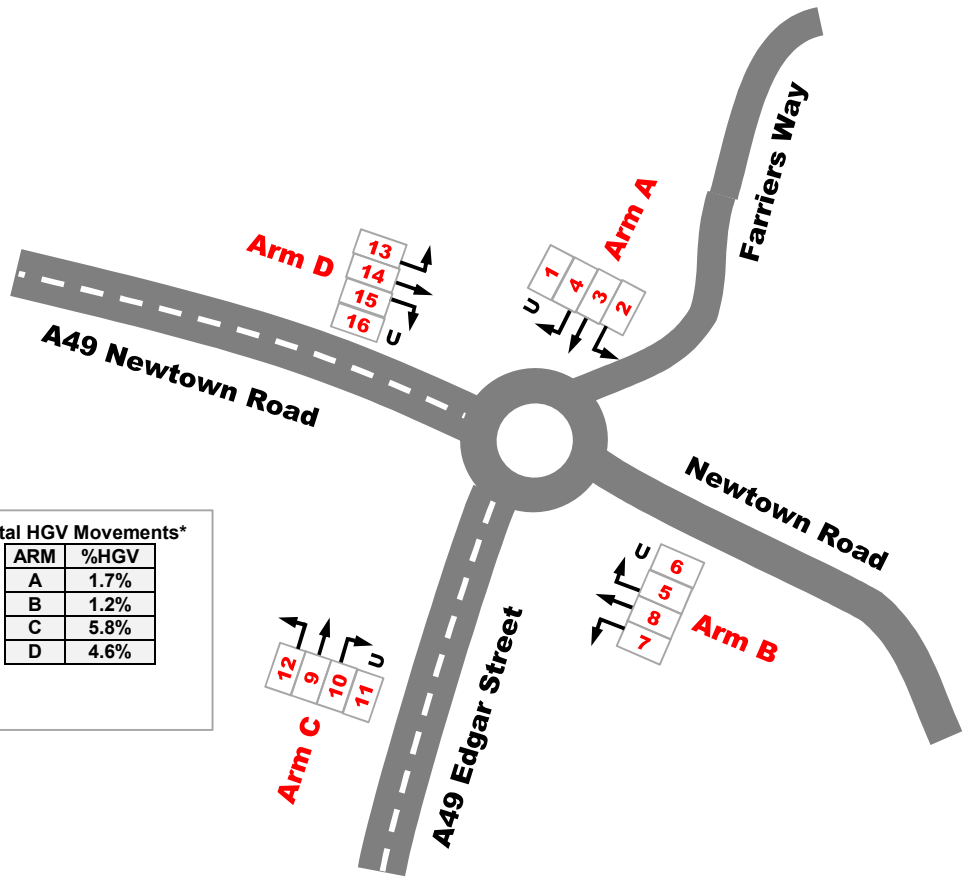
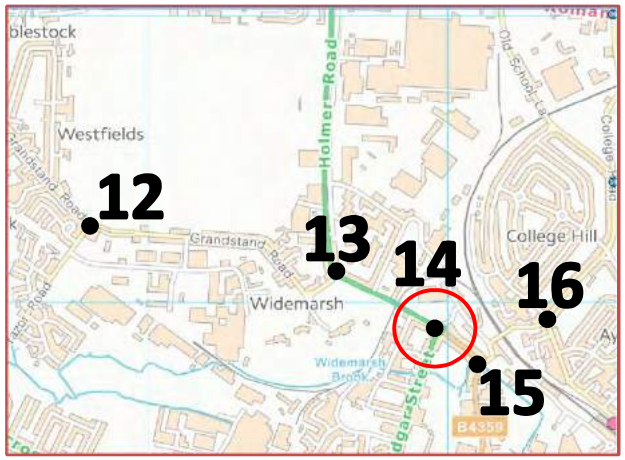
APPROVED MH

MCC SITE 14

Edgar Street / Holmer Road





Total HGV Movements*

ARM	%HGV
A	1.7%
B	1.2%
C	5.8%
D	4.6%

Period	ARM A					
	Movement				Total	
	1	2	3	4	From	To
AM Peak	0	72	408	414	**894**	**584**
Inter Peak	0	123	844	1008	**1975**	**1384**
PM Peak	1	52	503	682	**1238**	**720**

Period	ARM B					
	Movement				Total	
	5	6	7	8	From	To
AM Peak	9	0	341	410	**760**	**1448**
Inter Peak	104	9	585	1406	**2104**	**2377**
PM Peak	57	5	230	742	**1034**	**991**

Period	ARM C					
	Movement				Total	
	9	10	11	12	From	To
AM Peak	294	268	15	1437	**2014**	**2248**
Inter Peak	633	344	45	3022	**4044**	**4651**
PM Peak	315	133	6	1361	**1815**	**2337**

Period	ARM D					
	Movement				Total	
	13	14	15	16	From	To
AM Peak	281	1108	1484	29	**2902**	**2290**
Inter Peak	647	1901	3177	42	**5767**	**5478**
PM Peak	347	801	1598	20	**2766**	**2805**

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

*** Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period**

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-14

• FIGURE TITLE

MCC SITE 14 Summary

WSP | PARSONS BRINCKERHOFF

• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
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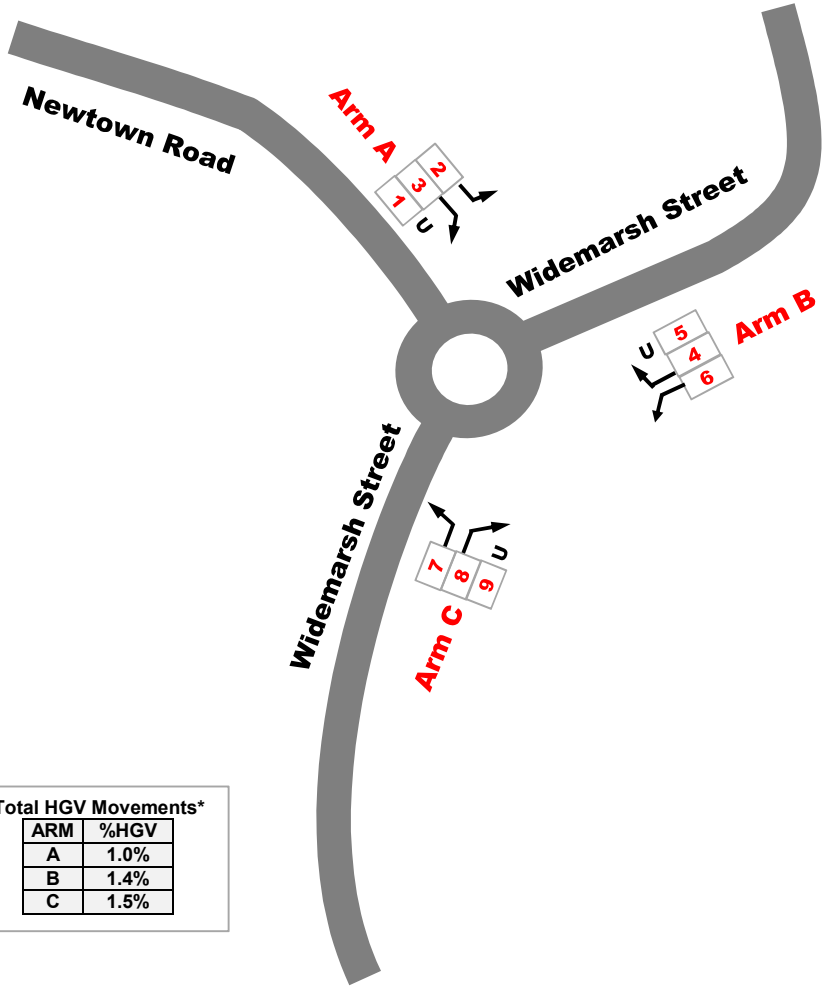
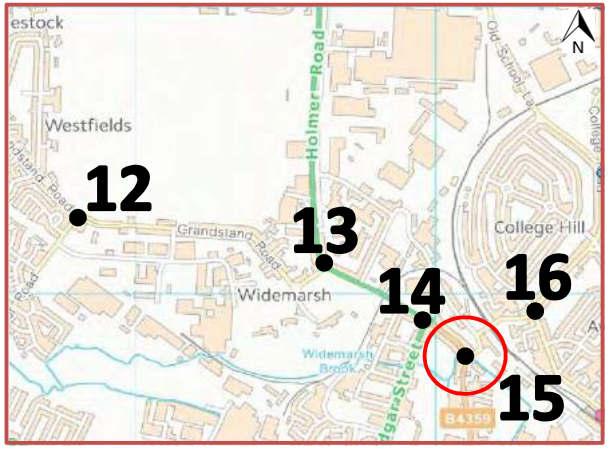
MCC SITE 15

B4359 / College Road





Period	ARM A				
	Movement			Total	
	1	2	3	From	To
AM Peak	6	254	1174	**1434**	**683**
Inter Peak	7	333	2125	**2465**	**1857**
PM Peak	14	185	801	**1000**	**939**

Period	ARM B				
	Movement			Total	
	4	5	6	From	To
AM Peak	386	0	917	**1303**	**612**
Inter Peak	589	4	1297	**1890**	**1362**
PM Peak	316	0	757	**1073**	**832**

Period	ARM C				
	Movement			Total	
	7	8	9	From	To
AM Peak	291	358	2	**651**	**2093**
Inter Peak	1261	1025	8	**2294**	**3430**
PM Peak	609	647	5	**1261**	**1563**

Total HGV Movements*

ARM	%HGV
A	1.0%
B	1.4%
C	1.5%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-15

• FIGURE TITLE

MCC SITE 15 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

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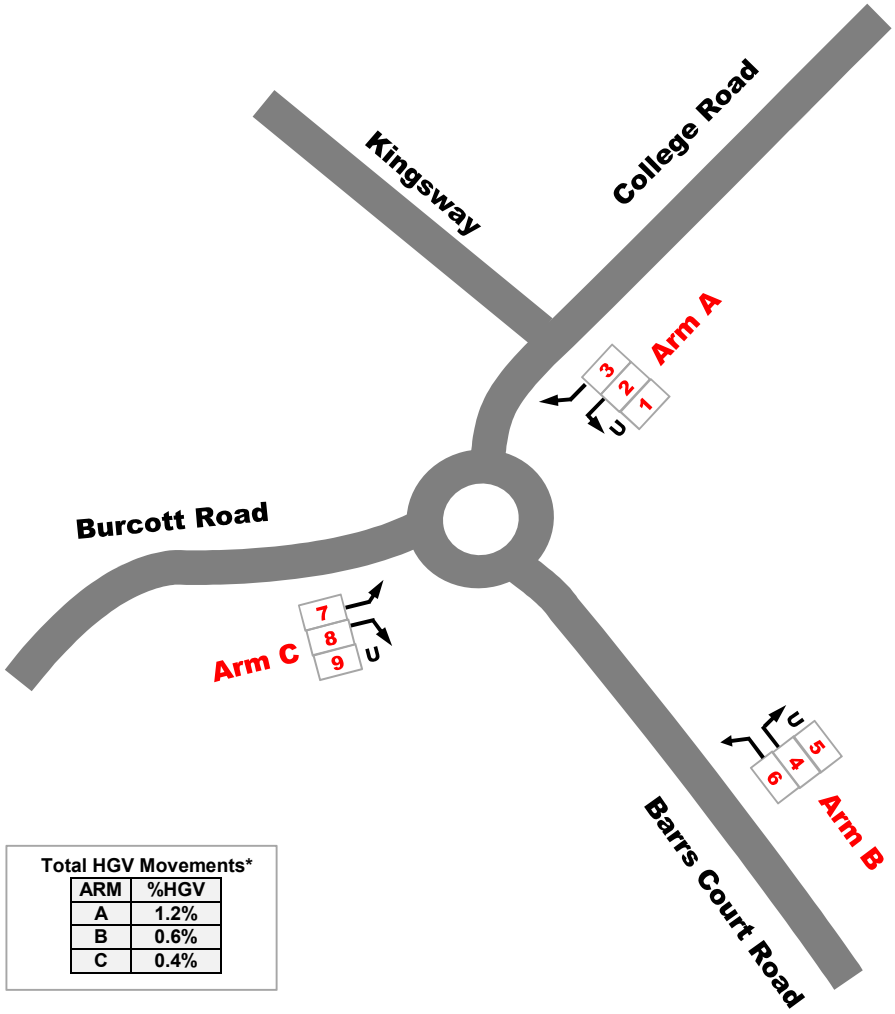
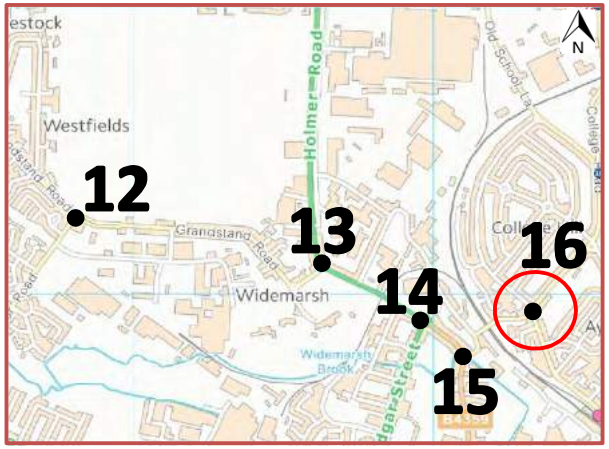
APPROVED MH

MCC SITE 16

College Road by College Hill





Period	ARM A				
	Movement			Total	
	1	2	3	From	To
AM Peak	1	254	1128	**1383**	**847**
Inter Peak	12	401	1591	**2004**	**2090**
PM Peak	1	215	961	**1177**	**1282**

Period	ARM B				
	Movement			Total	
	4	5	6	From	To
AM Peak	239	1	842	**1082**	**674**
Inter Peak	690	9	1753	**2452**	**1348**
PM Peak	372	2	952	**1326**	**784**

Period	ARM C				
	Movement			Total	
	7	8	9	From	To
AM Peak	607	419	2	**1028**	**1972**
Inter Peak	1388	938	4	**2330**	**3348**
PM Peak	909	567	2	**1478**	**1915**

Total HGV Movements*

ARM	%HGV
A	1.2%
B	0.6%
C	0.4%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-16

• FIGURE TITLE

MCC SITE 16 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

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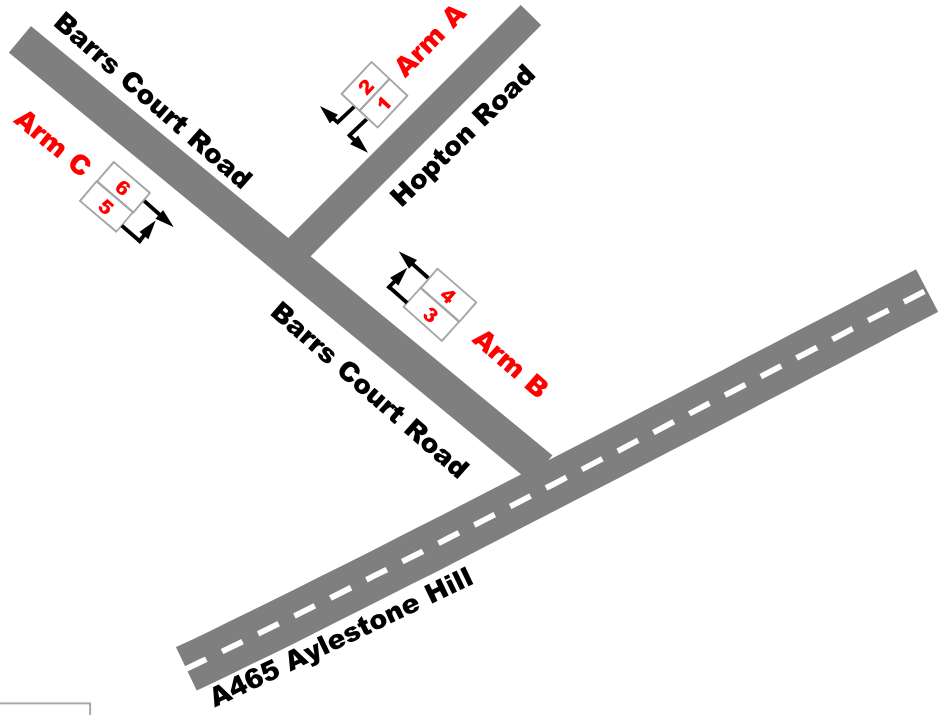
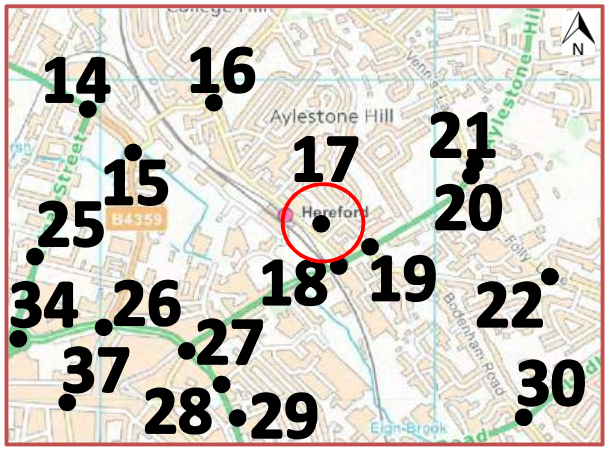
APPROVED MH

MCC SITE 17

College Road by Train Station





Period	ARM A			
	Movement		Total	
	1	2	From	To
AM Peak	5	23	**28**	**31**
Inter Peak	17	63	**80**	**54**
PM Peak	4	24	**28**	**51**

Period	ARM B			
	Movement		Total	
	3	4	From	To
AM Peak	12	1007	**1019**	**594**
Inter Peak	25	2214	**2239**	**1152**
PM Peak	22	1207	**1229**	**628**

Period	ARM C			
	Movement		Total	
	5	6	From	To
AM Peak	19	589	**608**	**1030**
Inter Peak	29	1135	**1164**	**2277**
PM Peak	29	624	**653**	**1231**

Total HGV Movements*

ARM	%HGV
A	0.0%
B	1.2%
C	1.7%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-17

• FIGURE TITLE

MCC SITE 17 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

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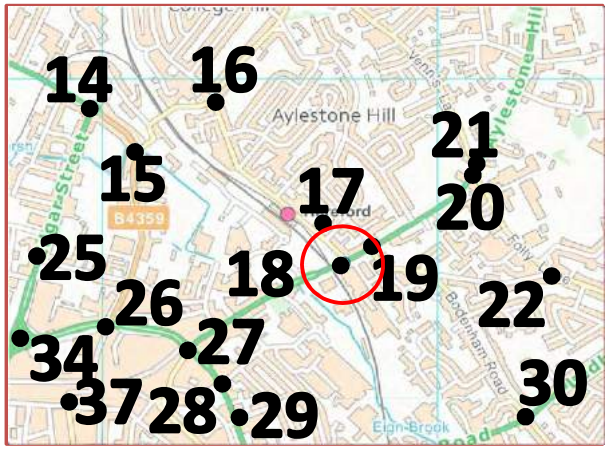
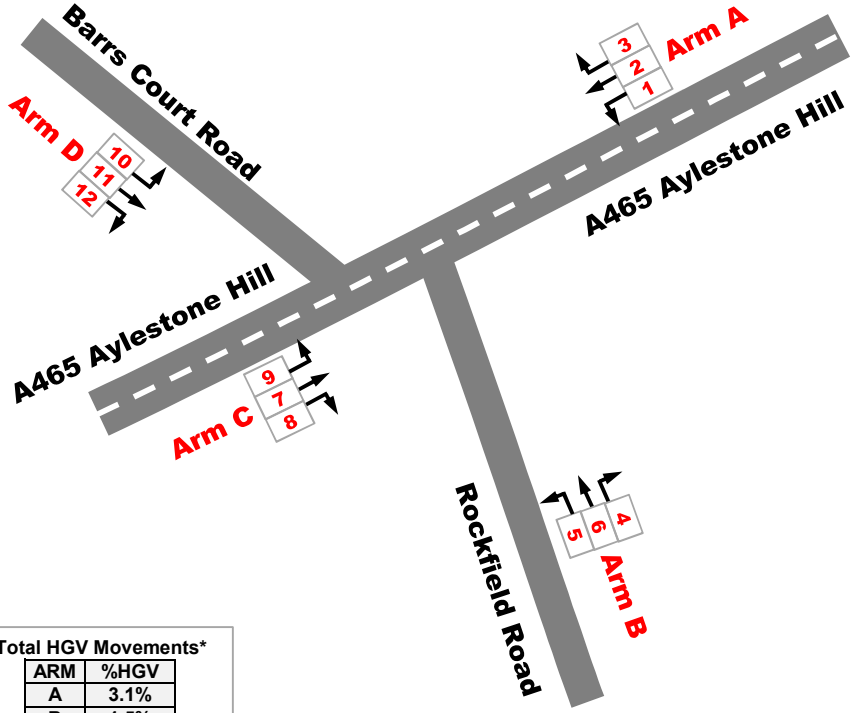
CHECKED DL

APPROVED MH

MCC SITE 18

Aylestone Hill / College Road





Total HGV Movements*

ARM	%HGV
A	3.1%
B	1.5%
C	2.8%
D	1.7%

Period	ARM A				
	Movement			Total	
	1	2	3	From	To
AM Peak	73	1852	566	**2491**	**1747**
Inter Peak	101	3433	921	**4455**	**4463**
PM Peak	39	1538	534	**2111**	**2767**

Period	ARM B				
	Movement			Total	
	4	5	6	From	To
AM Peak	33	41	39	**113**	**181**
Inter Peak	76	119	83	**278**	**248**
PM Peak	47	49	36	**132**	**90**

Period	ARM C				
	Movement			Total	
	7	8	9	From	To
AM Peak	1306	74	412	**1792**	**2050**
Inter Peak	3598	105	1242	**4945**	**3869**
PM Peak	2238	34	660	**2932**	**1717**

Period	ARM D				
	Movement			Total	
	10	11	12	From	To
AM Peak	408	34	157	**599**	**1017**
Inter Peak	789	42	317	**1148**	**2246**
PM Peak	482	17	130	**629**	**1230**

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

*** Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period**

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-18

• FIGURE TITLE

MCC SITE 18 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

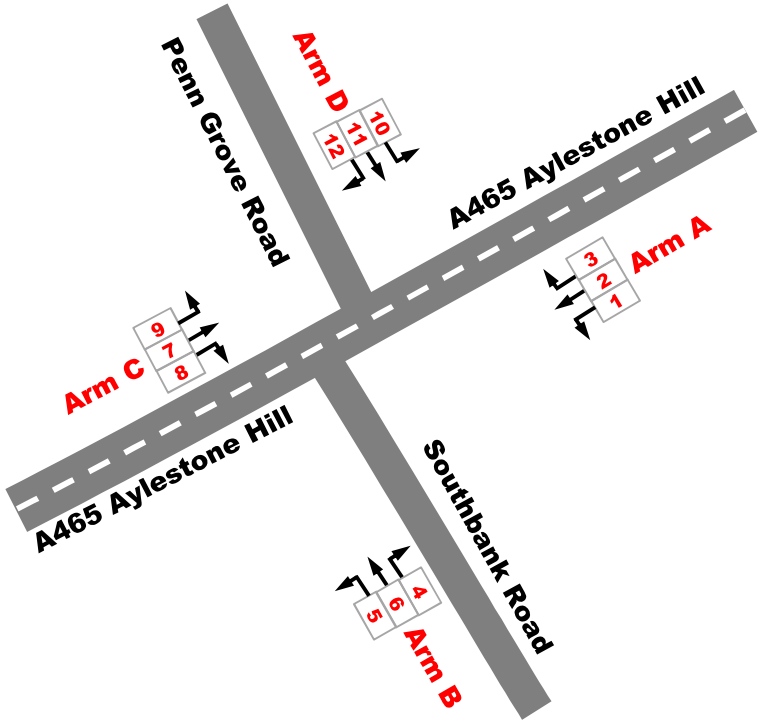
DRAWN BY GS

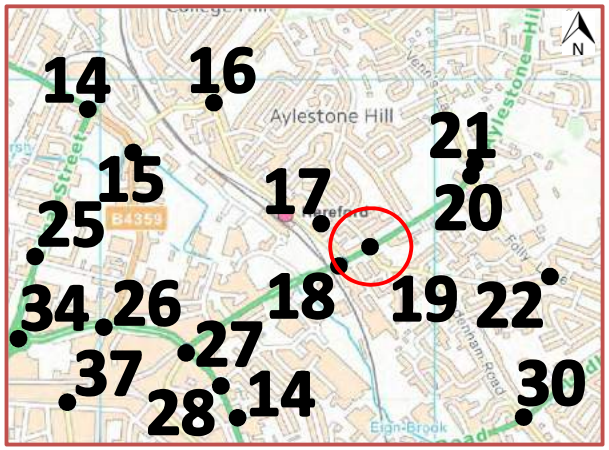
CHECKED DL

APPROVED MH

MCC SITE 19

Aylestone Hill / Bodenham Road





Period	ARM A				
	Movement			Total	
	1	2	3	From	To
AM Peak	86	1706	18	**1810**	**1277**
Inter Peak	196	3120	57	**3373**	**3120**
PM Peak	126	1450	20	**1596**	**1884**

Period	ARM B				
	Movement			Total	
	4	5	6	From	To
AM Peak	32	741	12	**785**	**632**
Inter Peak	44	1278	15	**1337**	**1589**
PM Peak	37	637	19	**693**	**1028**

Period	ARM C				
	Movement			Total	
	7	8	9	From	To
AM Peak	1220	510	23	**1753**	**2492**
Inter Peak	3032	1373	64	**4469**	**4443**
PM Peak	1819	885	53	**2757**	**2117**

Period	ARM D				
	Movement			Total	
	10	11	12	From	To
AM Peak	25	36	45	**106**	**53**
Inter Peak	44	20	45	**109**	**136**
PM Peak	28	17	30	**75**	**92**

Total HGV Movements*

ARM	%HGV
A	3.8%
B	0.9%
C	2.7%
D	0.0%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-19

• FIGURE TITLE

MCC SITE 19 Summary

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• DATE 18/11/2016

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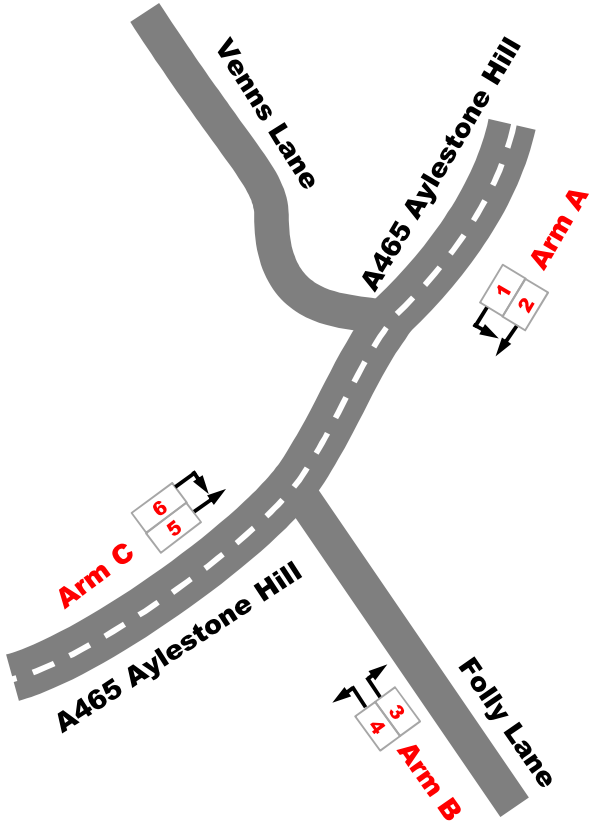
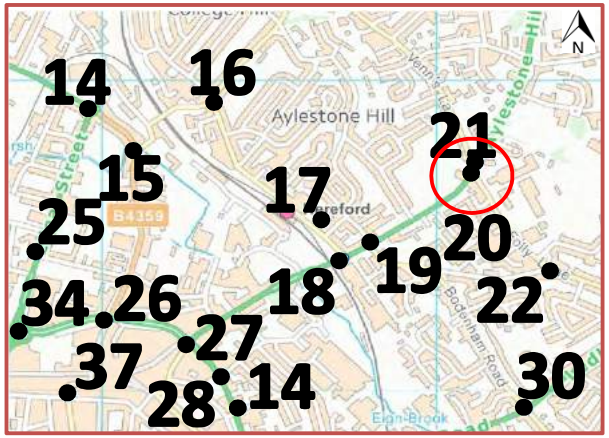
MCC SITE 20

Aylestone Hill / Folly Lane





Period	ARM A			
	Movement		Total	
	1	2	From	To
AM Peak	755	1348	**2103**	**1808**
Inter Peak	1399	2452	**3851**	**3756**
PM Peak	1061	1099	**2160**	**2379**

Period	ARM B			
	Movement		Total	
	3	4	From	To
AM Peak	888	445	**1333**	**1218**
Inter Peak	1464	896	**2360**	**2226**
PM Peak	975	480	**1455**	**1534**

Period	ARM C			
	Movement		Total	
	5	6	From	To
AM Peak	920	463	**1383**	**1793**
Inter Peak	2292	827	**3119**	**3348**
PM Peak	1404	473	**1877**	**1579**

Total HGV Movements*

ARM	%HGV
A	2.7%
B	1.8%
C	3.6%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-20

• FIGURE TITLE

MCC SITE 20 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

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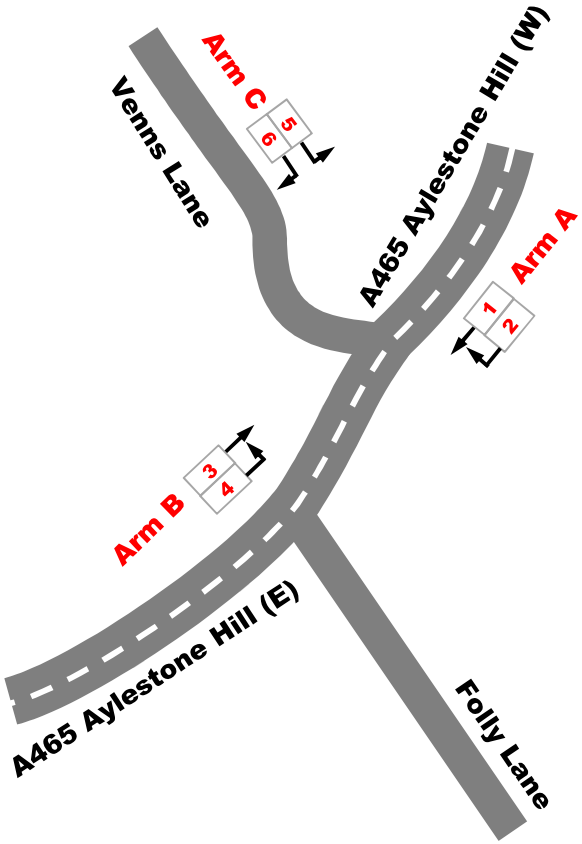
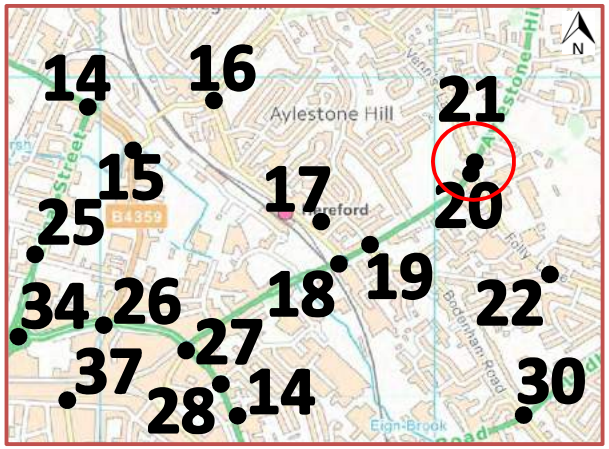
MCC SITE 21

Aylestone Hill / Venns Lane





Period	ARM A			
	Movement		Total	
	1	2	From	To
AM Peak	1242	47	**1289**	**47**
Inter Peak	2268	116	**2384**	**116**
PM Peak	1166	59	**1225**	**59**

Period	ARM B			
	Movement		Total	
	3	4	From	To
AM Peak	999	822	**1821**	**2092**
Inter Peak	2210	1544	**3754**	**3846**
PM Peak	1406	976	**2382**	**2171**

Period	ARM C			
	Movement		Total	
	5	6	From	To
AM Peak	79	850	**929**	**869**
Inter Peak	129	1578	**1707**	**1660**
PM Peak	70	1005	**1075**	**1035**

Total HGV Movements*

ARM	%HGV
A	3.7%
B	2.3%
C	1.5%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-21

• FIGURE TITLE

MCC SITE 21 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

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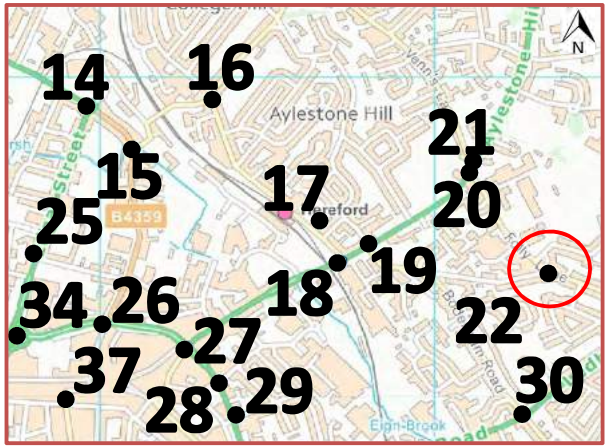
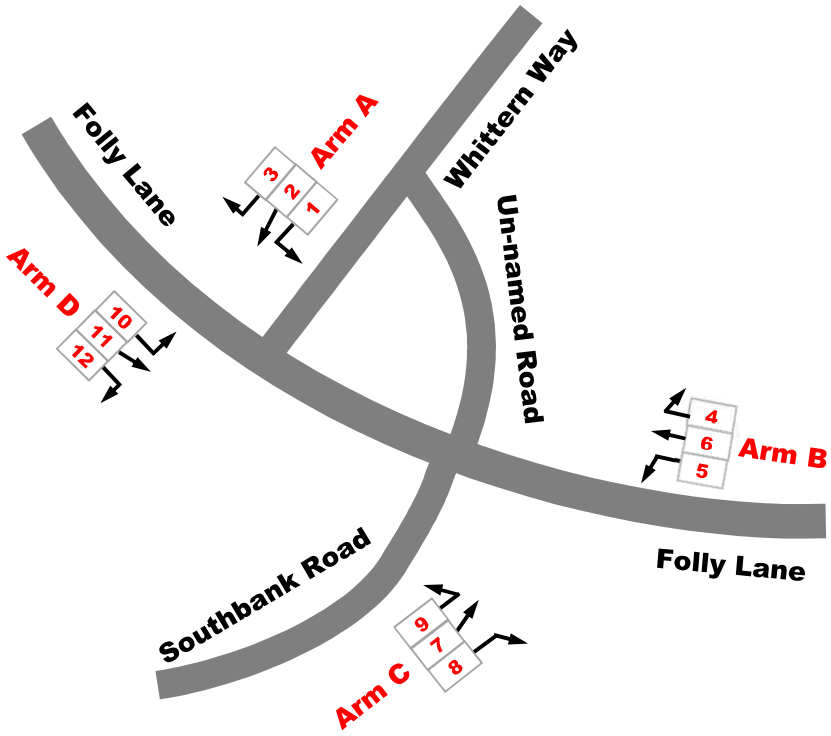
MCC SITE 22

Folly Lane / Bodenham Road





Period	ARM A				
	Movement			Total	
	1	2	3	From	To
AM Peak	12	5	6	**23**	**45**
Inter Peak	26	14	20	**60**	**76**
PM Peak	19	3	6	**28**	**29**

Period	ARM B				
	Movement			Total	
	4	5	6	From	To
AM Peak	11	37	889	**937**	**648**
Inter Peak	32	73	1437	**1542**	**1521**
PM Peak	10	36	964	**1010**	**1076**

Period	ARM C				
	Movement			Total	
	7	8	9	From	To
AM Peak	22	30	115	**167**	**109**
Inter Peak	18	77	135	**230**	**228**
PM Peak	9	55	89	**153**	**126**

Period	ARM D				
	Movement			Total	
	10	11	12	From	To
AM Peak	12	606	67	**685**	**1010**
Inter Peak	26	1418	141	**1585**	**1592**
PM Peak	10	1002	87	**1099**	**1059**

Total HGV Movements*

ARM	%HGV
A	0.0%
B	1.7%
C	0.2%
D	1.7%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

*** Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period**

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-22

• FIGURE TITLE

MCC SITE 22 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

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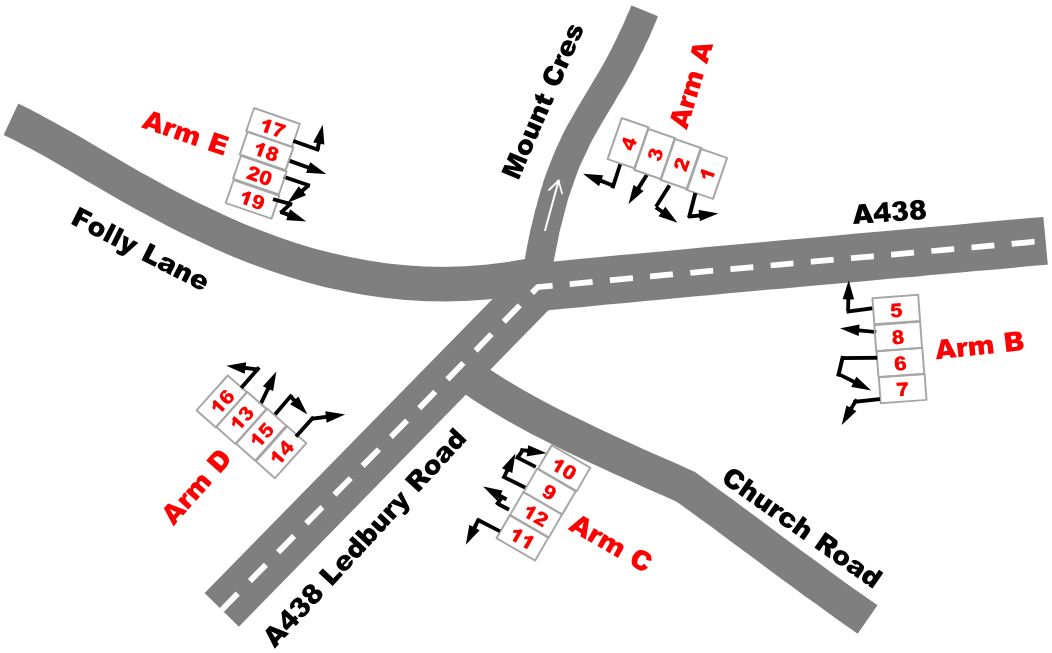
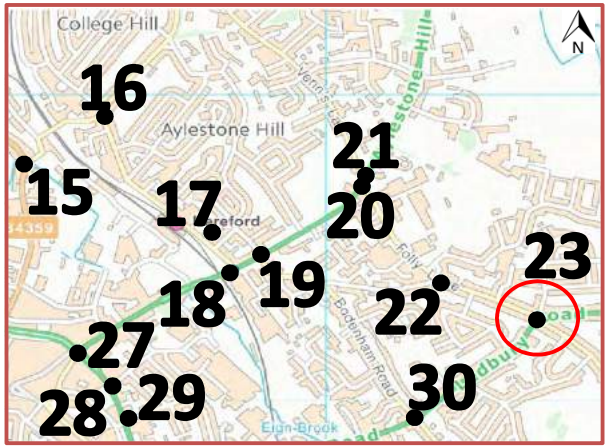
MCC SITE 23

Ledbury Road / Folly Lane





Total HGV Movements*	
ARM	%HGV
A	0.0%
B	3.0%
C	0.7%
D	1.9%
E	2.0%

Period	ARM A					
	Movement				Total	
	1	2	3	4	From	To
AM Peak	0	0	0	0	0	61
Inter Peak	0	0	0	0	0	240
PM Peak	0	0	0	0	0	171

Period	ARM B					
	Movement				Total	
	5	6	7	8	From	To
AM Peak	1	9	869	319	1198	834
Inter Peak	15	30	1246	605	1896	1689
PM Peak	12	22	712	406	1152	1159

Period	ARM C					
	Movement				Total	
	9	10	11	12	From	To
AM Peak	3	10	99	296	408	216
Inter Peak	9	19	196	369	593	578
PM Peak	8	10	102	227	347	430

Period	ARM D					
	Movement				Total	
	13	14	15	16	From	To
AM Peak	35	561	42	99	737	1078
Inter Peak	154	1146	119	226	1645	1709
PM Peak	111	810	82	141	1144	974

Period	ARM E					
	Movement				Total	
	17	18	19	20	From	To
AM Peak	22	263	165	110	560	714
Inter Peak	62	524	429	267	1282	1200
PM Peak	40	339	326	160	865	774

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-23

• FIGURE TITLE

MCC SITE 23 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

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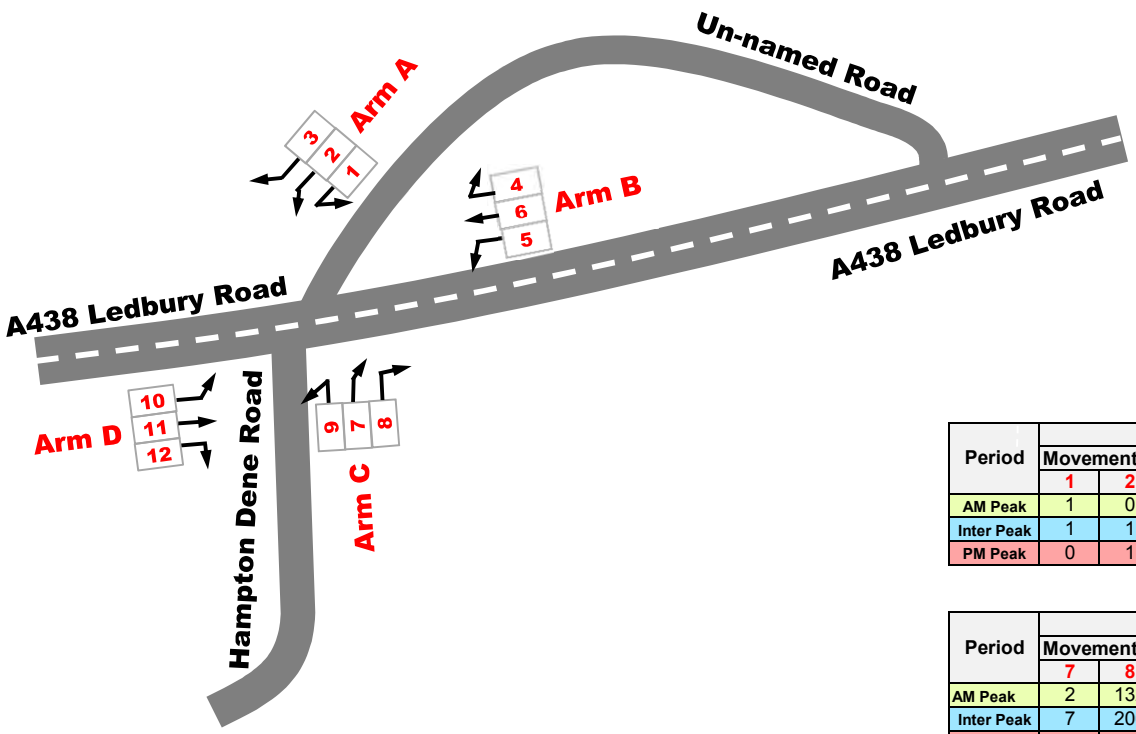
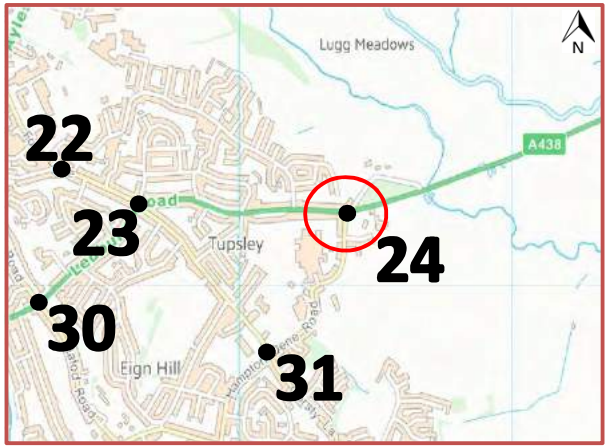
MCC SITE 24

A438 / Hamptone Dene Road





Period	ARM A				
	Movement			Total	
	1	2	3	From	To
AM Peak	1	0	5	**6**	**32**
Inter Peak	1	1	6	**8**	**61**
PM Peak	0	1	6	**7**	**24**

Period	ARM B				
	Movement			Total	
	4	5	6	From	To
AM Peak	4	215	1039	**1258**	**917**
Inter Peak	7	216	1406	**1629**	**1572**
PM Peak	0	151	897	**1048**	**1086**

Period	ARM C				
	Movement			Total	
	7	8	9	From	To
AM Peak	2	132	228	**362**	**429**
Inter Peak	7	206	323	**536**	**528**
PM Peak	1	125	243	**369**	**361**

Period	ARM D				
	Movement			Total	
	10	11	12	From	To
AM Peak	26	784	214	**1024**	**1272**
Inter Peak	47	1365	311	**1723**	**1735**
PM Peak	23	961	209	**1193**	**1146**

Total HGV Movements*

ARM	%HGV
A	0.0%
B	3.1%
C	3.6%
C	2.6%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

*** Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period**

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-24

• FIGURE TITLE

MCC SITE 24 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

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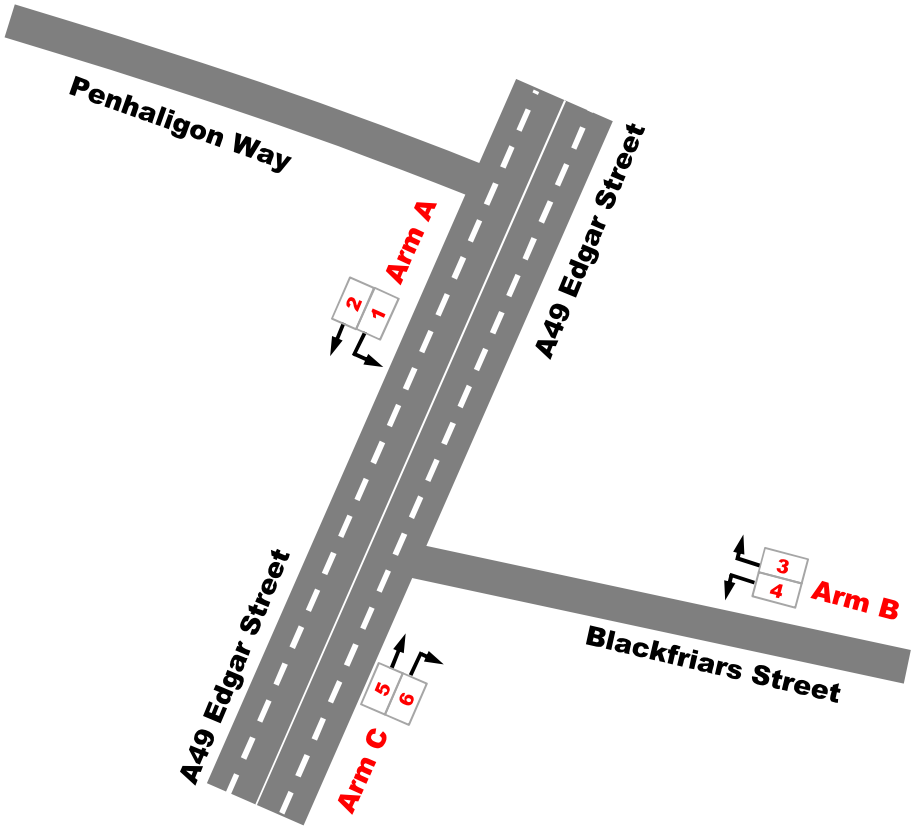
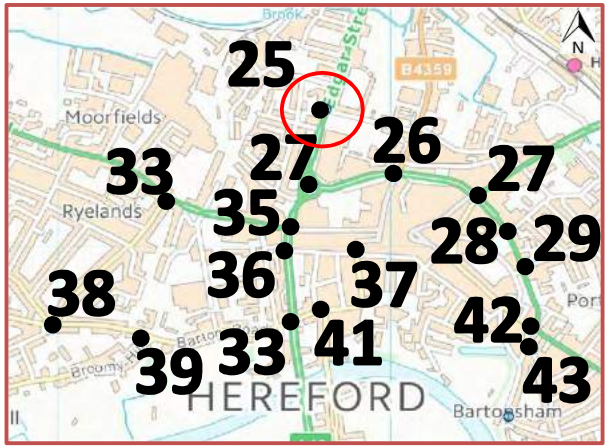
MCC SITE 25

A49 Edgar Street near Widemarsh Brook





Period	ARM A			
	Movement		Total	
	1	2	From	To
AM Peak	145	2053	2198	1912
Inter Peak	408	4121	4529	3863
PM Peak	146	2067	2213	1666

Period	ARM B			
	Movement		Total	
	3	4	From	To
AM Peak	42	349	391	581
Inter Peak	309	1383	1692	1483
PM Peak	117	862	979	662

Period	ARM C			
	Movement		Total	
	5	6	From	To
AM Peak	1870	436	2306	2402
Inter Peak	3554	1075	4629	5504
PM Peak	1549	516	2065	2929

Total HGV Movements*

ARM	%HGV
A	5.7%
B	0.9%
C	5.4%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-25

• FIGURE TITLE

MCC SITE 25 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

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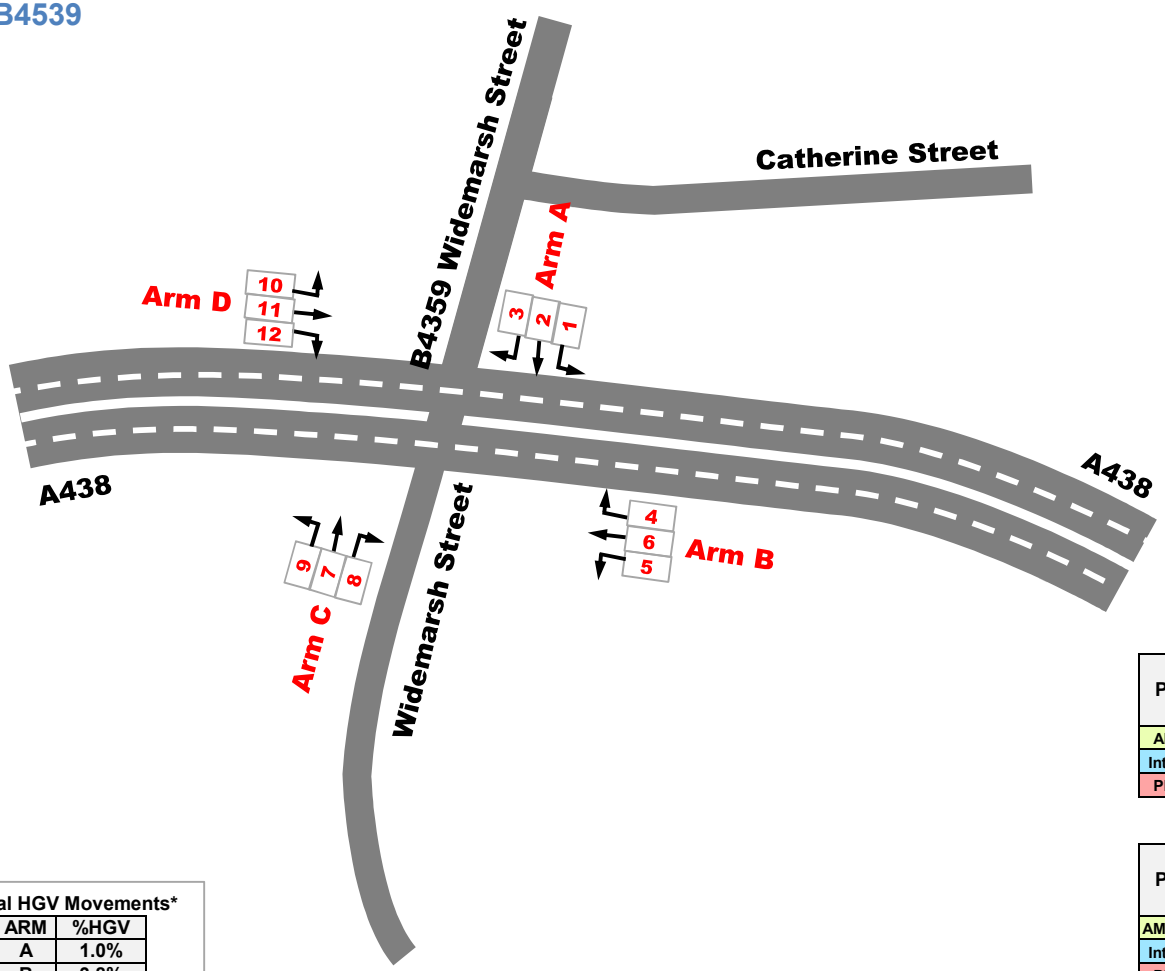
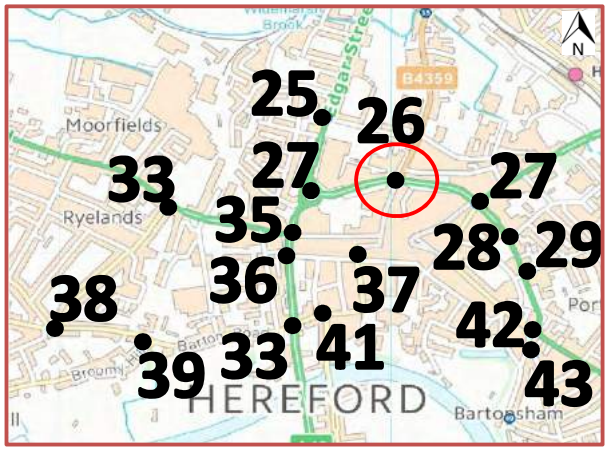
MCC SITE 26

A49 / B4539





Period	ARM A				
	Movement			Total	
	1	2	3	From	To
AM Peak	497	288	1	786	636
Inter Peak	1169	40	1	1210	1780
PM Peak	516	349	3	868	751

Period	ARM B				
	Movement			Total	
	4	5	6	From	To
AM Peak	316	364	2521	3201	2824
Inter Peak	869	25	5841	6735	5674
PM Peak	378	282	2859	3519	2794

Period	ARM C				
	Movement			Total	
	7	8	9	From	To
AM Peak	26	0	2	28	652
Inter Peak	26	2	2	30	65
PM Peak	20	0	3	23	631

Period	ARM D				
	Movement			Total	
	10	11	12	From	To
AM Peak	294	2327	0	2621	2524
Inter Peak	885	4503	0	5388	5844
PM Peak	353	2278	0	2631	2865

Total HGV Movements*

ARM	%HGV
A	1.0%
B	3.8%
C	0.0%
D	4.2%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-26

• FIGURE TITLE

MCC SITE 26 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

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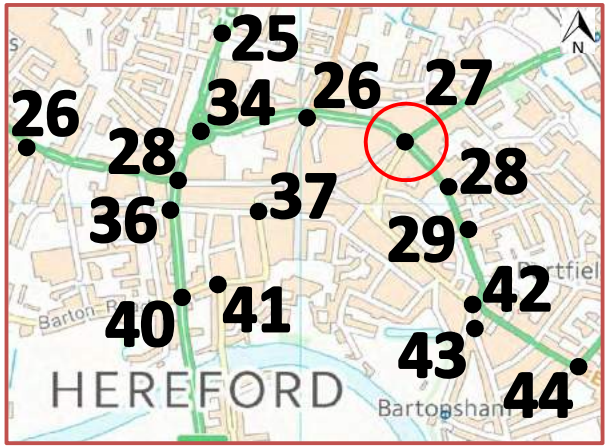
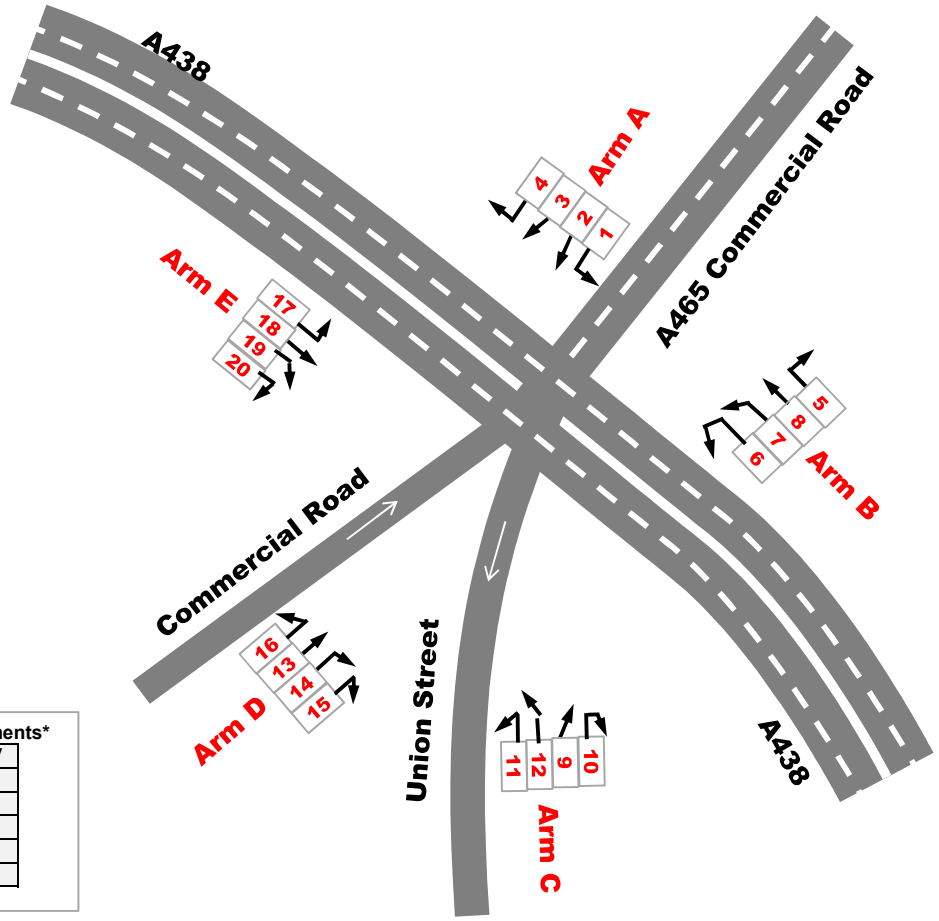
MCC SITE 27

A438 / A465 Commercial Hill





Total HGV Movements*	
ARM	%HGV
A	5.3%
B	2.9%
C	0.0%
D	3.8%
E	3.9%

Period	ARM A					
	Movement				Total	
	1	2	3	4	From	To
AM Peak	204	252	0	1320	**1776**	**1528**
Inter Peak	451	575	0	3115	**4141**	**3230**
PM Peak	192	196	0	1465	**1853**	**1571**

Period	ARM B					
	Movement				Total	
	5	6	7	8	From	To
AM Peak	184	34	0	1964	**2182**	**1334**
Inter Peak	614	143	0	3639	**4396**	**2650**
PM Peak	315	69	0	1982	**2366**	**1469**

Period	ARM C					
	Movement				Total	
	9	10	11	12	From	To
AM Peak	0	0	0	0	**0**	**642**
Inter Peak	0	0	0	0	**0**	**1596**
PM Peak	0	0	0	0	**0**	**603**

Period	ARM D					
	Movement				Total	
	13	14	15	16	From	To
AM Peak	12	0	0	17	**29**	**1**
Inter Peak	12	0	0	14	**26**	**0**
PM Peak	7	0	0	18	**25**	**0**

Period	ARM E					
	Movement				Total	
	17	18	19	20	From	To
AM Peak	1332	1130	356	1	**2819**	**3301**
Inter Peak	2604	2199	878	0	**5681**	**6768**
PM Peak	1249	1277	338	0	**2864**	**3465**

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-27

• FIGURE TITLE

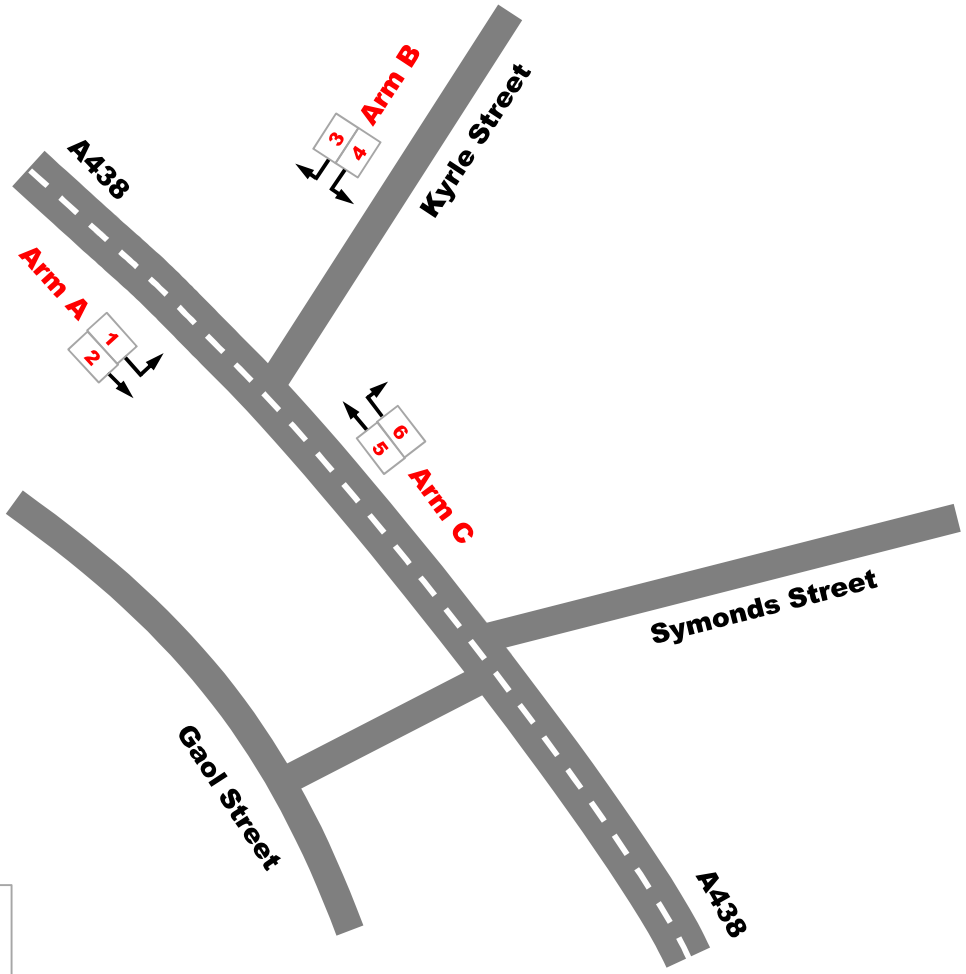
MCC SITE 27 Summary

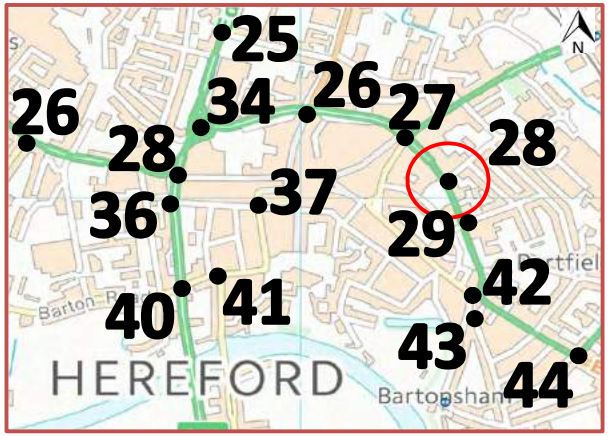
WSP | PARSONS BRINCKERHOFF

• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

MCC SITE 28

A438 / Kyrle Street





Period	ARM A			
	Movement		Total	
	1	2	From	To
AM Peak	207	1116	**1323**	**2213**
Inter Peak	424	2263	**2687**	**4444**
PM Peak	149	1333	**1482**	**2351**

Period	ARM B			
	Movement		Total	
	3	4	From	To
AM Peak	111	23	**134**	**306**
Inter Peak	219	66	**285**	**681**
PM Peak	145	67	**212**	**260**

Period	ARM C			
	Movement		Total	
	5	6	From	To
AM Peak	2102	99	**2201**	**1139**
Inter Peak	4225	257	**4482**	**2329**
PM Peak	2206	111	**2317**	**1400**

Total HGV Movements*

ARM	%HGV
A	2.1%
B	1.0%
C	2.8%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-28

• FIGURE TITLE

MCC SITE 28 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

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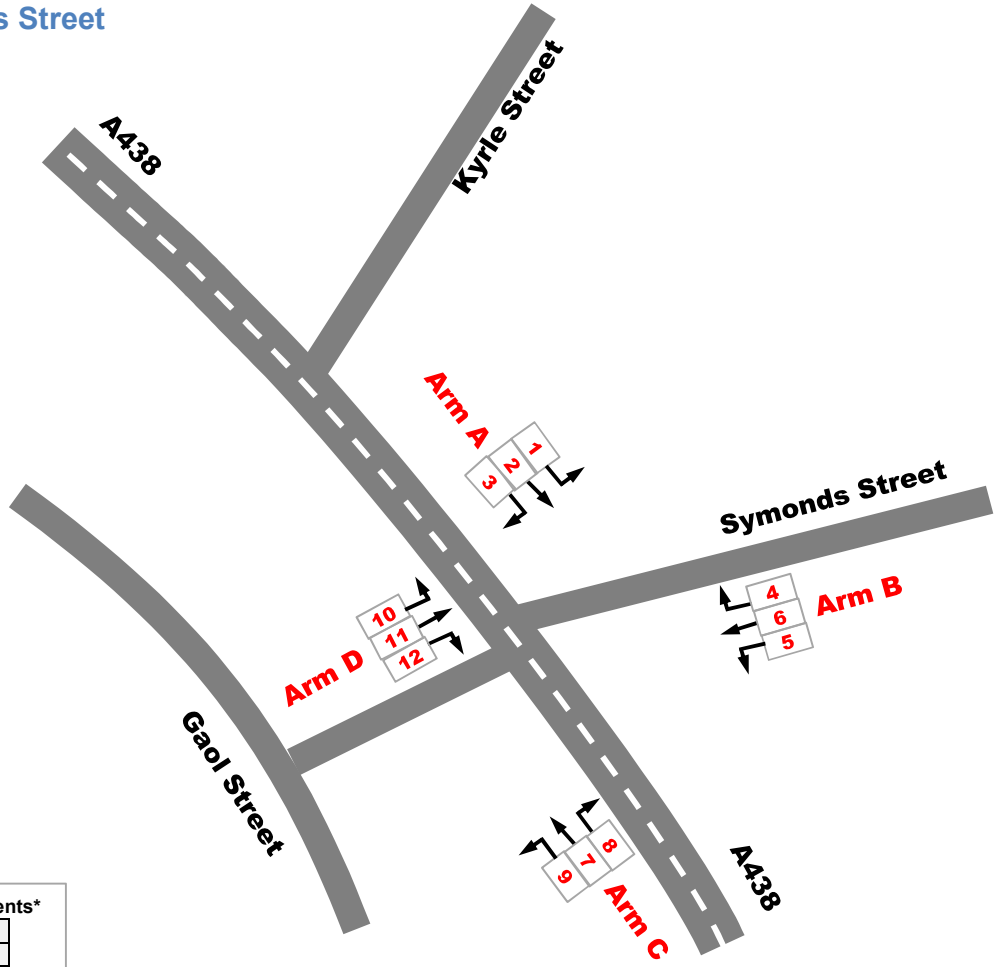
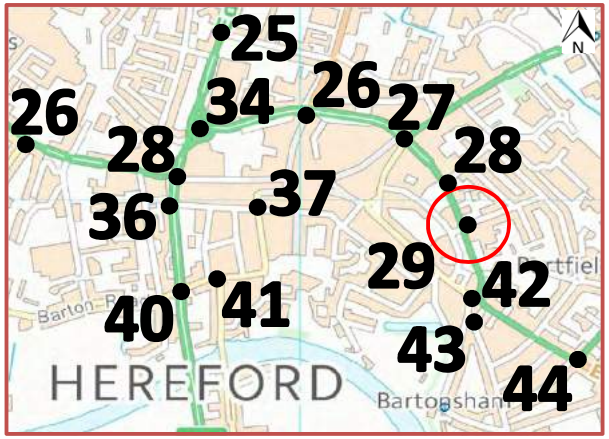
MCC SITE 29

A438 / Symonds Street





Total HGV Movements*

ARM	%HGV
A	2.4%
B	0.3%
C	2.9%
D	0.8%

Period	ARM A				
	Movement			Total	
	1	2	3	From	To
AM Peak	99	895	75	1069	2221
Inter Peak	106	1901	157	2164	4565
PM Peak	58	1234	49	1341	2312

Period	ARM B				
	Movement			Total	
	4	5	6	From	To
AM Peak	69	23	30	122	128
Inter Peak	92	22	28	142	187
PM Peak	56	21	15	92	96

Period	ARM C				
	Movement			Total	
	7	8	9	From	To
AM Peak	2016	24	219	2259	928
Inter Peak	3774	53	383	4210	2006
PM Peak	1927	25	143	2095	1297

Period	ARM D				
	Movement			Total	
	10	11	12	From	To
AM Peak	136	5	10	151	324
Inter Peak	699	28	83	810	568
PM Peak	329	13	42	384	207

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-29

• FIGURE TITLE

MCC SITE 29 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

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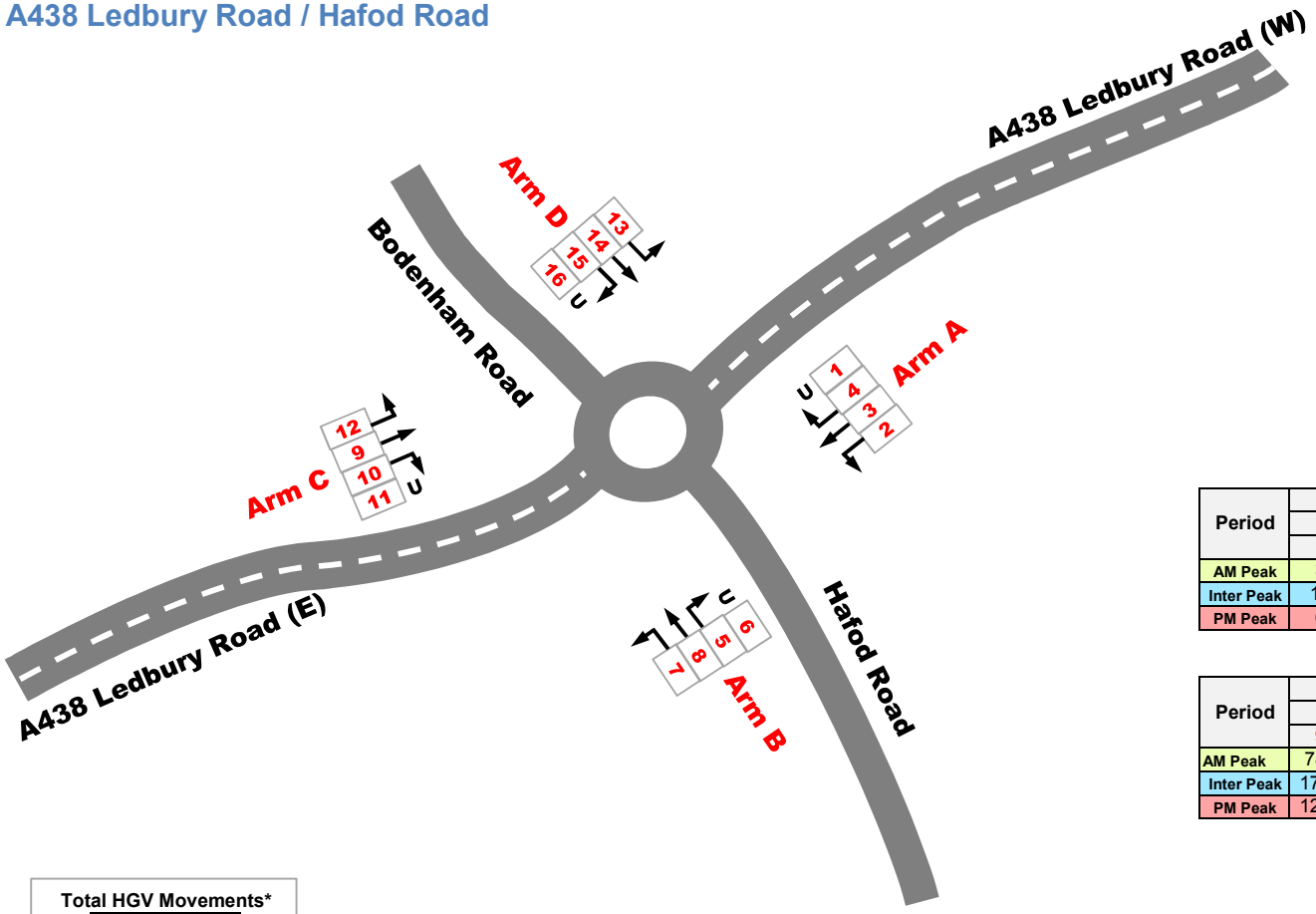
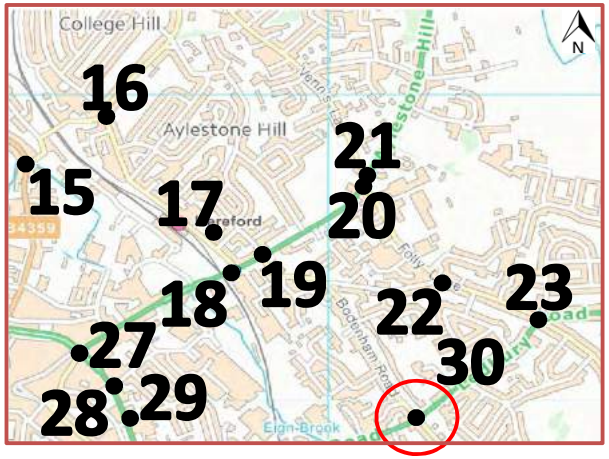
APPROVED MH

MCC SITE 30

A438 Ledbury Road / Hafod Road





Period	ARM A					
	Movement				Total	
	1	2	3	4	From	To
AM Peak	3	40	1266	271	**1580**	**1066**
Inter Peak	11	67	1701	419	**2198**	**2323**
PM Peak	6	67	979	226	**1278**	**1663**

Period	ARM B					
	Movement				Total	
	5	6	7	8	From	To
AM Peak	84	1	192	311	**588**	**338**
Inter Peak	103	2	227	449	**781**	**856**
PM Peak	82	1	135	266	**484**	**595**

Period	ARM C					
	Movement				Total	
	9	10	11	12	From	To
AM Peak	781	100	5	188	**1074**	**1701**
Inter Peak	1726	238	11	419	**2394**	**2433**
PM Peak	1259	182	7	226	**1674**	**1420**

Period	ARM D					
	Movement				Total	
	13	14	15	16	From	To
AM Peak	198	197	238	0	**633**	**770**
Inter Peak	483	549	494	2	**1528**	**1289**
PM Peak	316	345	299	1	**961**	**719**

Total HGV Movements*

ARM	%HGV
A	1.8%
B	0.4%
C	1.6%
D	0.6%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

*** Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period**

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-30

• FIGURE TITLE

MCC SITE 30 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

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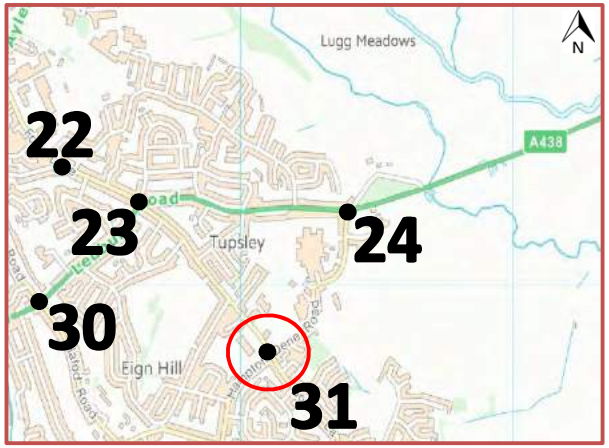
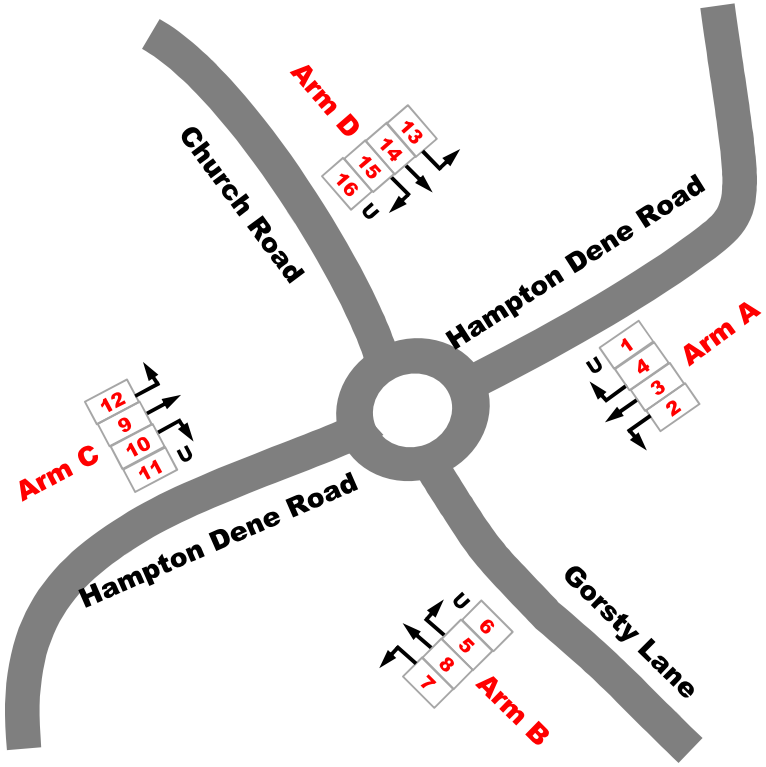
APPROVED MH

MCC SITE 31

Hampton Dene Road / Gorsty Lane





Period	ARM A					
	Movement				Total	
	1	2	3	4	From	To
AM Peak	2	107	117	84	310	374
Inter Peak	4	196	156	72	428	398
PM Peak	5	173	85	60	323	330

Period	ARM B					
	Movement				Total	
	5	6	7	8	From	To
AM Peak	180	4	38	313	535	282
Inter Peak	187	5	70	426	688	661
PM Peak	134	0	31	240	405	499

Period	ARM C					
	Movement				Total	
	9	10	11	12	From	To
AM Peak	117	25	5	56	203	198
Inter Peak	111	63	4	97	275	311
PM Peak	90	29	1	56	176	171

Period	ARM D					
	Movement				Total	
	13	14	15	16	From	To
AM Peak	75	146	38	8	267	461
Inter Peak	96	397	81	8	582	603
PM Peak	101	297	54	5	457	361

Total HGV Movements*

ARM	%HGV
A	0.9%
B	2.4%
C	0.3%
D	1.9%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-31

• FIGURE TITLE

MCC SITE 31 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

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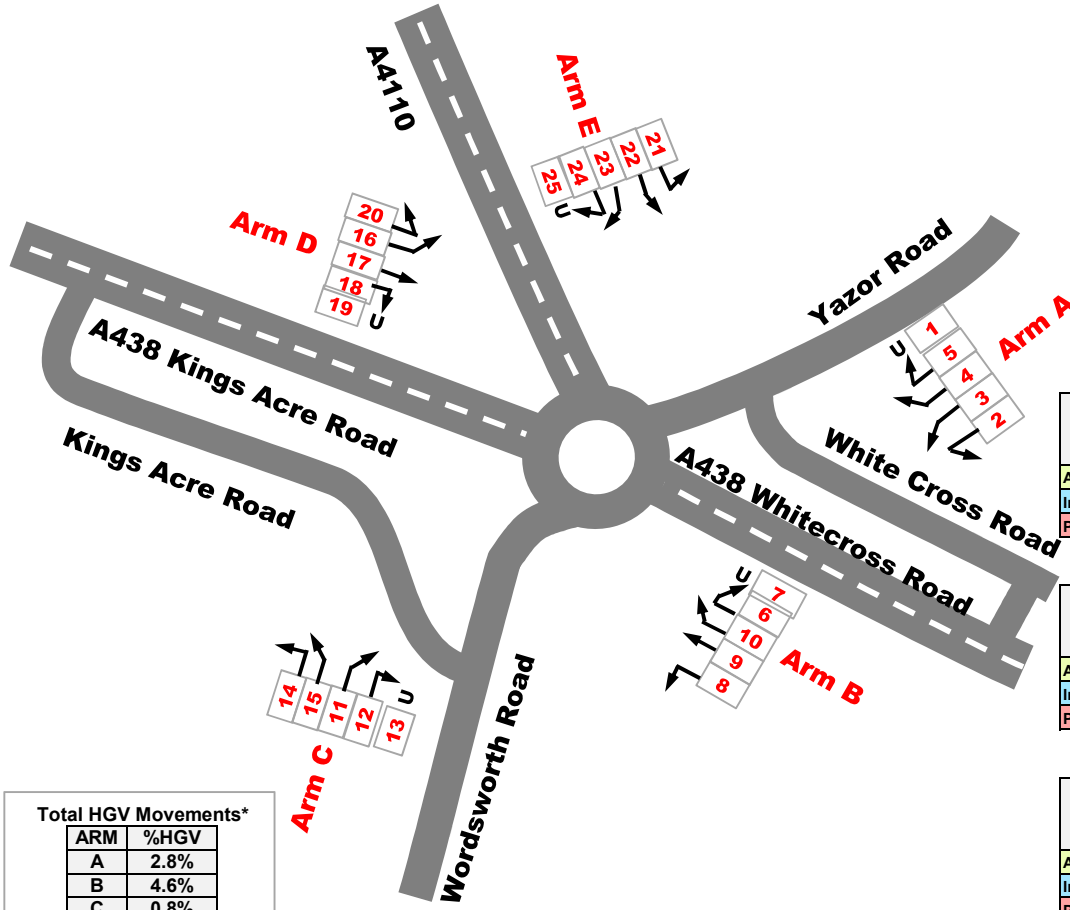
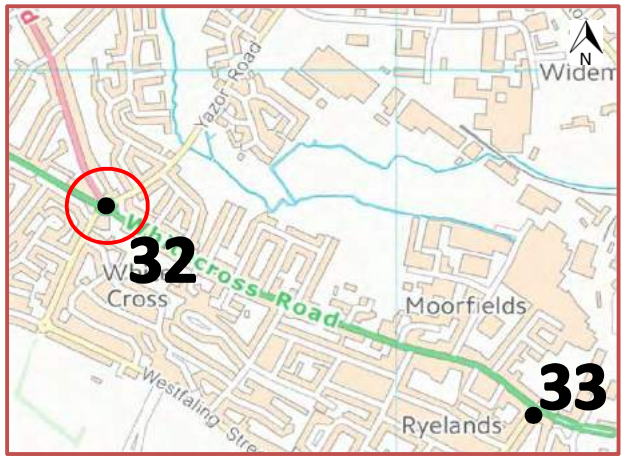
MCC SITE 32

White Cross





Period	ARM A						
	Movement					Total	
	1	2	3	4	5	From	To
AM Peak	2	312	241	151	79	**785**	**1023**
Inter Peak	9	732	671	496	186	**2094**	**2178**
PM Peak	5	386	394	335	91	**1211**	**1135**

Period	ARM B						
	Movement					Total	
	6	7	8	9	10	From	To
AM Peak	264	8	79	586	371	**1308**	**1878**
Inter Peak	730	27	242	1613	1010	**3622**	**3466**
PM Peak	397	7	117	941	665	**2127**	**1583**

Period	ARM C						
	Movement					Total	
	11	12	13	14	15	From	To
AM Peak	328	90	0	410	390	**1218**	**986**
Inter Peak	665	189	7	724	745	**2330**	**2166**
PM Peak	357	73	1	439	452	**1322**	**1085**

Period	ARM D						
	Movement					Total	
	16	17	18	19	20	From	To
AM Peak	1518	909	297	0	8	**1518**	**1162**
Inter Peak	523	1585	568	9	48	**2733**	**2881**
PM Peak	258	680	262	1	14	**1215**	**1737**

Period	ARM E						
	Movement					Total	
	21	22	23	24	25	From	To
AM Peak	1070	559	369	15	2	**1070**	**850**
Inter Peak	251	933	678	39	4	**1905**	**1993**
PM Peak	118	437	311	21	1	**888**	**1223**

Total HGV Movements*

ARM	%HGV
A	2.8%
B	4.6%
C	0.8%
D	4.3%
E	3.2%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-32

• FIGURE TITLE

MCC SITE 32 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

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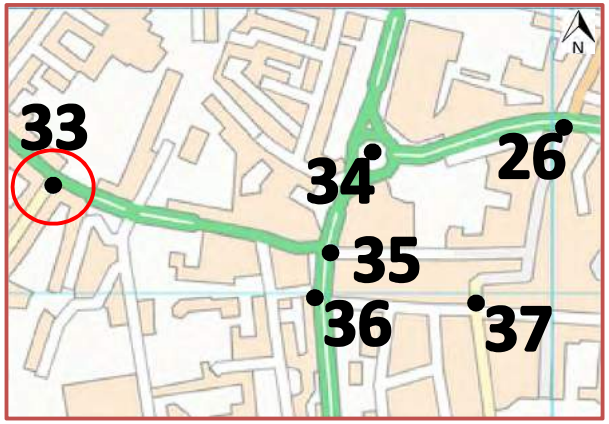
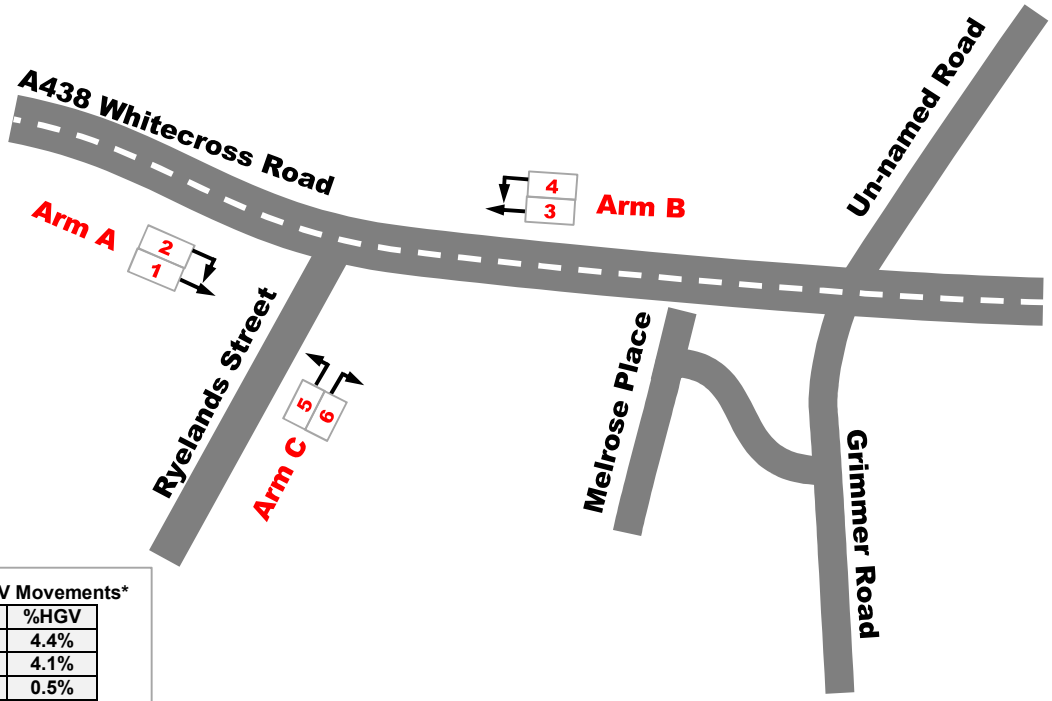
MCC SITE 33

White Cross by Ryelands





Total HGV Movements*	
ARM	%HGV
A	4.4%
B	4.1%
C	0.5%

Period	ARM A			
	Movement		Total	
	1	2	From	To
AM Peak	1996	40	**2036**	**1829**
Inter Peak	3905	117	**4022**	**4247**
PM Peak	1950	53	**2003**	**2201**

Period	ARM B			
	Movement		Total	
	3	4	From	To
AM Peak	1736	95	**1831**	**2179**
Inter Peak	4051	358	**4409**	**4132**
PM Peak	2120	238	**2358**	**2110**

Period	ARM C			
	Movement		Total	
	5	6	From	To
AM Peak	93	183	**276**	**135**
Inter Peak	196	227	**423**	**475**
PM Peak	81	160	**241**	**291**

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-33

• FIGURE TITLE

MCC SITE 33 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

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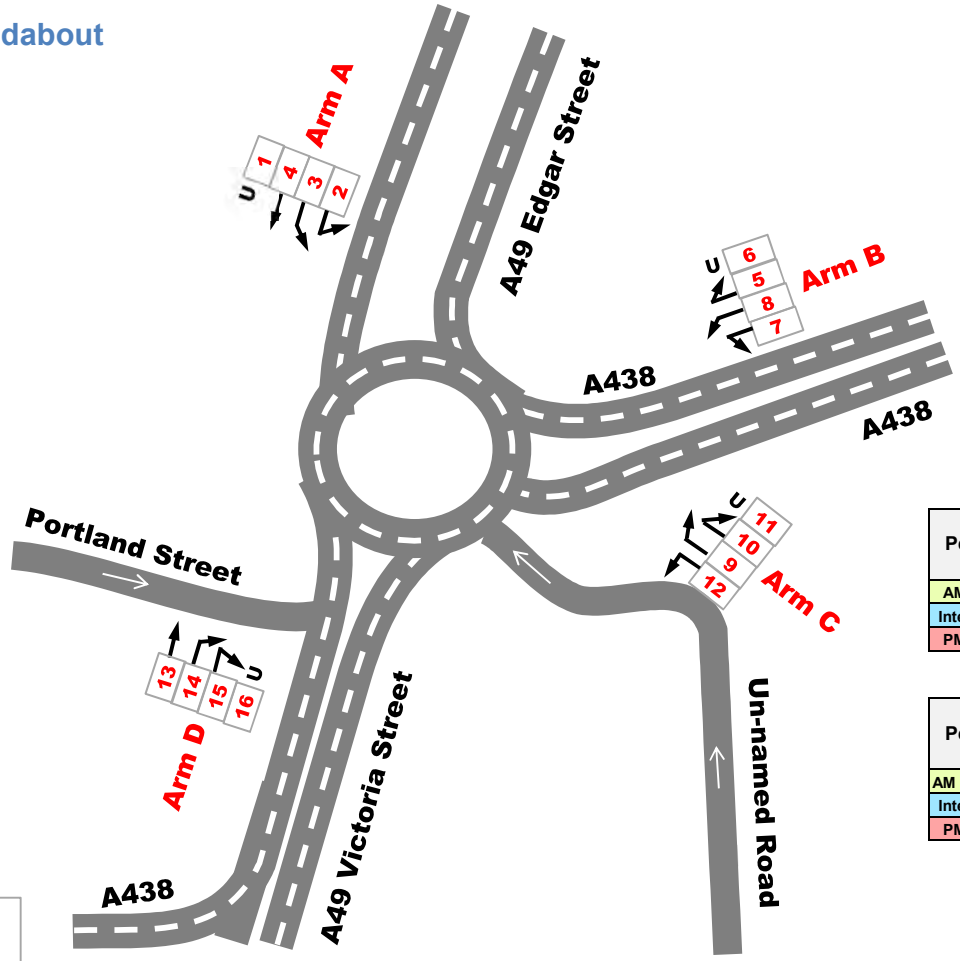
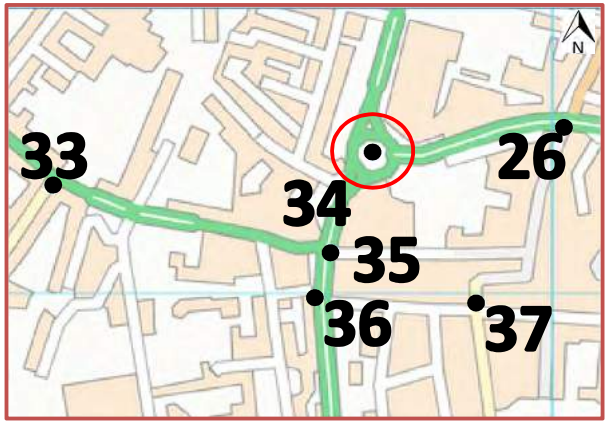
APPROVED MH

MCC SITE 34

Edgar Street Roundabout





Period	ARM A					
	Movement				Total	
	1	2	3	4	From	To
AM Peak	9	105	10	2230	**2354**	**2396**
Inter Peak	44	246	16	5097	**5403**	**4936**
PM Peak	20	85	1	2816	**2922**	**2217**

Period	ARM B					
	Movement				Total	
	5	6	7	8	From	To
AM Peak	168	11	29	2738	**2946**	**2636**
Inter Peak	556	26	67	6070	**6719**	**4993**
PM Peak	143	12	18	3005	**3178**	**2451**

Period	ARM C					
	Movement				Total	
	9	10	11	12	From	To
AM Peak	26	46	0	100	**172**	**69**
Inter Peak	42	133	0	326	**501**	**153**
PM Peak	34	48	0	135	**217**	**51**

Period	ARM D					
	Movement				Total	
	13	14	15	16	From	To
AM Peak	2193	2474	30	1054	**5751**	**6122**
Inter Peak	4294	4588	70	2627	**11579**	**14120**
PM Peak	2020	2306	32	1397	**5755**	**7353**

Total HGV Movements*

ARM	%HGV
A	4.8%
B	3.8%
C	29.1%
D	4.9%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

*** Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period**

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-34

• FIGURE TITLE

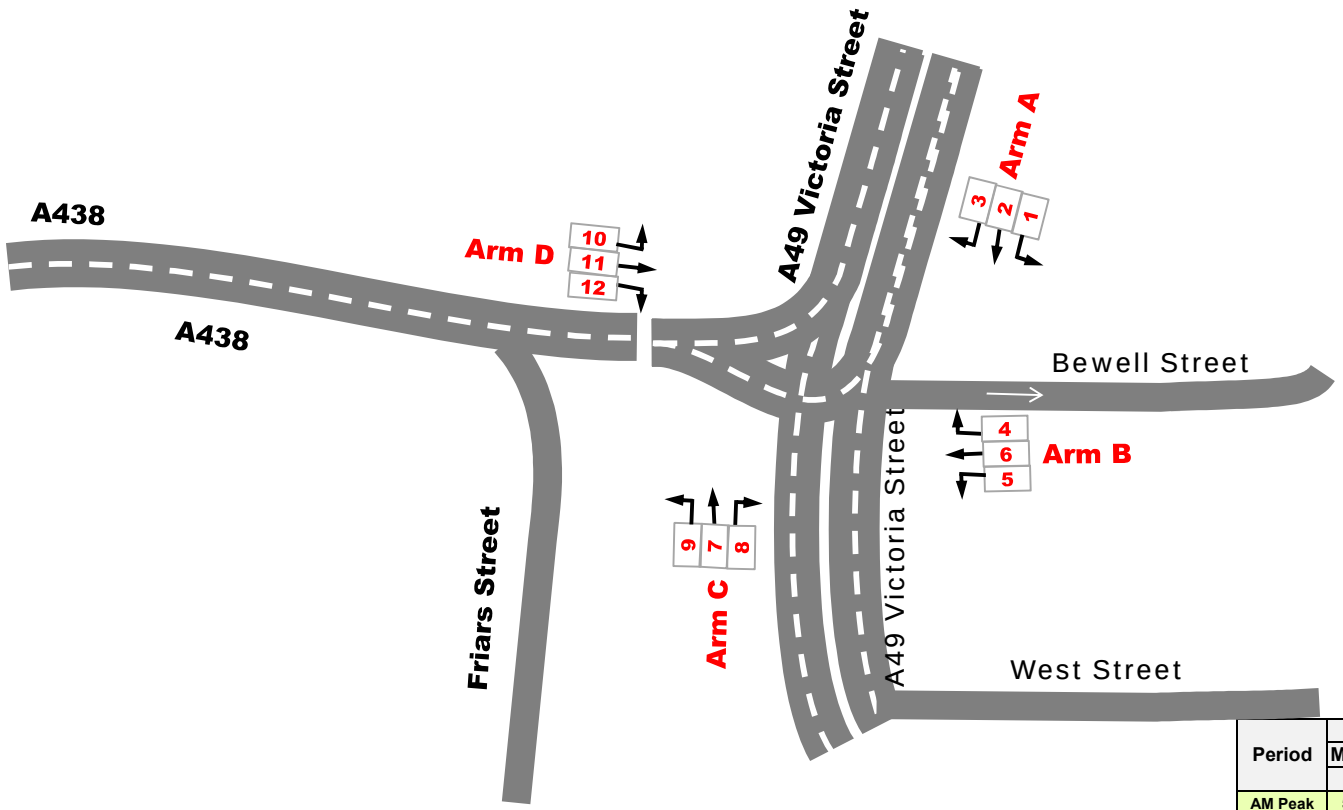
MCC SITE 34 Summary

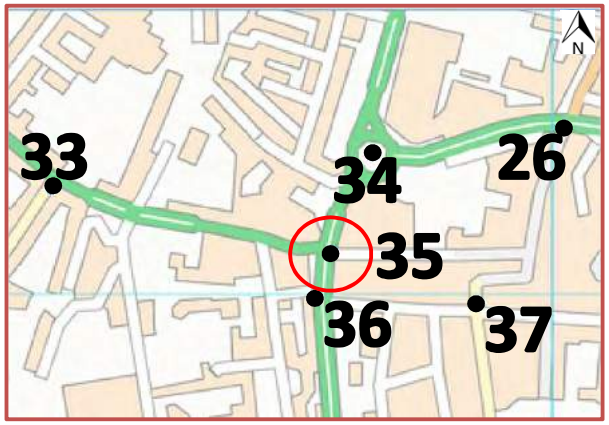
WSP | PARSONS BRINCKERHOFF

• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

MCC SITE 35

Whitecross Road / A49





Total HGV Movements*

ARM	%HGV
A	4.4%
B	2.3%
C	6.2%
D	4.0%

Period	ARM A				
	Movement			Total	
	1	2	3	From	To
AM Peak	573	4259	1283	**6115**	**5645**
Inter Peak	1751	9583	2814	**14148**	**11263**
PM Peak	484	5491	1381	**7356**	**5561**

Period	ARM B				
	Movement			Total	
	4	5	6	From	To
AM Peak	0	6	0	**6**	**573**
Inter Peak	0	23	0	**23**	**1751**
PM Peak	0	14	0	**14**	**484**

Period	ARM C				
	Movement			Total	
	7	8	9	From	To
AM Peak	3585	0	664	**4249**	**4265**
Inter Peak	6724	0	1278	**8002**	**9606**
PM Peak	3144	0	661	**3805**	**5505**

Period	ARM D				
	Movement			Total	
	10	11	12	From	To
AM Peak	2060	0	0	**2060**	**1947**
Inter Peak	4539	0	0	**4539**	**4092**
PM Peak	2417	0	0	**2417**	**2042**

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

*** Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period**

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-35

• FIGURE TITLE

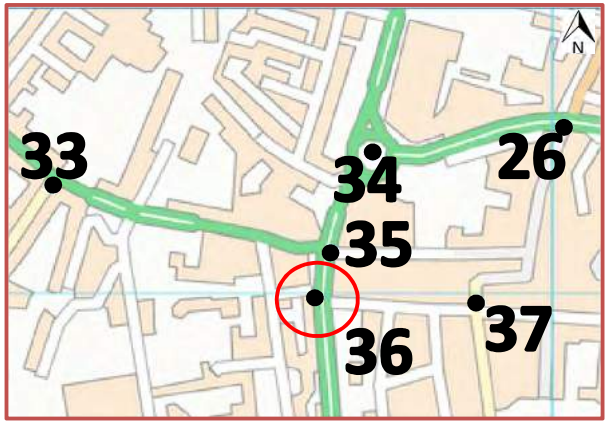
MCC SITE 35 Summary

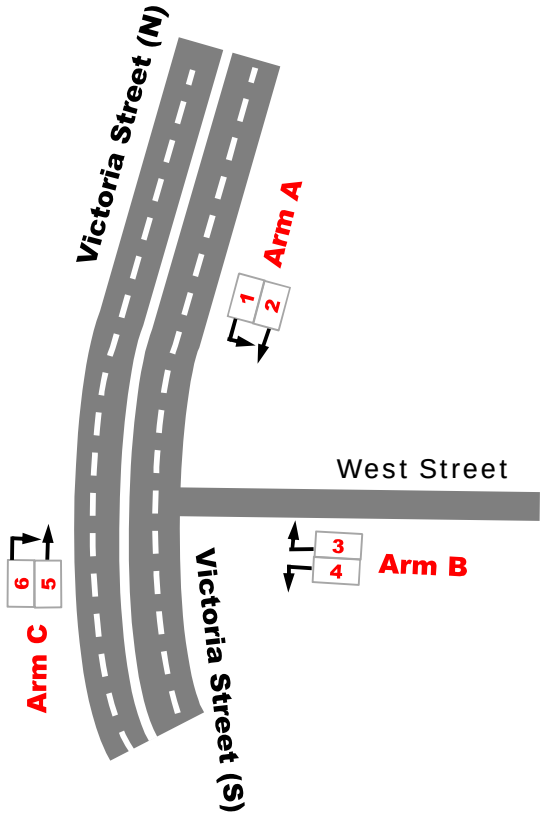
WSP | PARSONS BRINCKERHOFF

• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

MCC SITE 36

Victoria Street / West Street





Period	ARM A			
	Movement		Total	
	1	2	From	To
AM Peak	514	3757	4271	4248
Inter Peak	1098	8460	9558	7966
PM Peak	446	5075	5521	3791

Period	ARM B			
	Movement		Total	
	3	4	From	To
AM Peak	0	15	15	514
Inter Peak	0	198	198	1098
PM Peak	0	72	72	446

Period	ARM C			
	Movement		Total	
	5	6	From	To
AM Peak	4248	0	4248	3772
Inter Peak	7966	0	7966	8658
PM Peak	3791	0	3791	5147

Total HGV Movements*

ARM	%HGV
A	5.6%
B	0.7%
C	6.3%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-36

• FIGURE TITLE

MCC SITE 36 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

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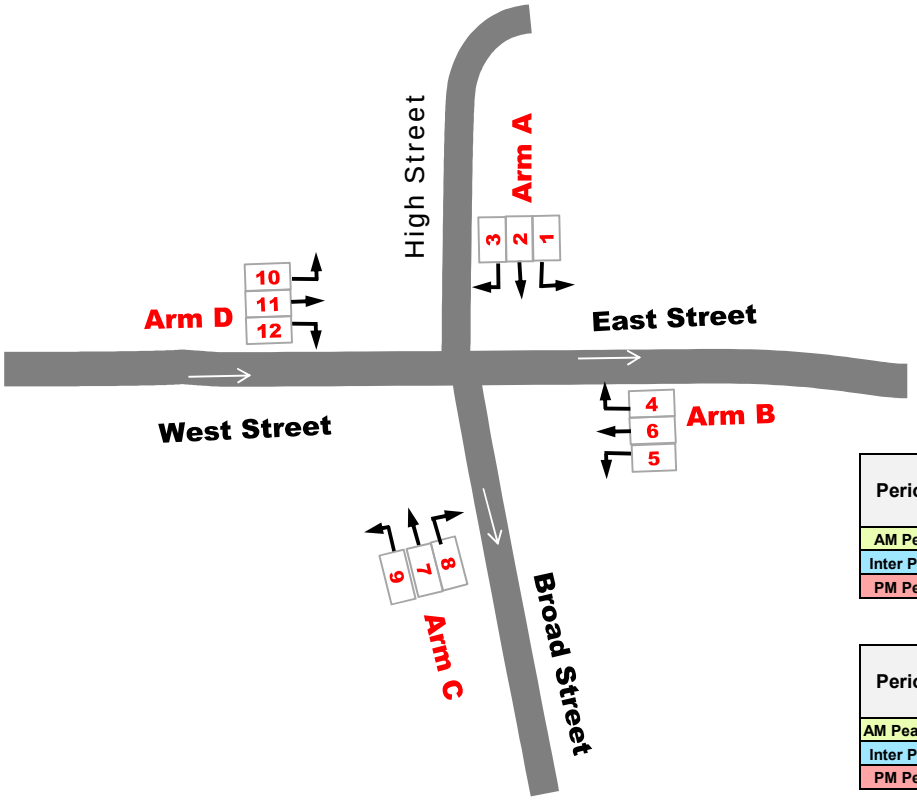
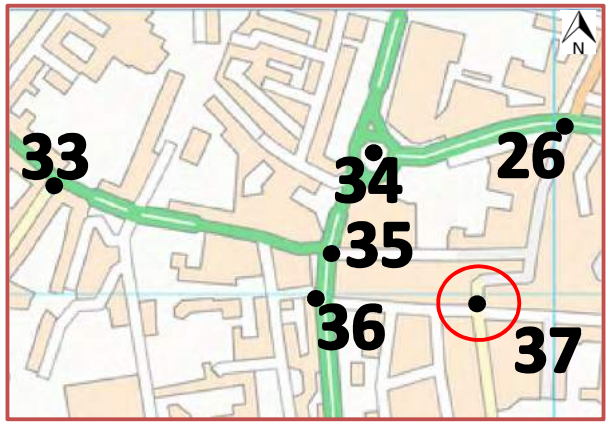
MCC SITE 37

West Street / Broad Street





Period	ARM A				
	Movement			Total	
	1	2	3	From	To
AM Peak	69	599	0	668	4
Inter Peak	20	133	0	153	6
PM Peak	70	629	0	699	1

Period	ARM B				
	Movement			Total	
	4	5	6	From	To
AM Peak	0	0	0	0	551
Inter Peak	0	0	0	0	883
PM Peak	0	0	0	0	589

Period	ARM C				
	Movement			Total	
	7	8	9	From	To
AM Peak	0	0	0	0	906
Inter Peak	0	0	0	0	1318
PM Peak	0	0	0	0	937

Period	ARM D				
	Movement			Total	
	10	11	12	From	To
AM Peak	4	482	307	793	0
Inter Peak	6	863	1185	2054	0
PM Peak	1	519	308	828	0

Total HGV Movements*

ARM	%HGV
A	0.9%
B	0.0%
C	0.0%
D	2.2%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-37

• FIGURE TITLE

MCC SITE 37 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

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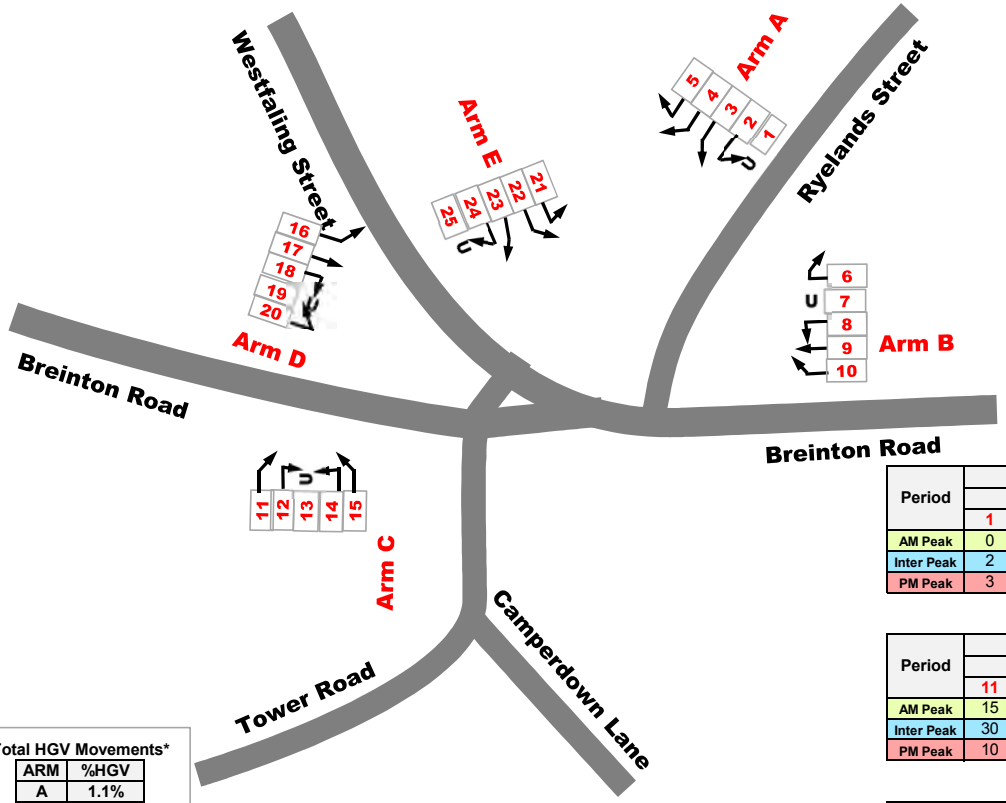
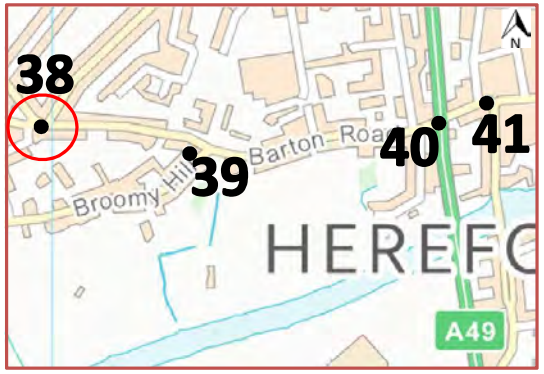
MCC SITE 38

Breinton Road / Westfaling Street





Total HGV Movements*

ARM	%HGV
A	1.1%
B	0.5%
C	1.5%
D	0.8%
E	0.5%

Period	ARM A						
	Movement					Total	
	1	2	3	4	5	From	To
AM Peak	0	74	5	9	4	92	127
Inter Peak	2	197	13	12	17	241	260
PM Peak	3	76	12	6	16	113	141

Period	ARM B						
	Movement					Total	
	6	7	8	9	10	From	To
AM Peak	25	8	14	57	862	966	1294
Inter Peak	119	8	31	89	1876	2123	2153
PM Peak	54	12	19	67	1181	1333	858

Period	ARM C						
	Movement					Total	
	11	12	13	14	15	From	To
AM Peak	15	27	0	5	27	74	62
Inter Peak	30	65	0	6	70	171	147
PM Peak	10	22	0	6	28	273	274

Period	ARM D						
	Movement					Total	
	16	17	18	19	20	From	To
AM Peak	11	79	8	0	7	105	72
Inter Peak	17	143	12	2	11	185	119
PM Peak	7	46	4	0	10	67	87

Period	ARM E						
	Movement					Total	
	21	22	23	24	25	From	To
AM Peak	76	1106	35	1	0	1218	921
Inter Peak	92	1740	91	10	0	1933	2076
PM Peak	67	702	30	8	1	808	1274

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-38

• FIGURE TITLE

MCC SITE 38 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

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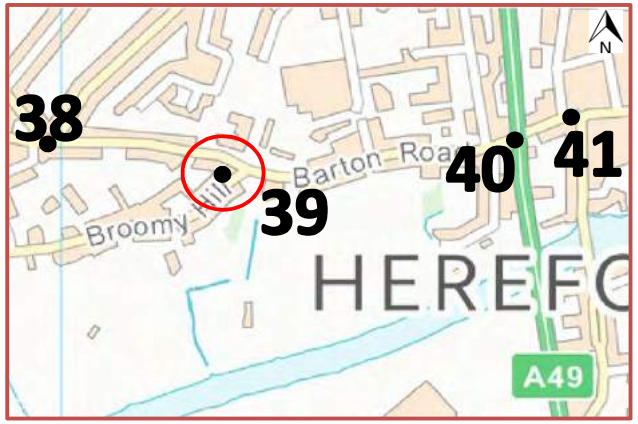
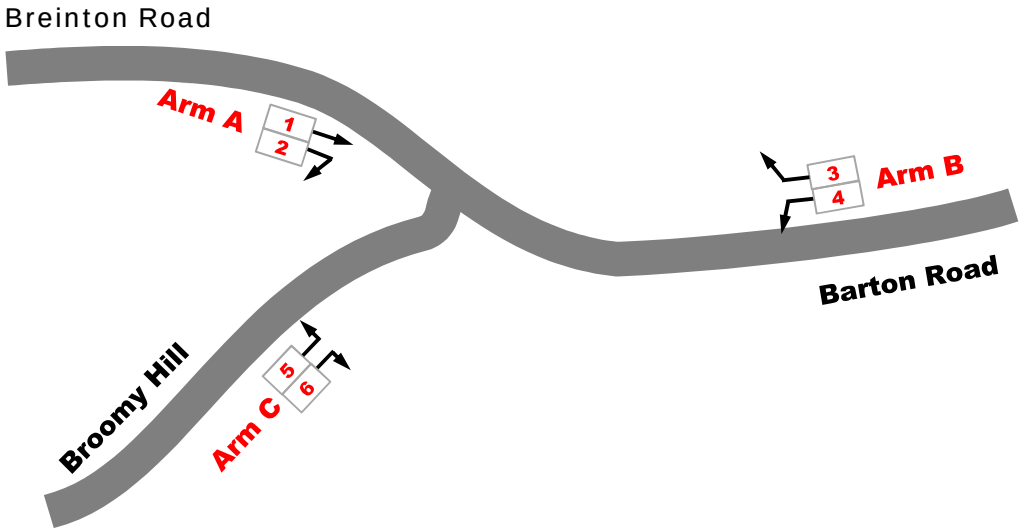
MCC SITE 39

Broomy Hill / Barton Hill





Period	ARM A			
	Movement		Total	
	1	2	From	To
AM Peak	1271	20	**1291**	**960**
Inter Peak	2085	29	**2114**	**2106**
PM Peak	817	24	**841**	**1327**

Period	ARM B			
	Movement		Total	
	3	4	From	To
AM Peak	943	61	**1004**	**1298**
Inter Peak	2062	103	**2165**	**2186**
PM Peak	1317	48	**1365**	**852**

Period	ARM C			
	Movement		Total	
	5	6	From	To
AM Peak	17	27	**44**	**81**
Inter Peak	44	101	**145**	**132**
PM Peak	10	35	**45**	**72**

Total HGV Movements*

ARM	%HGV
A	0.6%
B	0.6%
C	1.7%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-39

• FIGURE TITLE

MCC SITE 39 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

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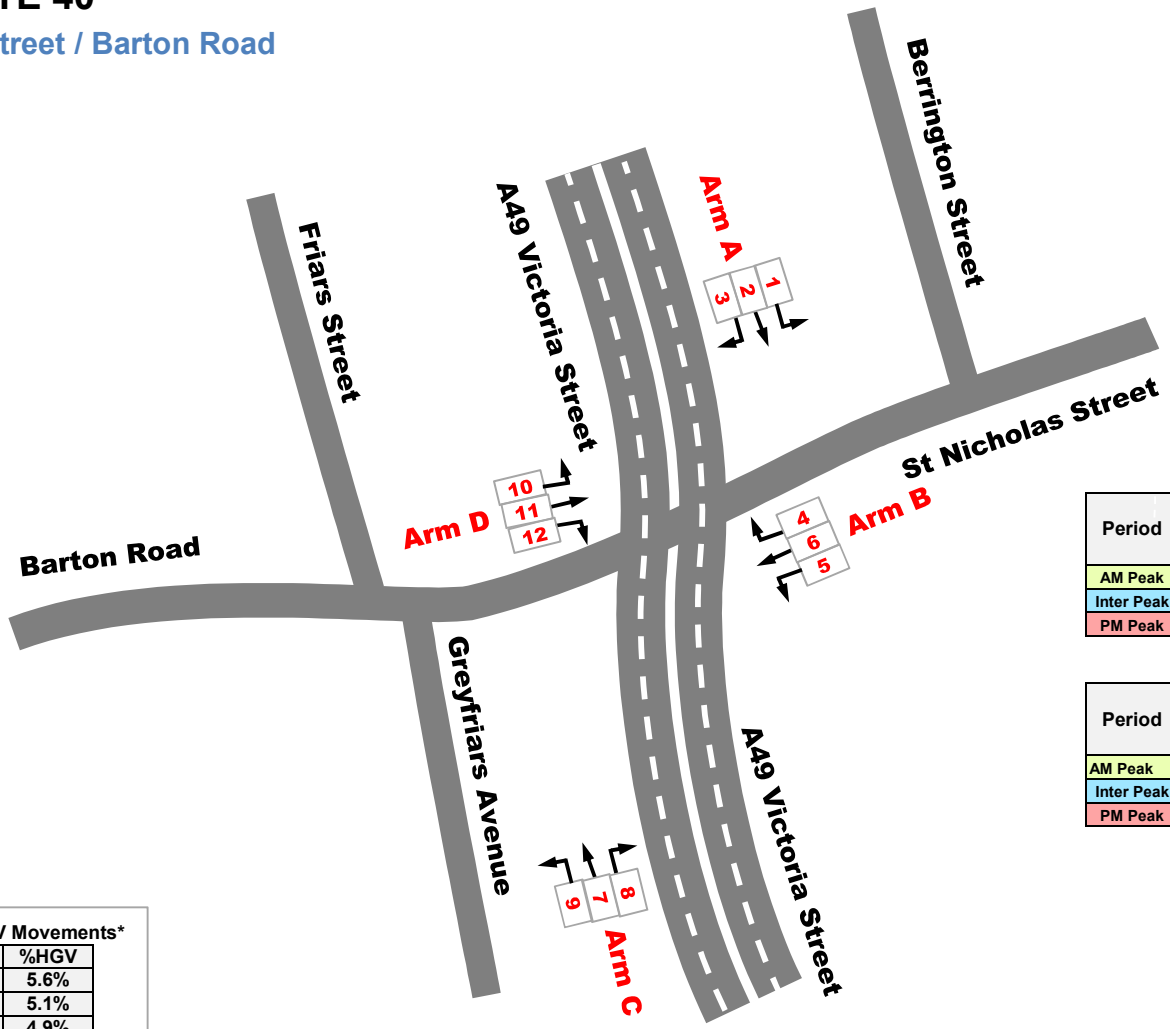
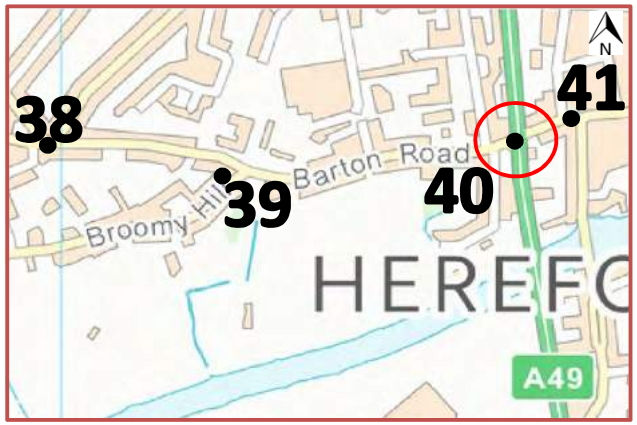
APPROVED MH

MCC SITE 40

Victoria Street / Barton Road





Period	ARM A				
	Movement			Total	
	1	2	3	From	To
AM Peak	154	3433	169	**3756**	**4207**
Inter Peak	273	7981	399	**8653**	**7971**
PM Peak	132	4844	164	**5140**	**3782**

Period	ARM B				
	Movement			Total	
	4	5	6	From	To
AM Peak	214	126	170	**510**	**663**
Inter Peak	673	422	389	**1484**	**1102**
PM Peak	300	237	244	**781**	**518**

Period	ARM C				
	Movement			Total	
	7	8	9	From	To
AM Peak	3919	219	1026	**5164**	**4438**
Inter Peak	7053	439	1964	**9456**	**9953**
PM Peak	3376	211	1191	**4778**	**5751**

Period	ARM D				
	Movement			Total	
	10	11	12	From	To
AM Peak	74	290	879	**1243**	**1365**
Inter Peak	245	390	1550	**2185**	**2752**
PM Peak	106	175	670	**951**	**1599**

Total HGV Movements*

ARM	%HGV
A	5.6%
B	5.1%
C	4.9%
D	0.5%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

*** Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period**

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-40

• FIGURE TITLE

MCC SITE 40 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

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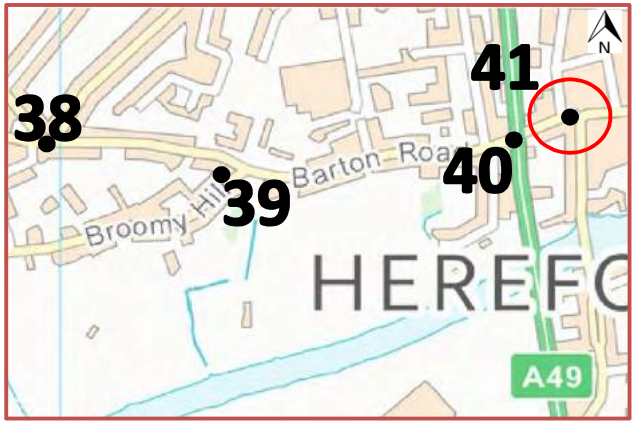
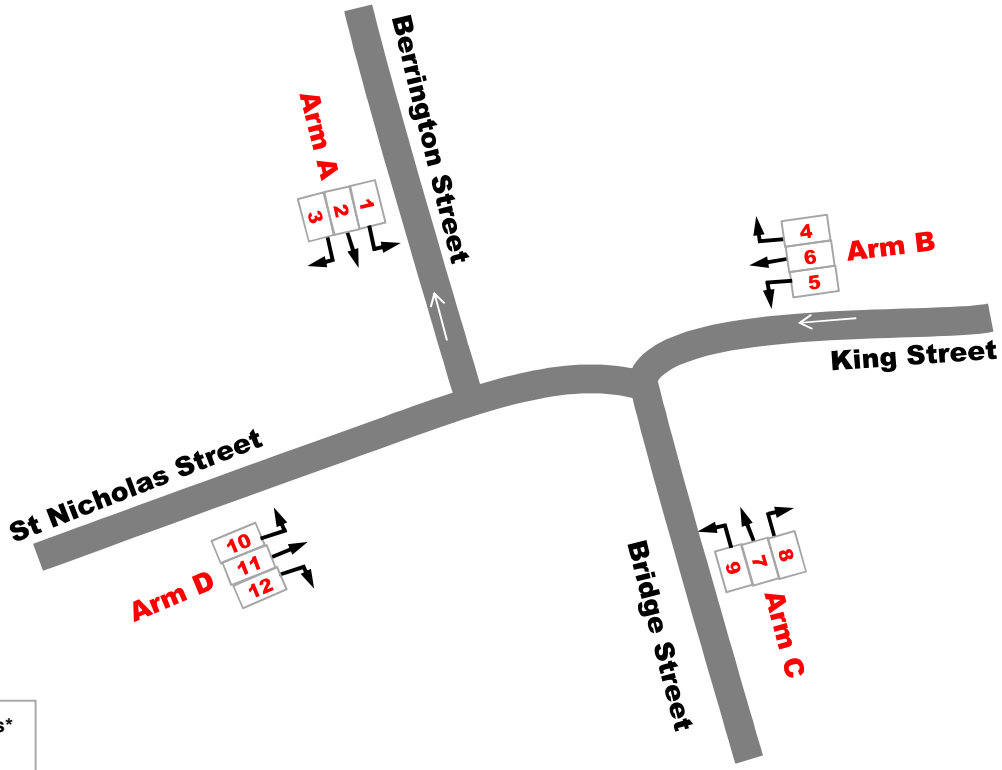
MCC SITE 41

St Nicholas Street / Berrington Street





Period	ARM A				
	Movement			Total	
	1	2	3	From	To
AM Peak	1	2	0	3	733
Inter Peak	0	4	0	4	1368
PM Peak	0	2	0	2	591

Period	ARM B				
	Movement			Total	
	4	5	6	From	To
AM Peak	55	295	495	845	89
Inter Peak	124	371	1041	1536	58
PM Peak	40	332	765	1137	28

Period	ARM C				
	Movement			Total	
	7	8	9	From	To
AM Peak	286	51	185	522	447
Inter Peak	518	32	366	916	722
PM Peak	273	7	284	564	491

Period	ARM D				
	Movement			Total	
	10	11	12	From	To
AM Peak	392	37	150	579	680
Inter Peak	726	26	347	1099	1407
PM Peak	278	21	157	456	1049

Total HGV Movements*

ARM	%HGV
A	0.0%
B	2.6%
C	3.1%
D	0.4%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-41

• FIGURE TITLE

MCC SITE 41 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

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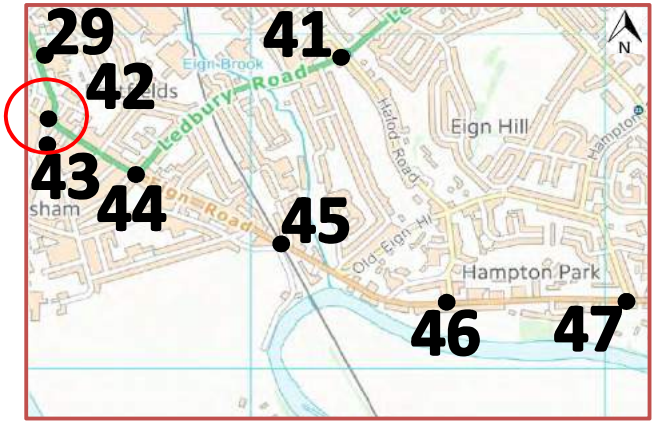
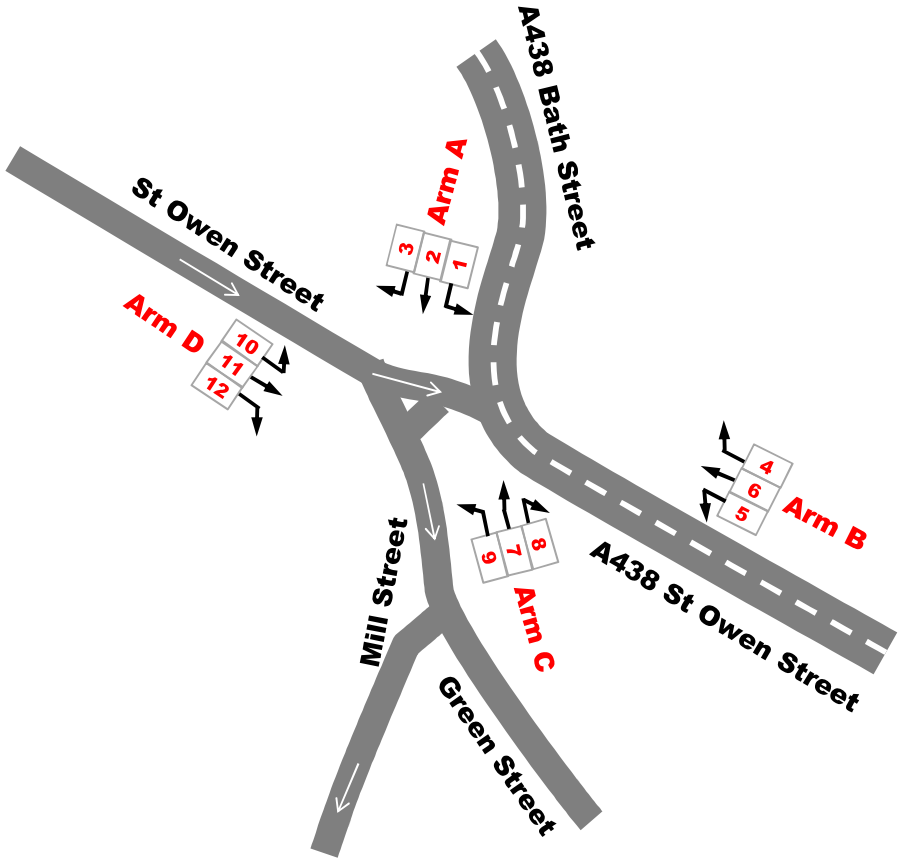
APPROVED MH

MCC SITE 42

A438 / St Owen Street





Period	ARM A				
	Movement			Total	
	1	2	3	From	To
AM Peak	800	35	0	835	2290
Inter Peak	1861	99	0	1960	4136
PM Peak	1241	68	0	1309	1990

Period	ARM B				
	Movement			Total	
	4	5	6	From	To
AM Peak	1752	96	4	1852	1233
Inter Peak	2676	184	0	2860	3012
PM Peak	1304	72	0	1376	2024

Period	ARM C				
	Movement			Total	
	7	8	9	From	To
AM Peak	7	0	0	7	193
Inter Peak	4	0	0	4	434
PM Peak	0	0	0	0	252

Period	ARM D				
	Movement			Total	
	10	11	12	From	To
AM Peak	531	433	62	1026	4
Inter Peak	1456	1151	151	2758	0
PM Peak	686	783	112	1581	0

Total HGV Movements*

ARM	%HGV
A	2.6%
B	2.3%
C	0.0%
D	2.5%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-42

• FIGURE TITLE

MCC SITE 42 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

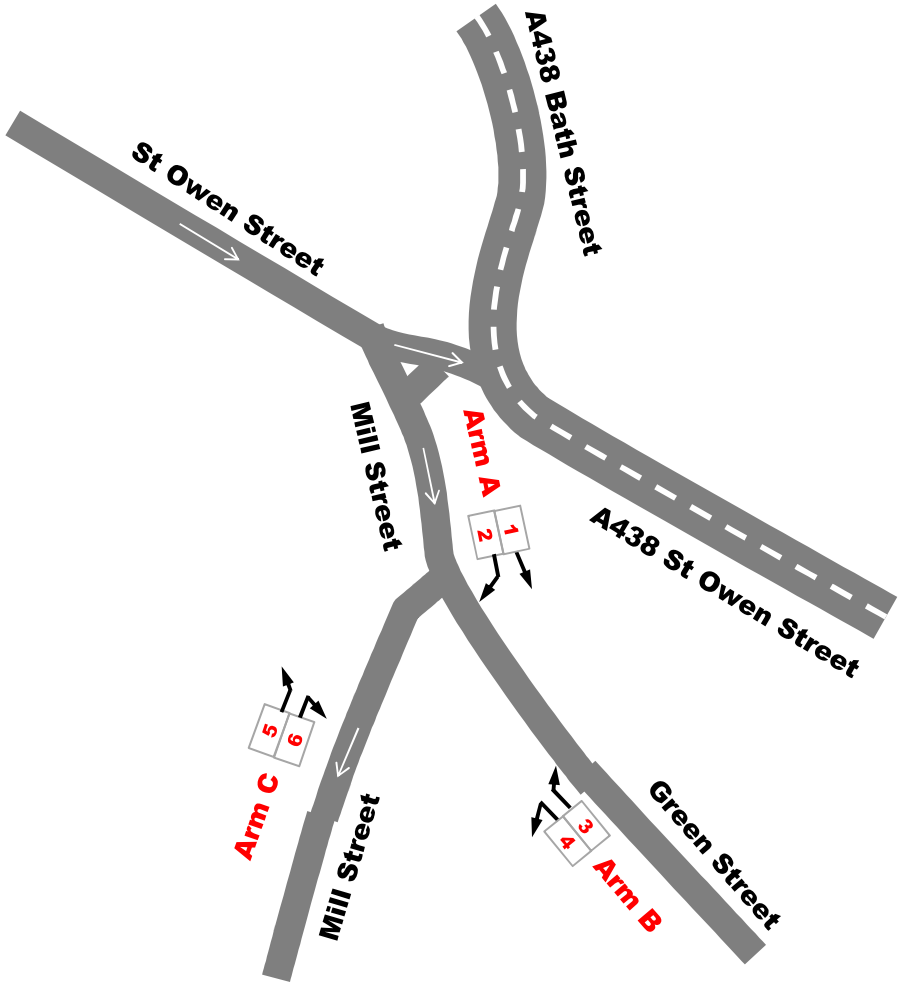
DRAWN BY GS

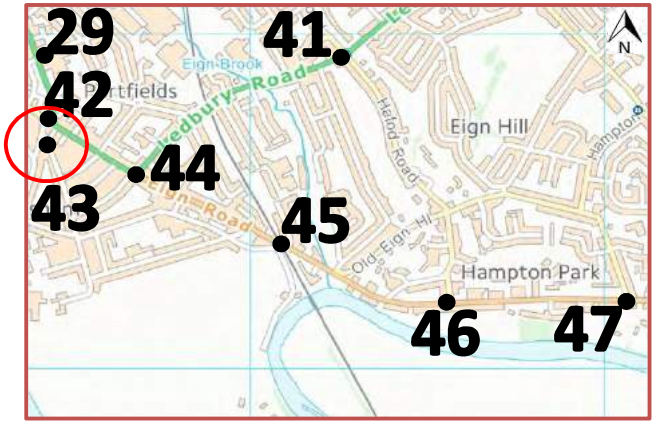
CHECKED DL

APPROVED MH

MCC SITE 43

Green Street / Mill Street





Period	ARM A			
	Movement		Total	
	1	2	From	To
AM Peak	69	129	198	24
Inter Peak	193	253	446	24
PM Peak	130	136	266	10

Period	ARM B			
	Movement		Total	
	3	4	From	To
AM Peak	8	43	51	69
Inter Peak	9	41	50	195
PM Peak	4	34	38	131

Period	ARM C			
	Movement		Total	
	5	6	From	To
AM Peak	16	0	16	172
Inter Peak	15	2	17	294
PM Peak	6	1	7	170

Total HGV Movements*

ARM	%HGV
A	1.5%
B	1.4%
C	0.0%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-43

• FIGURE TITLE

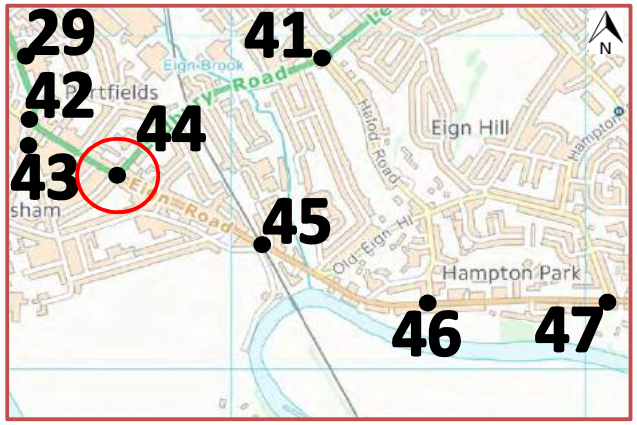
MCC SITE 43 Summary

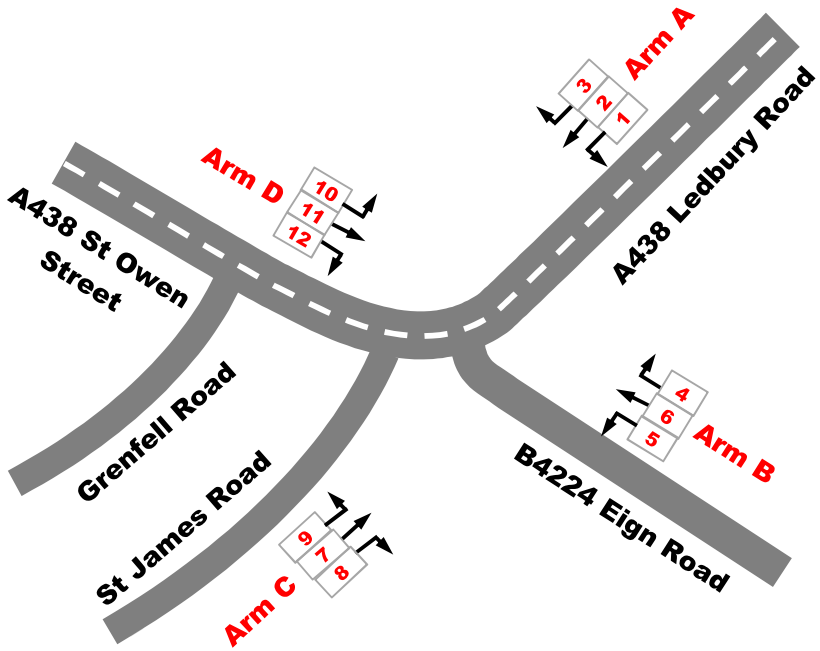
WSP | PARSONS BRINCKERHOFF

• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

MCC SITE 44

Eign Road / Ledbury Road





Period	ARM A				
	Movement			Total	
	1	2	3	From	To
AM Peak	96	114	1001	**1211**	**807**
Inter Peak	200	147	1364	**1711**	**1818**
PM Peak	154	142	704	**1000**	**1257**

Period	ARM B				
	Movement			Total	
	4	5	6	From	To
AM Peak	99	10	762	**871**	**565**
Inter Peak	171	16	1256	**1443**	**1405**
PM Peak	112	17	601	**730**	**1022**

Period	ARM C				
	Movement			Total	
	7	8	9	From	To
AM Peak	62	6	133	**201**	**196**
Inter Peak	105	11	228	**344**	**280**
PM Peak	62	6	100	**168**	**232**

Period	ARM D				
	Movement			Total	
	10	11	12	From	To
AM Peak	646	463	72	**1181**	**1896**
Inter Peak	1542	1194	117	**2853**	**2848**
PM Peak	1083	862	73	**2018**	**1405**

Total HGV Movements*

ARM	%HGV
A	2.4%
B	2.1%
C	1.4%
D	2.0%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-44

• FIGURE TITLE

MCC SITE 44 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

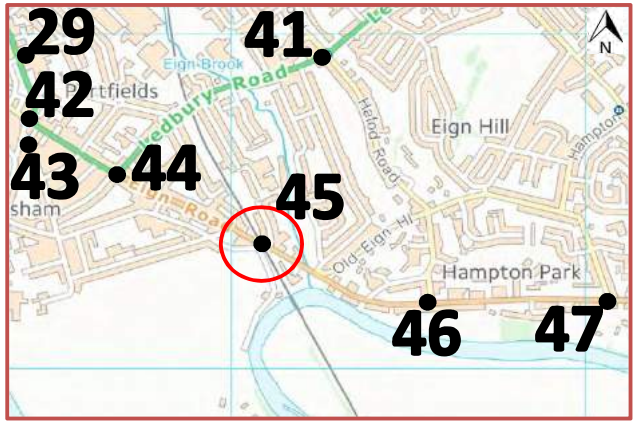
DRAWN BY GS

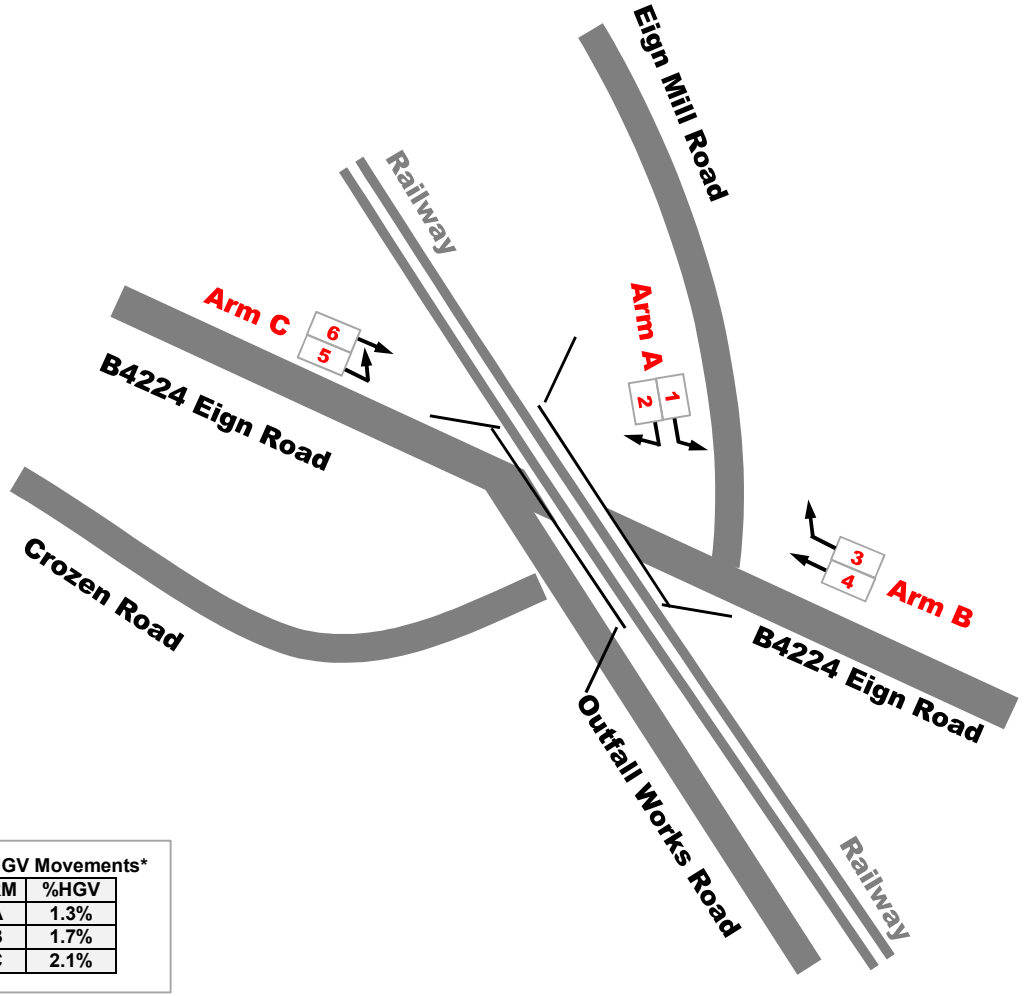
CHECKED DL

APPROVED MH

MCC SITE 45

Eign Road / Outfall Works Road





Period	ARM A			
	Movement		Total	
	1	2	From	To
AM Peak	57	58	**115**	**163**
Inter Peak	116	151	**267**	**285**
PM Peak	101	114	**215**	**207**

Period	ARM B			
	Movement		Total	
	3	4	From	To
AM Peak	64	882	**946**	**542**
Inter Peak	109	1236	**1345**	**1335**
PM Peak	67	596	**663**	**981**

Period	ARM C			
	Movement		Total	
	5	6	From	To
AM Peak	99	485	**584**	**940**
Inter Peak	176	1219	**1395**	**1387**
PM Peak	140	880	**1020**	**710**

Total HGV Movements*

ARM	%HGV
A	1.3%
B	1.7%
C	2.1%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-45

• FIGURE TITLE

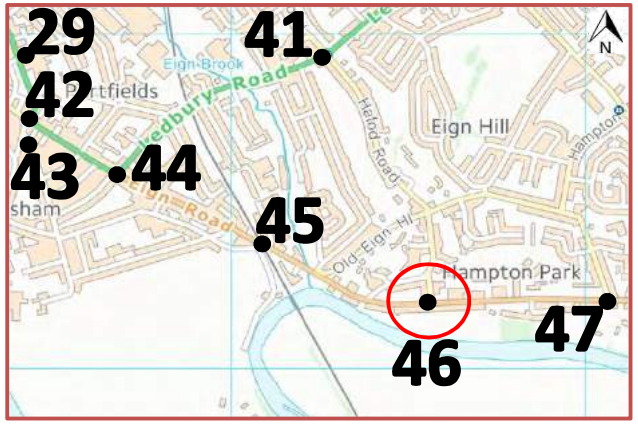
MCC SITE 45 Summary

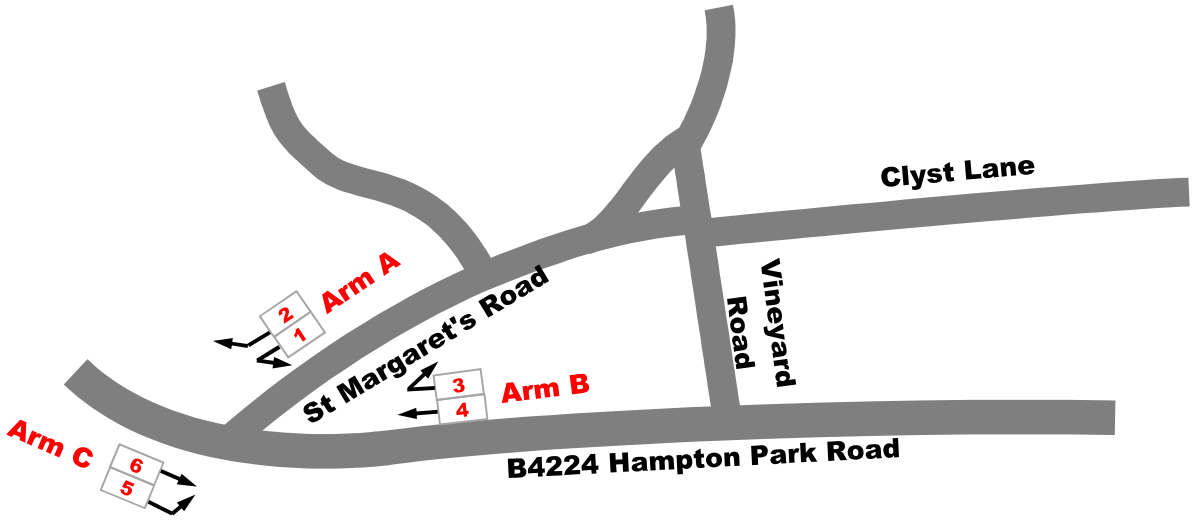
WSP | PARSONS BRINCKERHOFF

• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

MCC SITE 46

Hampton Park Road / Vineyard Road





Period	ARM A			
	Movement		Total	
	1	2	From	To
AM Peak	0	4	4	45
Inter Peak	7	8	15	105
PM Peak	3	6	9	66

Period	ARM B			
	Movement		Total	
	3	4	From	To
AM Peak	5	809	814	413
Inter Peak	7	1169	1176	1123
PM Peak	4	576	580	860

Period	ARM C			
	Movement		Total	
	5	6	From	To
AM Peak	40	413	453	813
Inter Peak	98	1116	1214	1177
PM Peak	62	857	919	582

Total HGV Movements*

ARM	%HGV
A	10.7%
B	1.6%
C	1.7%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-46

• FIGURE TITLE

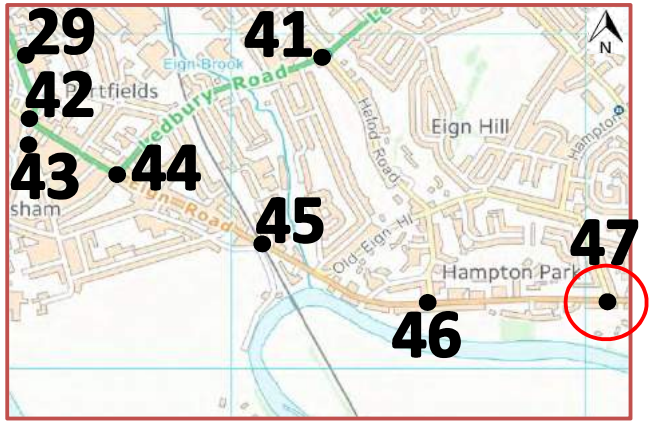
MCC SITE 46 Summary

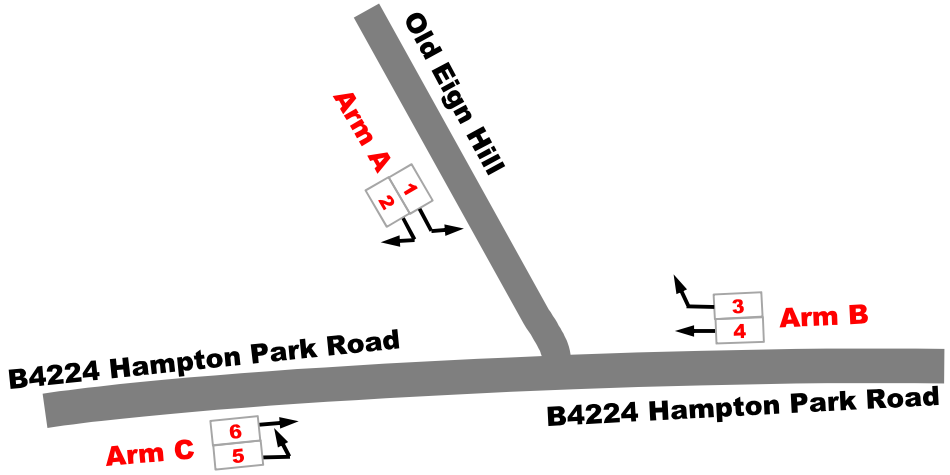
WSP | PARSONS BRINCKERHOFF

• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

MCC SITE 47

Hampton Park Road / Old Eign Hill





Period	ARM A			
	Movement		Total	
	1	2	From	To
AM Peak	69	46	115	121
Inter Peak	156	68	224	209
PM Peak	76	36	112	146

Period	ARM B			
	Movement		Total	
	3	4	From	To
AM Peak	71	968	1039	541
Inter Peak	135	1340	1475	1479
PM Peak	79	751	830	1043

Period	ARM C			
	Movement		Total	
	5	6	From	To
AM Peak	50	472	522	1014
Inter Peak	74	1323	1397	1408
PM Peak	67	967	1034	787

Total HGV Movements*

ARM	%HGV
A	0.7%
B	1.0%
C	2.1%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-47

• FIGURE TITLE

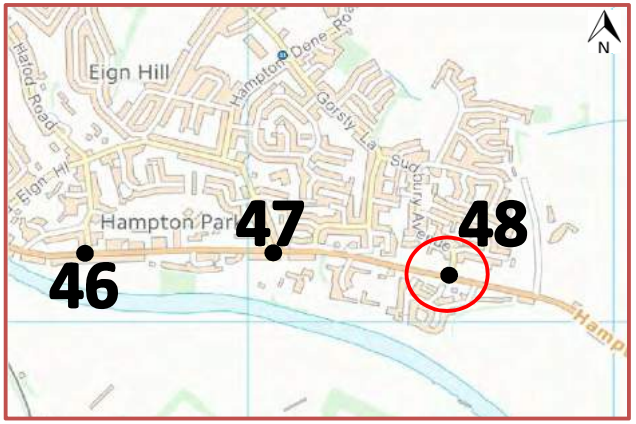
MCC SITE 47 Summary

WSP | PARSONS BRINCKERHOFF

• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

MCC SITE 48

Hampton Park Road / Sudbury Avenue



Period	ARM A			
	Movement		Total	
	1	2	From	To
AM Peak	164	48	212	237
Inter Peak	270	92	362	361
PM Peak	186	43	229	263

Period	ARM B			
	Movement		Total	
	3	4	From	To
AM Peak	207	823	1030	640
Inter Peak	252	1167	1419	1407
PM Peak	184	675	859	985

Period	ARM C			
	Movement		Total	
	5	6	From	To
AM Peak	30	476	506	871
Inter Peak	109	1137	1246	1259
PM Peak	79	799	878	718

Total HGV Movements*

ARM	%HGV
A	1.2%
B	1.4%
C	2.4%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-48

• FIGURE TITLE

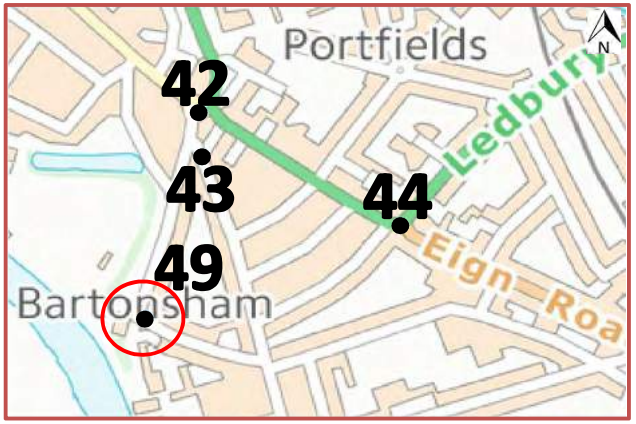
MCC SITE 48 Summary

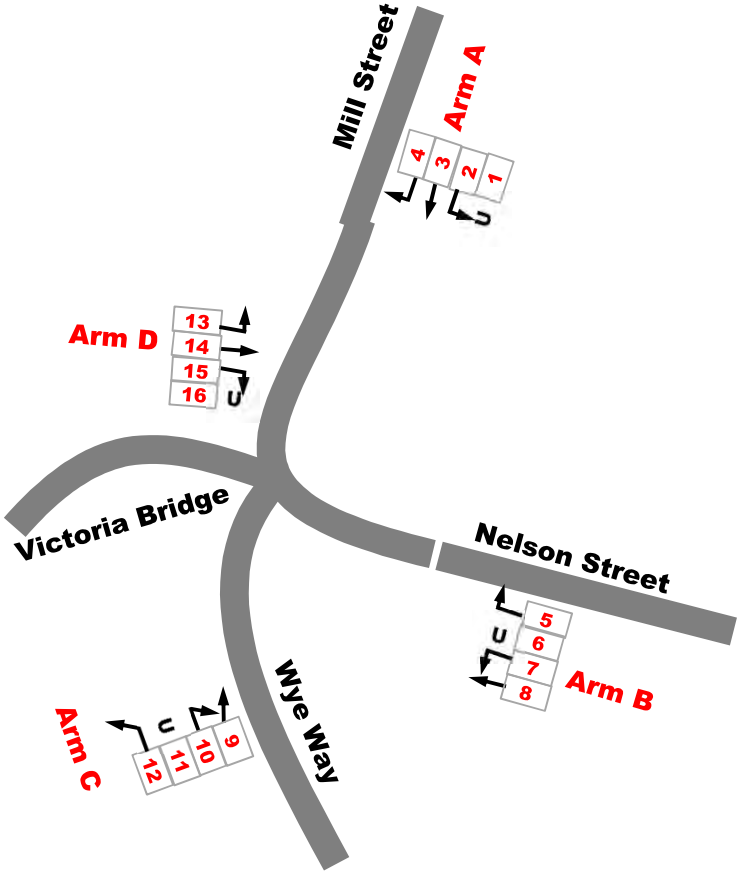
WSP | PARSONS BRINCKERHOFF

• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

MCC SITE 49

Bartonsham





Period	ARM A					
	Movement				Total	
	1	2	3	4	From	To
AM Peak	17	80	3	7	**107**	**217**
Inter Peak	33	201	13	38	**285**	**272**
PM Peak	16	113	8	46	**183**	**133**

Period	ARM B					
	Movement				Total	
	5	6	7	8	From	To
AM Peak	133	1	1	45	**180**	**145**
Inter Peak	181	7	7	79	**274**	**286**
PM Peak	95	11	4	82	**192**	**180**

Period	ARM C					
	Movement				Total	
	9	10	11	12	From	To
AM Peak	2	3	0	0	**5**	**4**
Inter Peak	12	11	1	0	**24**	**21**
PM Peak	4	3	0	0	**7**	**12**

Period	ARM D					
	Movement				Total	
	13	14	15	16	From	To
AM Peak	65	61	0	0	**126**	**52**
Inter Peak	46	67	0	0	**113**	**117**
PM Peak	18	53	0	1	**72**	**129**

Total HGV Movements*

ARM	%HGV
A	2.1%
B	1.2%
C	2.8%
D	0.0%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

*** Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period**

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-49

• FIGURE TITLE

MCC SITE 49 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

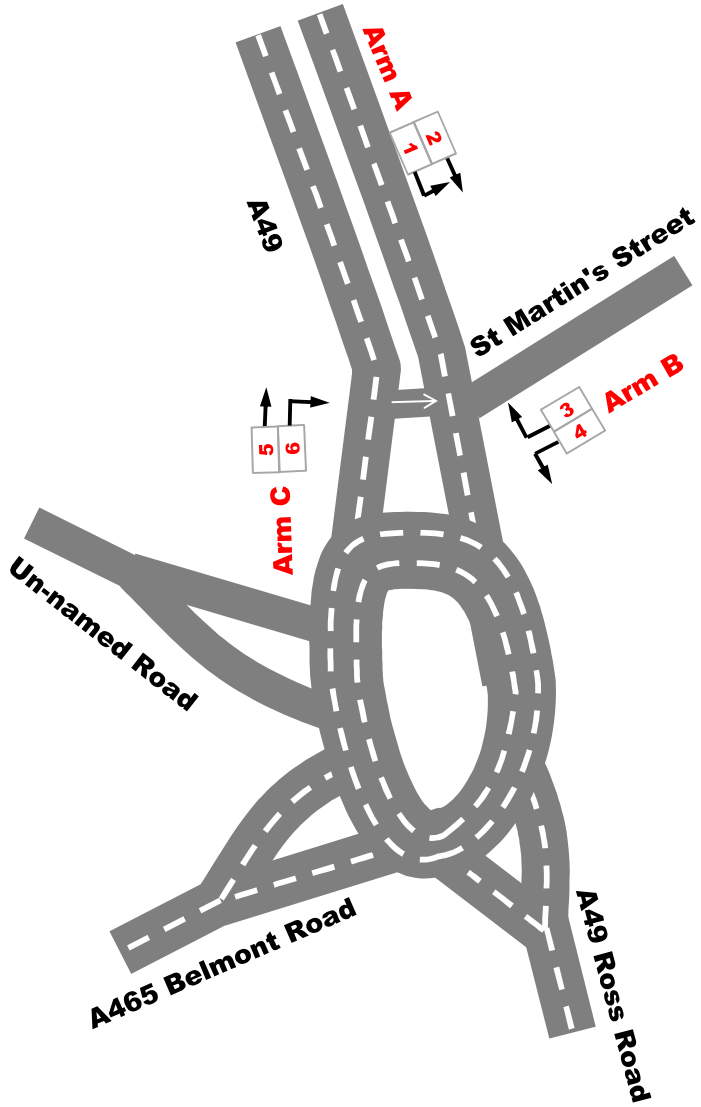
DRAWN BY GS

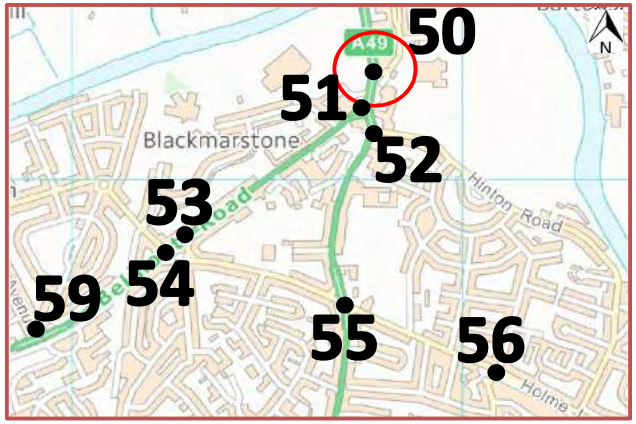
CHECKED DL

APPROVED MH

MCC SITE 50

A49 / St Martin's Street





Period	ARM A			
	Movement		Total	
	1	2	From	To
AM Peak	47	4396	**4443**	**5226**
Inter Peak	75	8308	**8383**	**8957**
PM Peak	44	5770	**5814**	**4968**

Period	ARM B			
	Movement		Total	
	3	4	From	To
AM Peak	0	152	**152**	**472**
Inter Peak	0	761	**761**	**832**
PM Peak	0	370	**370**	**415**

Period	ARM C			
	Movement		Total	
	5	6	From	To
AM Peak	5226	425	**5651**	**4548**
Inter Peak	8957	757	**9714**	**9069**
PM Peak	4968	371	**5339**	**6140**

Total HGV Movements*

ARM	%HGV
A	5.0%
B	1.3%
C	4.6%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-50

• FIGURE TITLE

MCC SITE 50 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

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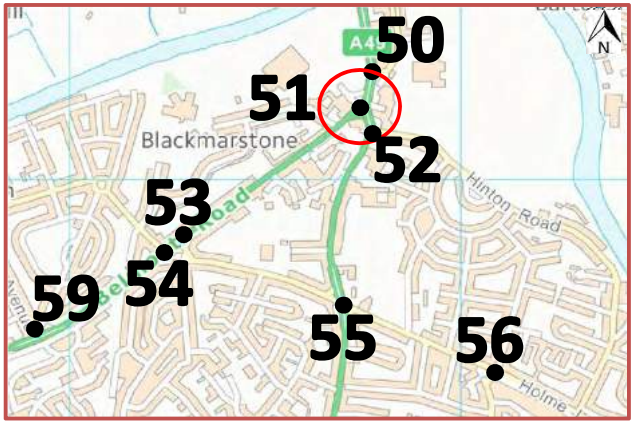
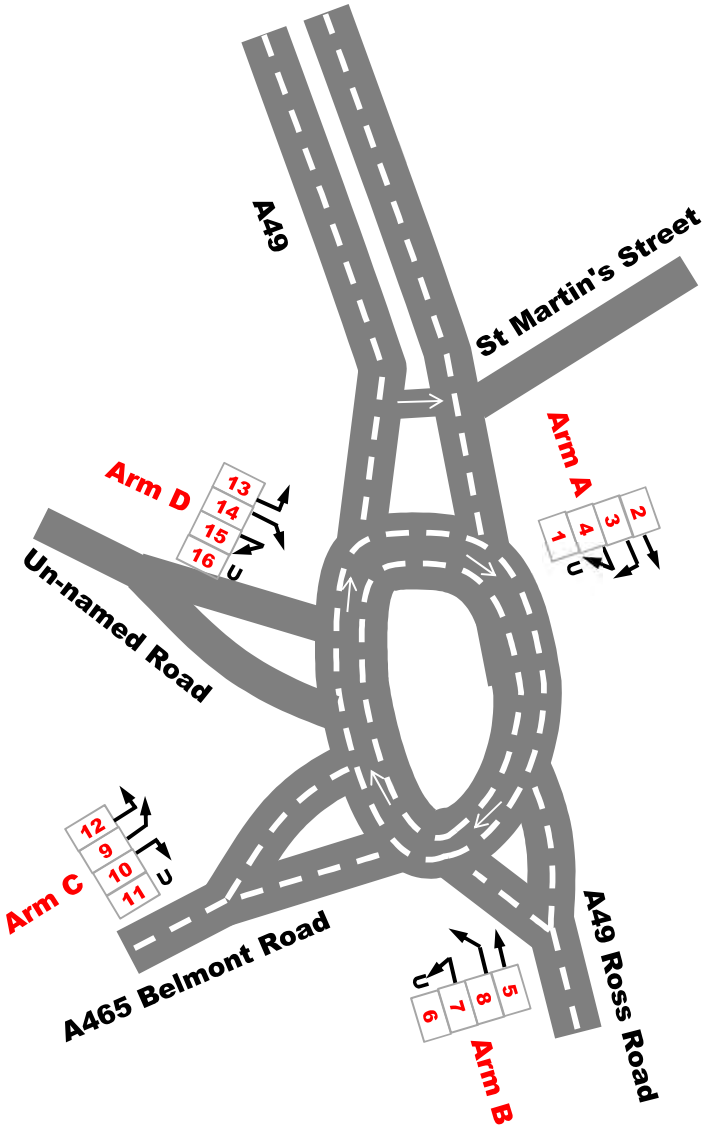
APPROVED MH

MCC SITE 51

A49 / A465 Roundabout





Period	ARM A					
	Movement				Total	
	1	2	3	4	From	To
AM Peak	12	2647	1661	251	**4571**	**5684**
Inter Peak	54	4593	3734	695	**9076**	**9730**
PM Peak	19	2896	2794	408	**6117**	**5330**

Period	ARM B					
	Movement				Total	
	5	6	7	8	From	To
AM Peak	3215	0	98	170	**3483**	**2819**
Inter Peak	5095	0	262	496	**5853**	**5178**
PM Peak	2863	0	149	285	**3297**	**3271**

Period	ARM C					
	Movement				Total	
	9	10	11	12	From	To
AM Peak	2274	65	3	141	**2483**	**1829**
Inter Peak	3886	114	3	344	**4347**	**4362**
PM Peak	2076	58	2	162	**2298**	**3187**

Period	ARM D					
	Movement				Total	
	13	14	15	16	From	To
AM Peak	183	107	67	0	**357**	**562**
Inter Peak	695	471	363	1	**1530**	**1536**
PM Peak	372	317	242	0	**931**	**855**

Total HGV Movements*

ARM	%HGV
A	4.9%
B	4.7%
C	4.6%
D	0.5%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

*** Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period**

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-51

• FIGURE TITLE

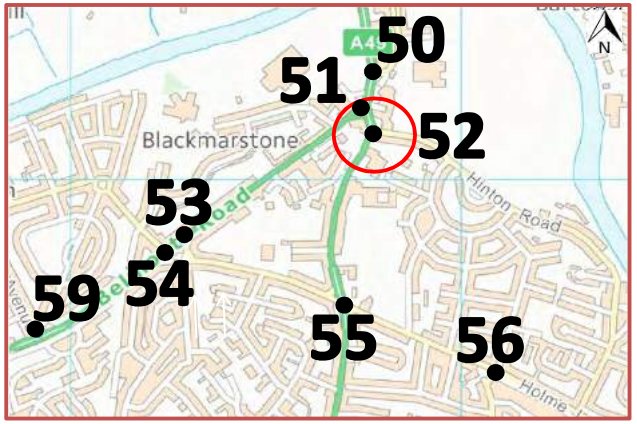
MCC SITE 51 Summary

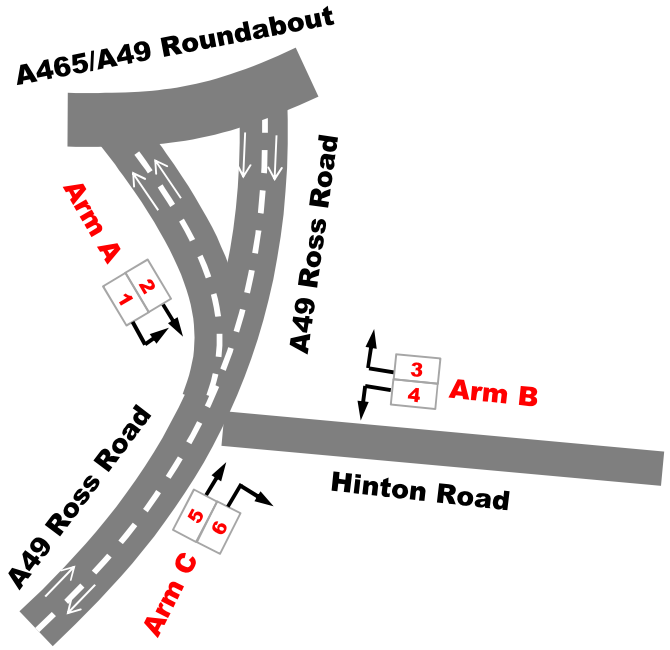
WSP | PARSONS BRINCKERHOFF

• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

MCC SITE 52

Ross Road / Hinton Road





Period	ARM A			
	Movement		Total	
	1	2	From	To
AM Peak	766	2032	2798	3487
Inter Peak	1175	4019	5194	5870
PM Peak	752	2511	3263	3295

Period	ARM B			
	Movement		Total	
	3	4	From	To
AM Peak	199	23	222	768
Inter Peak	293	86	379	1184
PM Peak	171	43	214	752

Period	ARM C			
	Movement		Total	
	5	6	From	To
AM Peak	3288	2	3290	2055
Inter Peak	5577	9	5586	4105
PM Peak	3124	0	3124	2554

Total HGV Movements*

ARM	%HGV
A	5.7%
B	0.6%
C	5.0%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-52

• FIGURE TITLE

MCC SITE 52 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

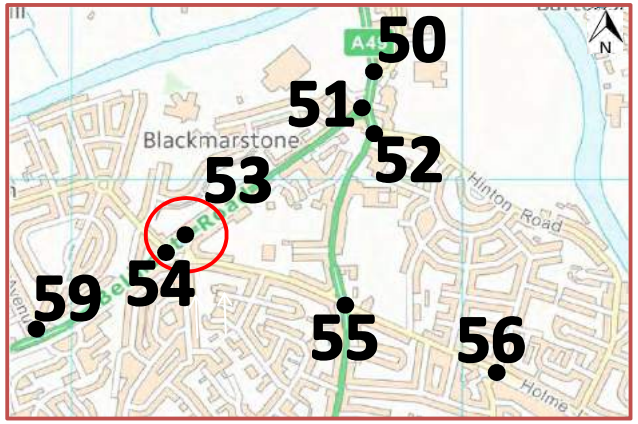
DRAWN BY GS

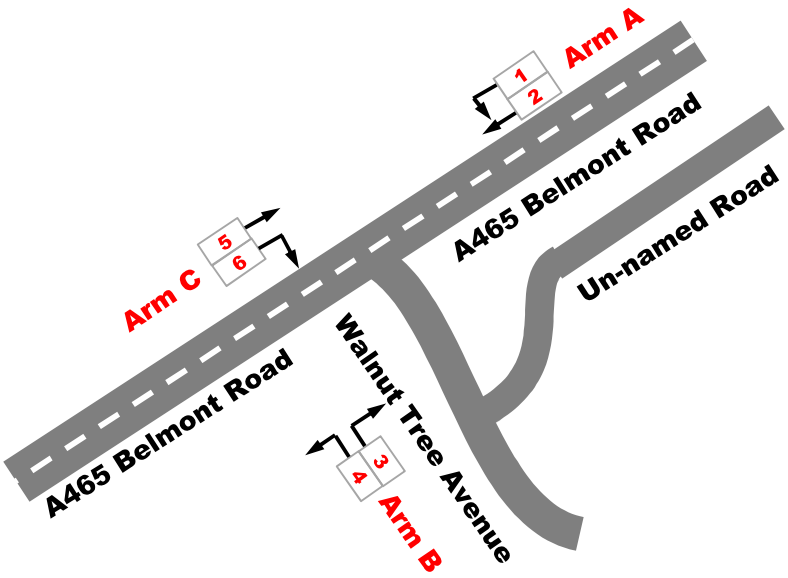
CHECKED DL

APPROVED MH

MCC SITE 53

Belmont Road / Walnut Tree Avenue





Period	ARM A			
	Movement		Total	
	1	2	From	To
AM Peak	164	1522	**1686**	**2552**
Inter Peak	363	3785	**4148**	**4366**
PM Peak	205	2864	**3069**	**2323**

Period	ARM B			
	Movement		Total	
	3	4	From	To
AM Peak	184	616	**800**	**798**
Inter Peak	238	1366	**1604**	**1585**
PM Peak	118	1030	**1148**	**985**

Period	ARM C			
	Movement		Total	
	5	6	From	To
AM Peak	2368	634	**3002**	**2138**
Inter Peak	4128	1222	**5350**	**5151**
PM Peak	2205	780	**2985**	**3894**

Total HGV Movements*

ARM	%HGV
A	4.3%
B	0.8%
C	3.6%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-53

• FIGURE TITLE

MCC SITE 53 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

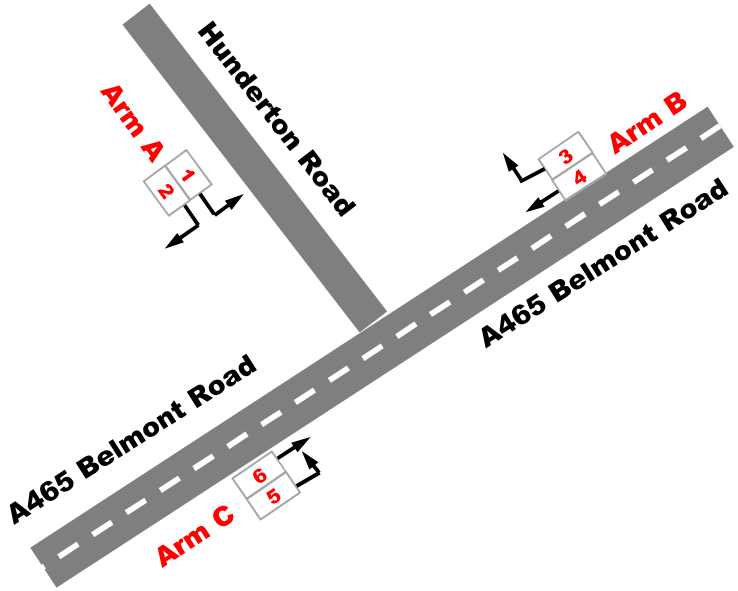
DRAWN BY GS

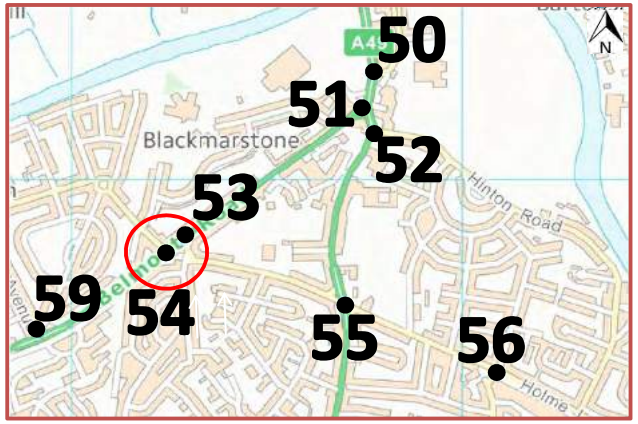
CHECKED DL

APPROVED MH

MCC SITE 54

Belmont Road / Hunderton Road





Period	ARM A			
	Movement		Total	
	1	2	From	To
AM Peak	394	22	**416**	**144**
Inter Peak	541	32	**573**	**396**
PM Peak	273	21	**294**	**306**

Period	ARM B			
	Movement		Total	
	3	4	From	To
AM Peak	138	1984	**2122**	**2998**
Inter Peak	354	4807	**5161**	**5349**
PM Peak	292	3614	**3906**	**2987**

Period	ARM C			
	Movement		Total	
	5	6	From	To
AM Peak	6	2604	**2610**	**2006**
Inter Peak	42	4808	**4850**	**4839**
PM Peak	14	2714	**2728**	**3635**

Total HGV Movements*

ARM	%HGV
A	1.9%
B	3.6%
C	3.8%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-54

• FIGURE TITLE

MCC SITE 54 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

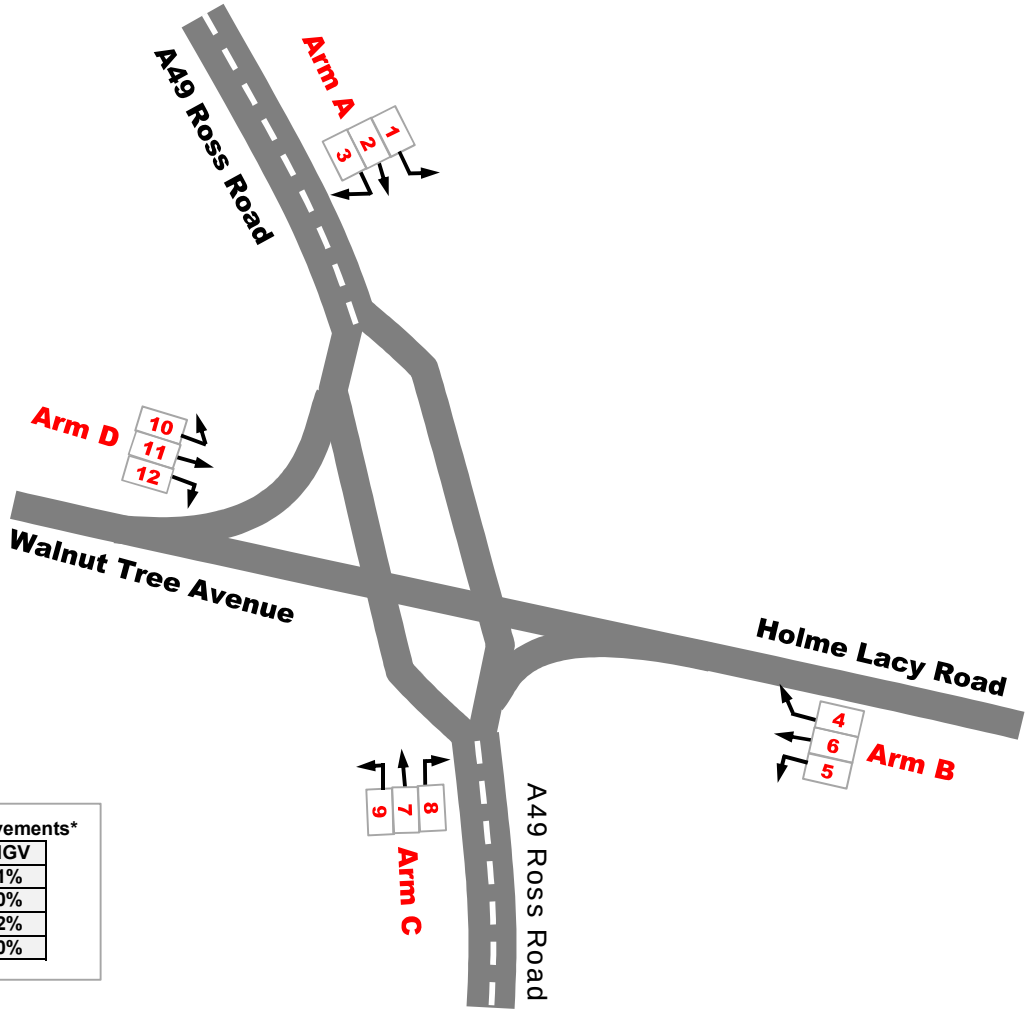
DRAWN BY GS

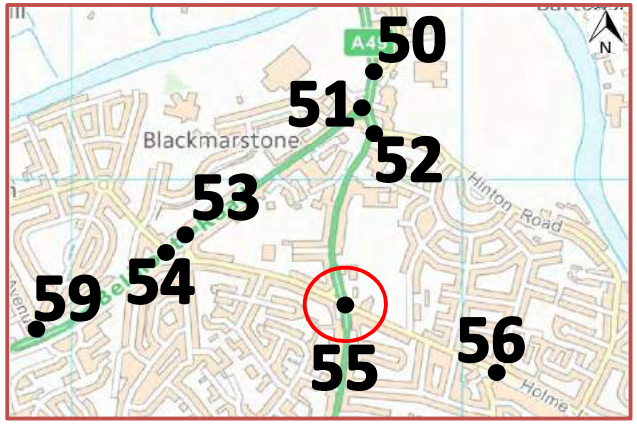
CHECKED DL

APPROVED MH

MCC SITE 55

Walnut Tree Avenue / A49 Ross Road





Total HGV Movements*

ARM	%HGV
A	8.1%
B	2.0%
C	7.2%
D	1.0%

Period	ARM A				
	Movement			Total	
	1	2	3	From	To
AM Peak	771	1330	34	**2135**	**3364**
Inter Peak	1327	3125	153	**4605**	**5875**
PM Peak	628	1882	117	**2627**	**3124**

Period	ARM B				
	Movement			Total	
	4	5	6	From	To
AM Peak	1126	240	384	**1750**	**1385**
Inter Peak	2386	515	834	**3735**	**2553**
PM Peak	1200	360	587	**2147**	**1376**

Period	ARM C				
	Movement			Total	
	7	8	9	From	To
AM Peak	2106	212	105	**2423**	**1671**
Inter Peak	3264	399	252	**3915**	**3908**
PM Peak	1785	263	202	**2250**	**2415**

Period	ARM D				
	Movement			Total	
	10	11	12	From	To
AM Peak	132	402	101	**635**	**523**
Inter Peak	225	827	268	**1320**	**1239**
PM Peak	139	485	173	**797**	**906**

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

*** Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period**

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-55

• FIGURE TITLE

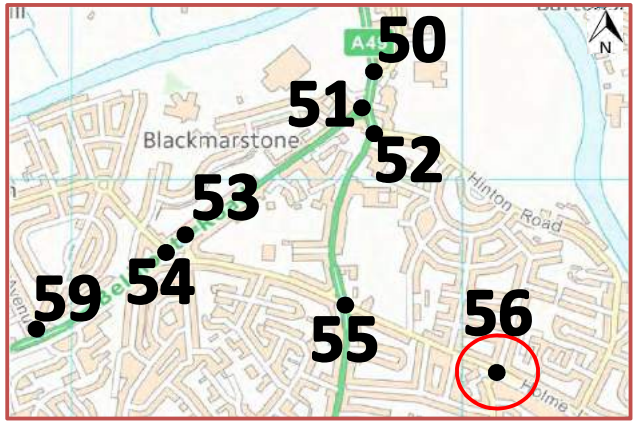
MCC SITE 55 Summary

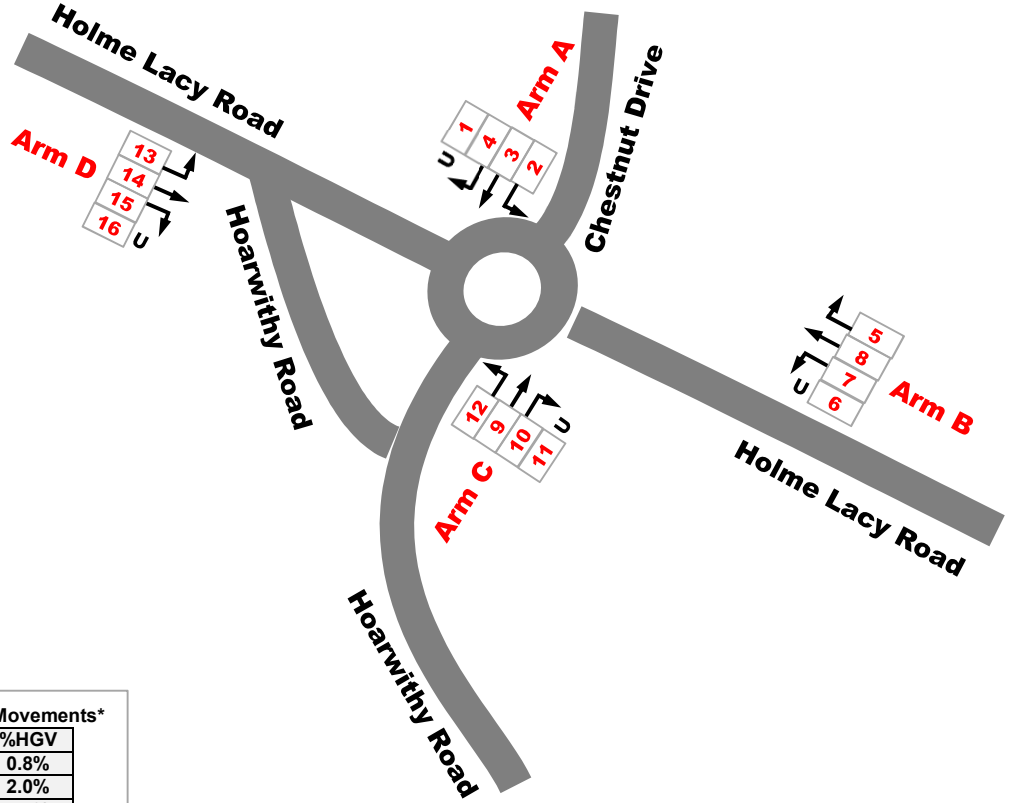
WSP | PARSONS BRINCKERHOFF

• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

MCC SITE 56

Holme Lacey Road / Hoarwithy Road (North West)





Period	ARM A					
	Movement				Total	
	1	2	3	4	From	To
AM Peak	1	88	83	197	**369**	**261**
Inter Peak	0	172	214	339	**725**	**419**
PM Peak	11	109	153	178	**451**	**272**

Period	ARM B					
	Movement				Total	
	5	6	7	8	From	To
AM Peak	40	1	37	825	**903**	**986**
Inter Peak	66	1	74	1825	**1966**	**1650**
PM Peak	76	5	59	824	**964**	**750**

Period	ARM C					
	Movement				Total	
	9	10	11	12	From	To
AM Peak	82	72	0	225	**379**	**232**
Inter Peak	101	123	1	422	**647**	**611**
PM Peak	95	104	1	171	**371**	**388**

Period	ARM D					
	Movement				Total	
	13	14	15	16	From	To
AM Peak	138	825	112	0	**1075**	**1247**
Inter Peak	252	1354	322	3	**1931**	**2589**
PM Peak	90	532	175	0	**797**	**1173**

Total HGV Movements*

ARM	%HGV
A	0.8%
B	2.0%
C	4.4%
D	3.8%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

*** Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period**

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-56

• FIGURE TITLE

MCC SITE 56 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

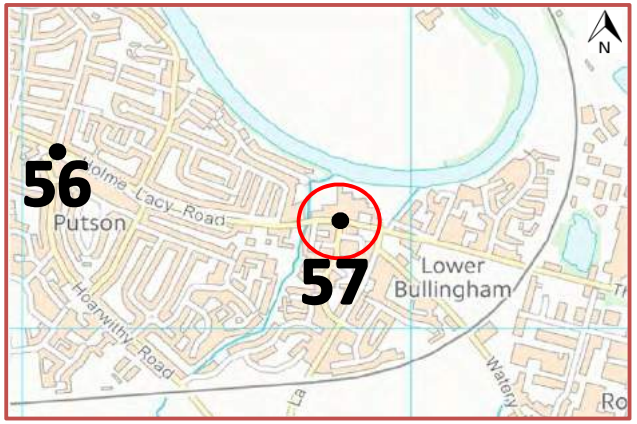
DRAWN BY GS

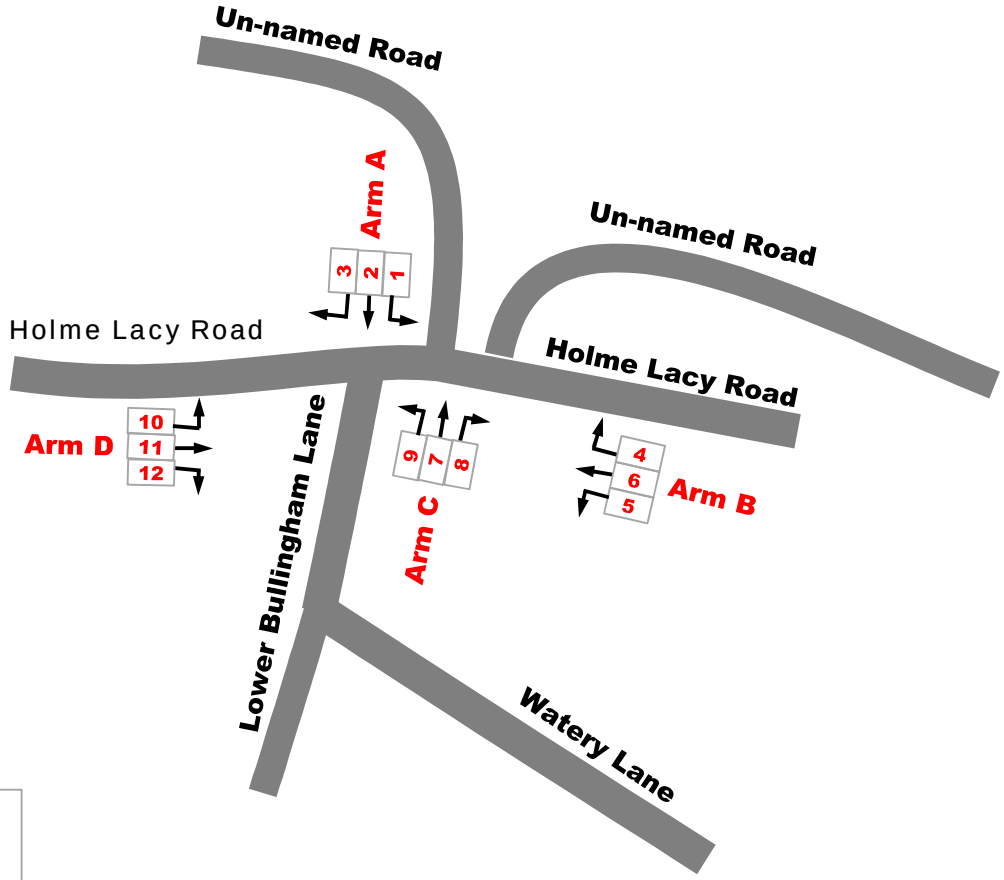
CHECKED DL

APPROVED MH

MCC SITE 57

Holme Lacey Road / Lower Bullingham Lane





Period	ARM A				
	Movement			Total	
	1	2	3	From	To
AM Peak	4	1	26	31	36
Inter Peak	5	1	38	44	52
PM Peak	6	2	49	57	28

Period	ARM B				
	Movement			Total	
	4	5	6	From	To
AM Peak	7	8	770	785	1691
Inter Peak	3	22	2039	2064	2093
PM Peak	7	15	1426	1448	821

Period	ARM C				
	Movement			Total	
	7	8	9	From	To
AM Peak	2	16	49	67	62
Inter Peak	3	15	86	104	96
PM Peak	0	4	52	56	63

Period	ARM D				
	Movement			Total	
	10	11	12	From	To
AM Peak	27	1671	53	1751	845
Inter Peak	46	2073	73	2192	2163
PM Peak	21	811	46	878	1527

Total HGV Movements*

ARM	%HGV
A	0.0%
B	2.0%
C	4.0%
D	2.1%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-57

• FIGURE TITLE

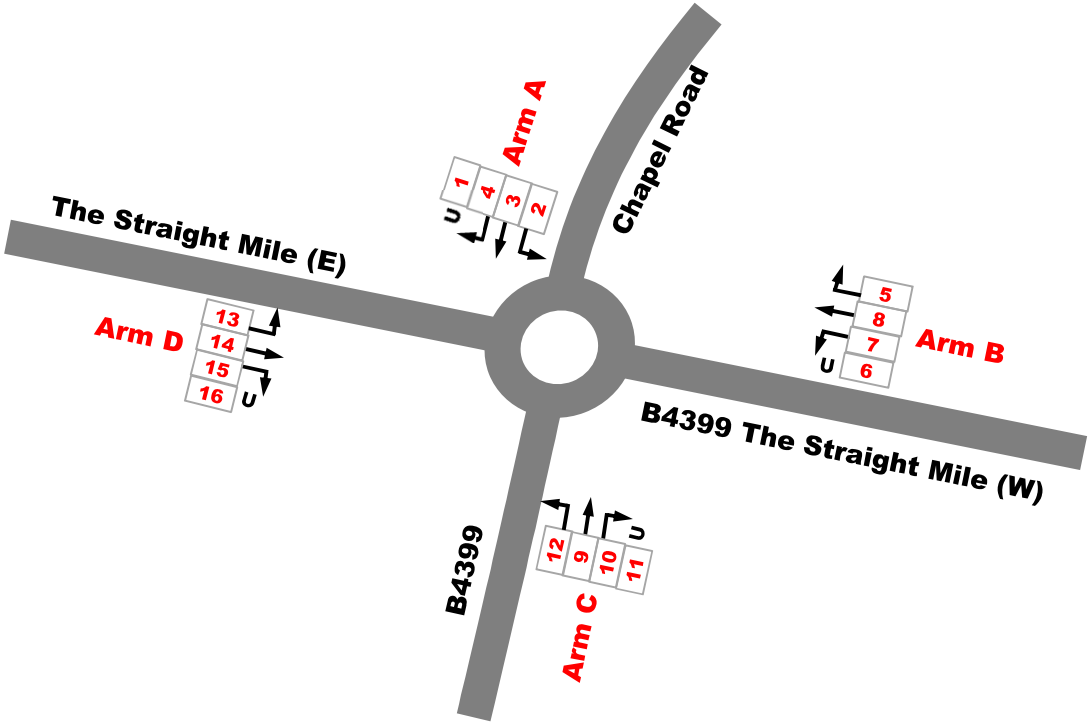
MCC SITE 57 Summary

WSP | PARSONS BRINCKERHOFF

• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

MCC SITE 58

The Straight Mile by Dinedor Hill



Period	ARM A					
	Movement				Total	
	1	2	3	4	From	To
AM Peak	0	27	95	88	**210**	**297**
Inter Peak	1	107	261	394	**763**	**763**
PM Peak	0	51	104	104	**259**	**144**

Period	ARM B					
	Movement				Total	
	5	6	7	8	From	To
AM Peak	37	1	150	506	**694**	**888**
Inter Peak	105	4	304	807	**1220**	**1264**
PM Peak	20	0	355	487	**862**	**865**

Period	ARM C					
	Movement				Total	
	9	10	11	12	From	To
AM Peak	86	332	4	559	**981**	**538**
Inter Peak	199	293	13	510	**1015**	**1185**
PM Peak	35	167	11	296	**509**	**1258**

Period	ARM D					
	Movement				Total	
	13	14	15	16	From	To
AM Peak	174	528	289	9	**1000**	**1162**
Inter Peak	458	860	607	21	**1946**	**1732**
PM Peak	89	647	788	2	**1526**	**889**

Total HGV Movements*

ARM	%HGV
A	14.3%
B	5.3%
C	17.6%
D	7.3%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

*** Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period**

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-58

• FIGURE TITLE

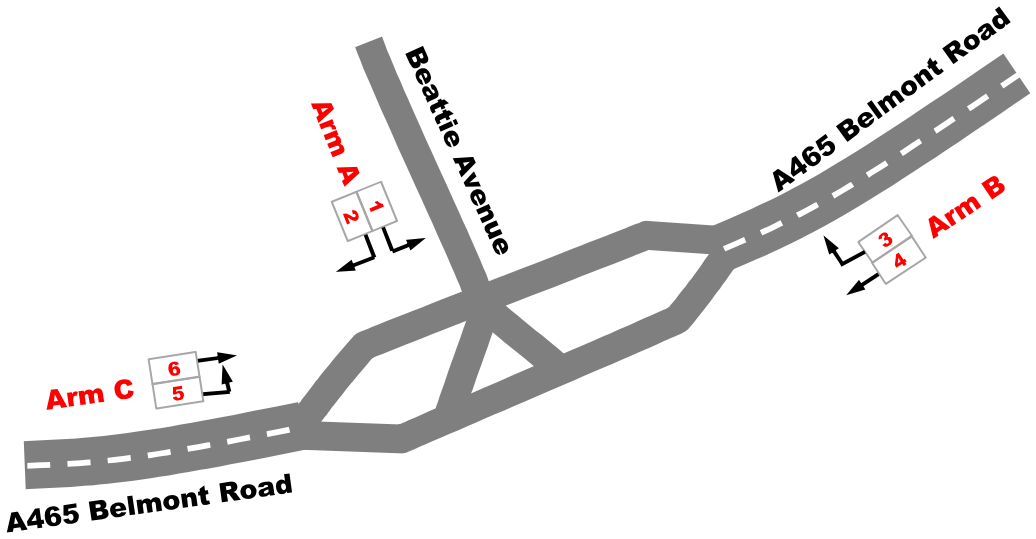
MCC SITE 58 Summary

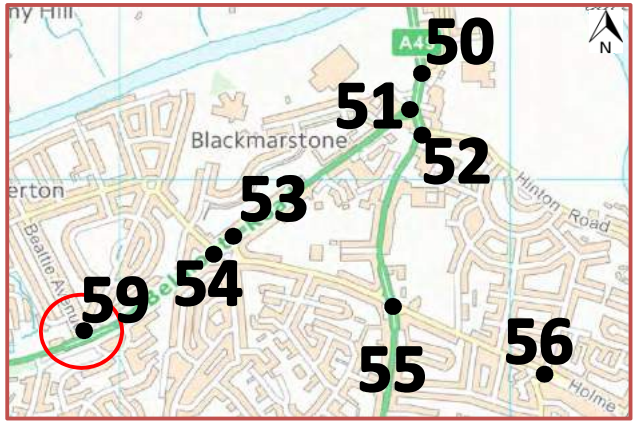
WSP | PARSONS BRINCKERHOFF

• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

MCC SITE 59

Belmont Road / Beattie Avenue





Period	ARM A			
	Movement		Total	
	1	2	From	To
AM Peak	42	127	**169**	**155**
Inter Peak	152	237	**389**	**378**
PM Peak	102	157	**259**	**271**

Period	ARM B			
	Movement		Total	
	3	4	From	To
AM Peak	75	1915	**1990**	**2091**
Inter Peak	182	4876	**5058**	**4954**
PM Peak	132	3109	**3241**	**2677**

Period	ARM C			
	Movement		Total	
	5	6	From	To
AM Peak	80	2049	**2129**	**2042**
Inter Peak	196	4802	**4998**	**5113**
PM Peak	139	2575	**2714**	**3266**

Total HGV Movements*

ARM	%HGV
A	3.8%
B	3.5%
C	3.5%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-59

• FIGURE TITLE

MCC SITE 59 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

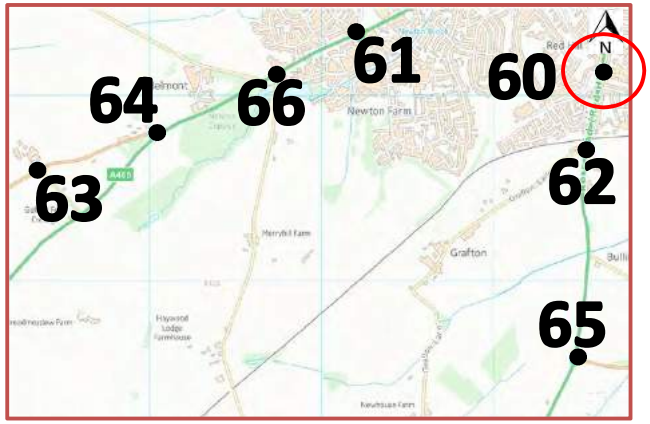
DRAWN BY GS

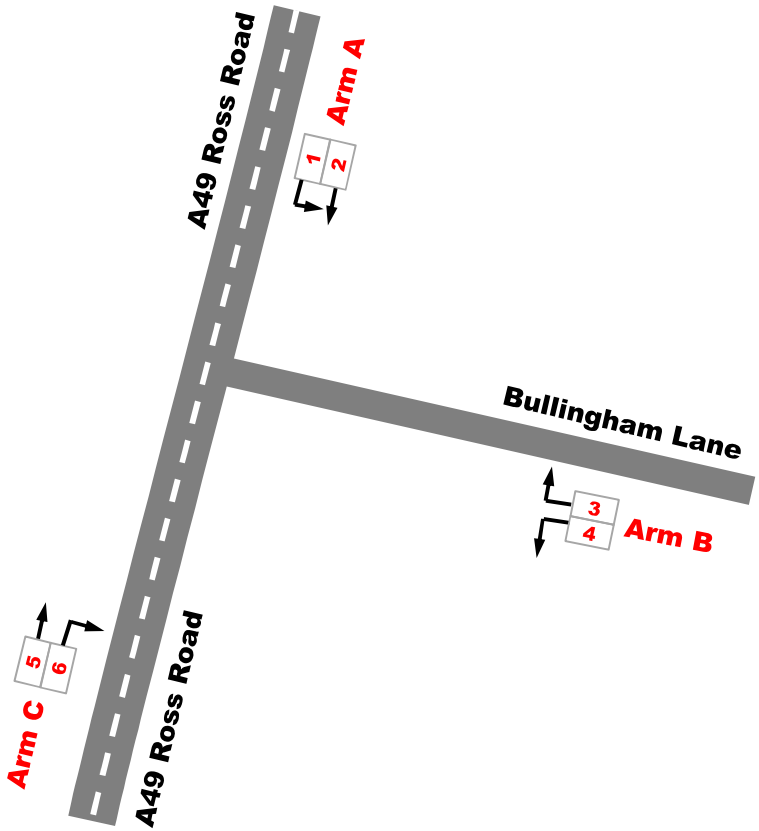
CHECKED DL

APPROVED MH

MCC SITE 60

Ross Road by Red Hill





Period	ARM A			
	Movement		Total	
	1	2	From	To
AM Peak	168	1244	1412	2099
Inter Peak	541	2672	3213	3285
PM Peak	499	1382	1881	2007

Period	ARM B			
	Movement		Total	
	3	4	From	To
AM Peak	445	131	576	201
Inter Peak	523	80	603	613
PM Peak	335	28	363	610

Period	ARM C			
	Movement		Total	
	5	6	From	To
AM Peak	1654	33	1687	1375
Inter Peak	2762	72	2834	2752
PM Peak	1672	111	1783	1410

Total HGV Movements*

ARM	%HGV
A	9.7%
B	0.5%
C	9.5%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-60

• FIGURE TITLE

MCC SITE 60 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

DRAWN BY GS

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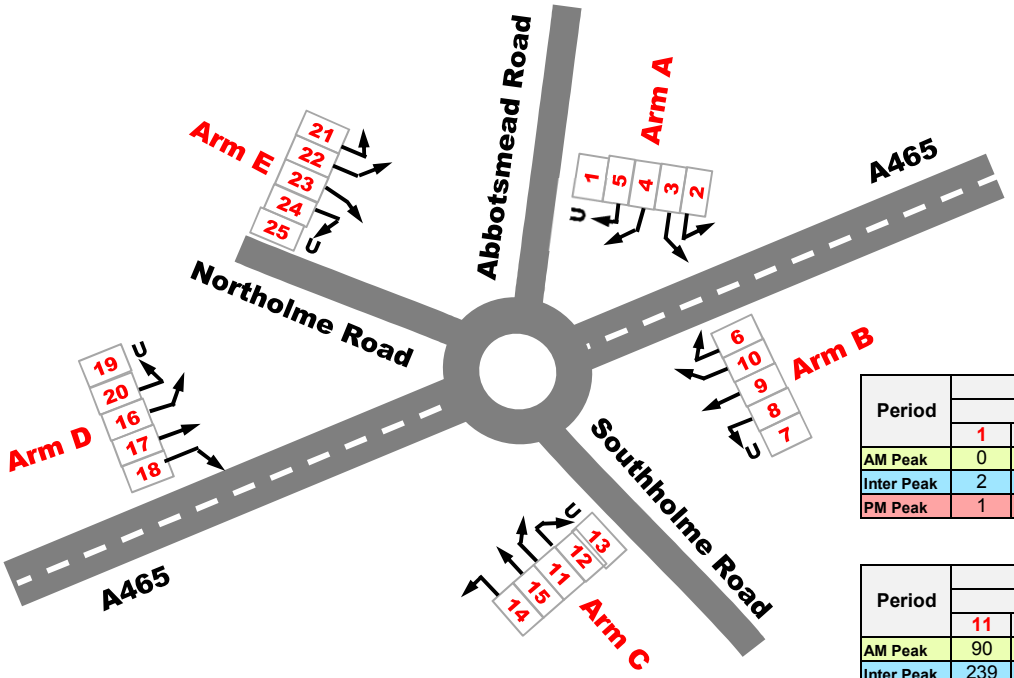
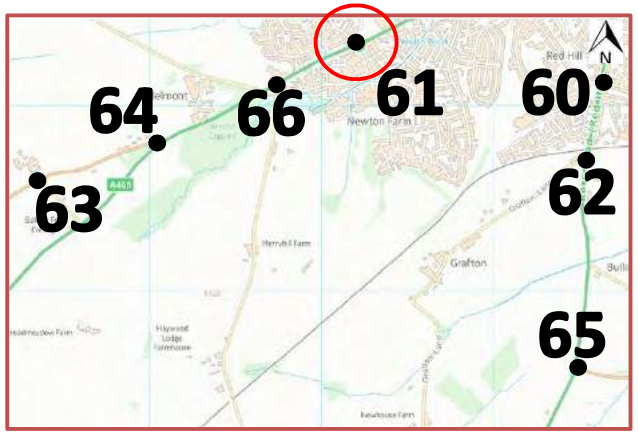
APPROVED MH

MCC SITE 61

Newton Brook Roundabout





Period	ARM A						
	Movement					Total	
	1	2	3	4	5	From	To
AM Peak	0	379	118	302	28	827	674
Inter Peak	2	1023	313	790	106	2234	2238
PM Peak	1	543	203	436	56	1239	1382

Period	ARM B						
	Movement					Total	
	6	7	8	9	10	From	To
AM Peak	340	2	178	1196	56	1772	1819
Inter Peak	1301	5	558	2091	245	4200	4193
PM Peak	804	4	446	1144	291	2689	2364

Period	ARM C						
	Movement					Total	
	11	12	13	14	15	From	To
AM Peak	90	260	1	262	24	637	494
Inter Peak	239	706	1	196	75	1217	1107
PM Peak	164	418	1	136	50	769	911

Period	ARM D						
	Movement					Total	
	16	17	18	19	20	From	To
AM Peak	208	984	160	2	31	1385	1915
Inter Peak	605	2243	177	4	97	3126	3186
PM Peak	361	1300	217	2	116	1996	1794

Period	ARM E						
	Movement					Total	
	21	22	23	24	25	From	To
AM Peak	36	194	37	153	0	420	139
Inter Peak	91	216	58	105	2	472	525
PM Peak	52	99	44	76	1	272	514

Total HGV Movements*

ARM	%HGV
A	1.6%
B	5.1%
C	0.3%
D	6.6%
E	1.2%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-61

• FIGURE TITLE

MCC SITE 61 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

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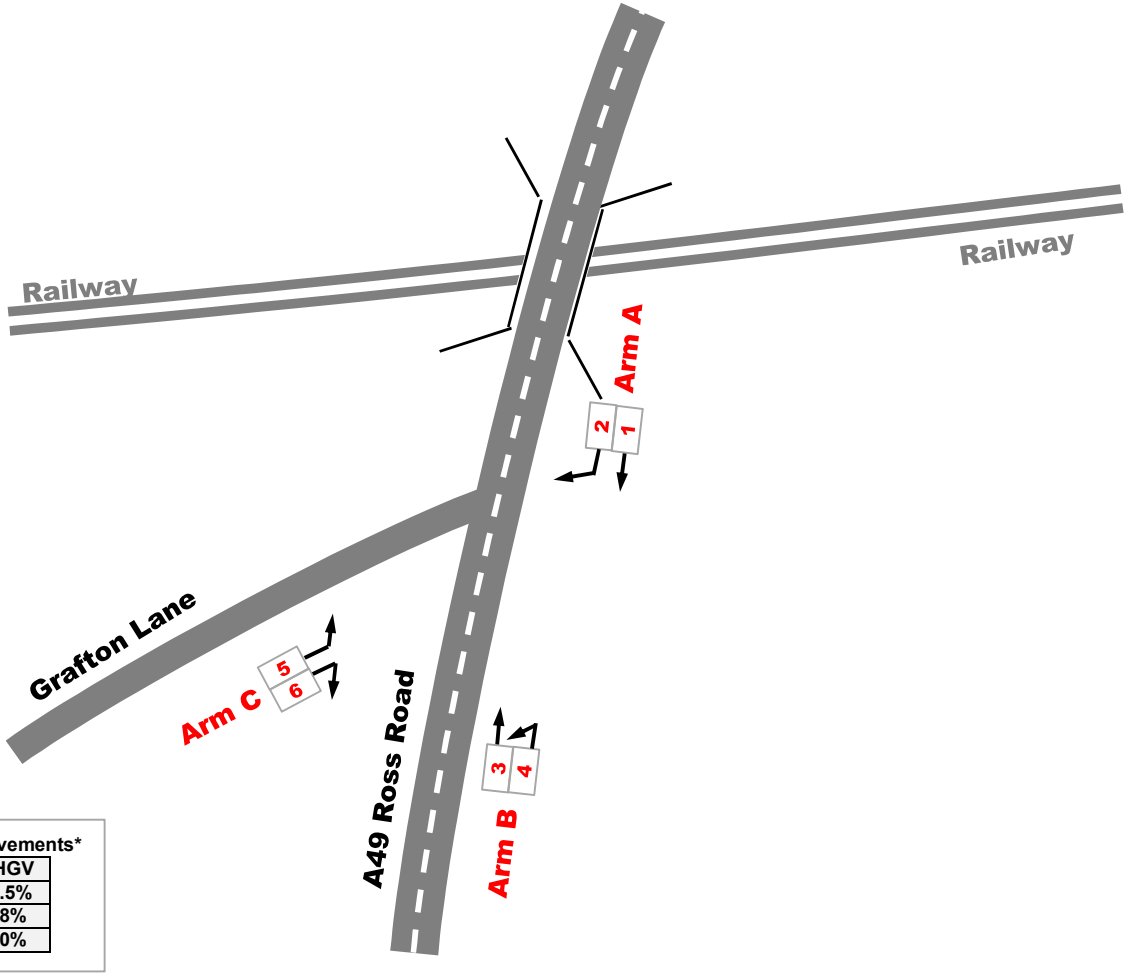
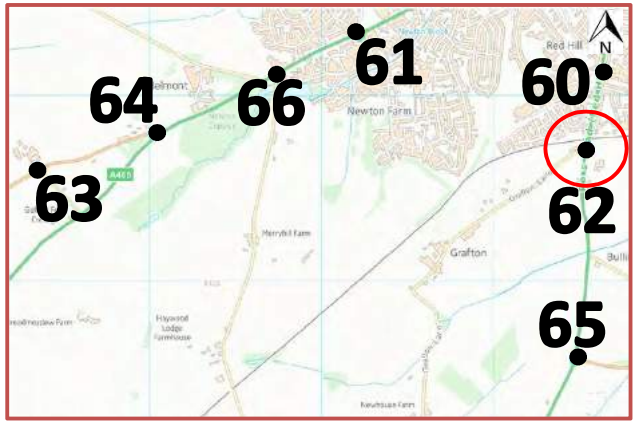
CHECKED DL

APPROVED MH

MCC SITE 62

Ross Road / Grafton Lane





Total HGV Movements*	
ARM	%HGV
A	11.5%
B	9.8%
C	2.0%

Period	ARM A			
	Movement		Total	
	1	2	From	To
AM Peak	1341	15	1356	1632
Inter Peak	2635	51	2686	2775
PM Peak	1330	31	1361	1747

Period	ARM B			
	Movement		Total	
	3	4	From	To
AM Peak	1585	5	1590	1350
Inter Peak	2723	12	2735	2644
PM Peak	1721	8	1729	1337

Period	ARM C			
	Movement		Total	
	5	6	From	To
AM Peak	47	9	56	20
Inter Peak	52	9	61	63
PM Peak	26	7	33	39

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

*** Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period**

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-62

• FIGURE TITLE

MCC SITE 62 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

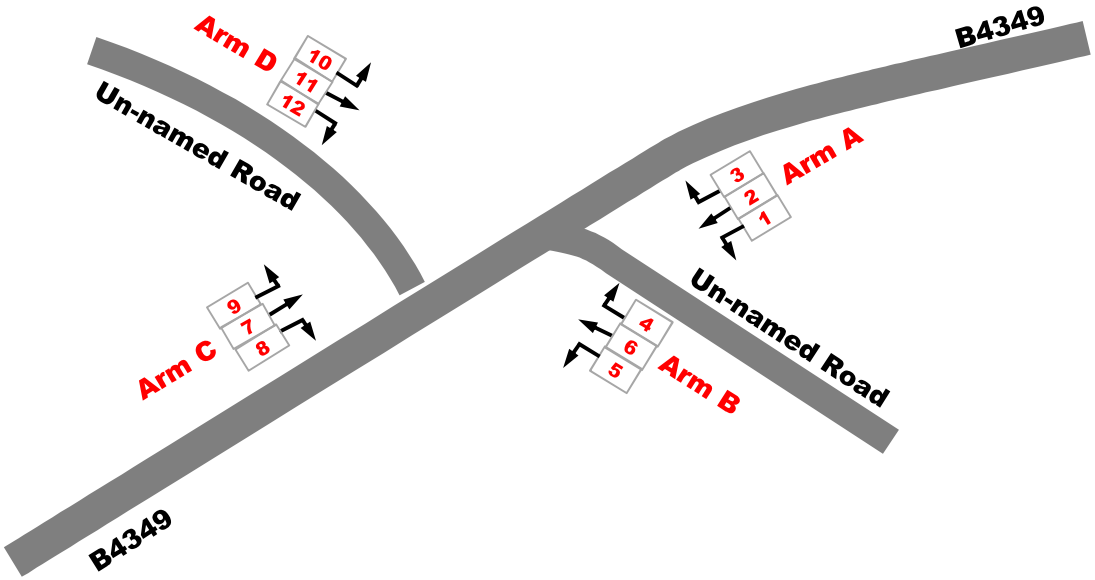
DRAWN BY GS

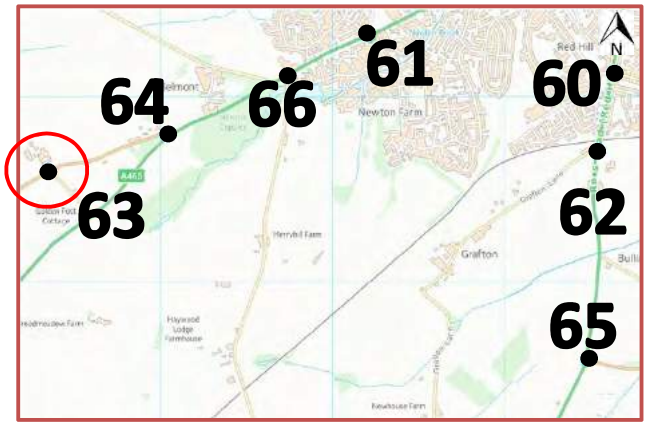
CHECKED DL

APPROVED MH

MCC SITE 63

B4349 by Golden Post Cottage





Period	ARM A				
	Movement			Total	
	1	2	3	From	To
AM Peak	0	777	3	780	765
Inter Peak	2	1409	3	1414	1431
PM Peak	0	856	1	857	863

Period	ARM B				
	Movement			Total	
	4	5	6	From	To
AM Peak	0	14	0	14	24
Inter Peak	2	23	0	25	40
PM Peak	0	21	0	21	26

Period	ARM C				
	Movement			Total	
	7	8	9	From	To
AM Peak	764	24	0	788	794
Inter Peak	1426	36	5	1467	1435
PM Peak	863	26	0	889	878

Period	ARM D				
	Movement			Total	
	10	11	12	From	To
AM Peak	1	0	3	4	3
Inter Peak	3	2	3	8	8
PM Peak	0	0	1	1	1

Total HGV Movements*

ARM	%HGV
A	4.2%
B	3.3%
C	3.5%
D	15.4%

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

* Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-63

• FIGURE TITLE

MCC SITE 63 Summary

WSP | PARSONS BRINCKERHOFF

• DATE 18/11/2016

• SCALE NTS

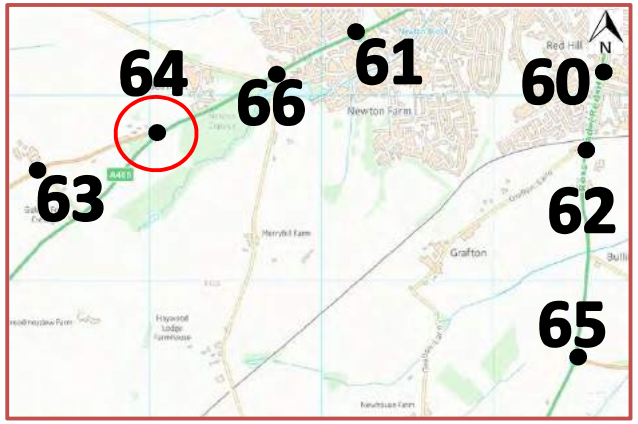
DRAWN BY GS

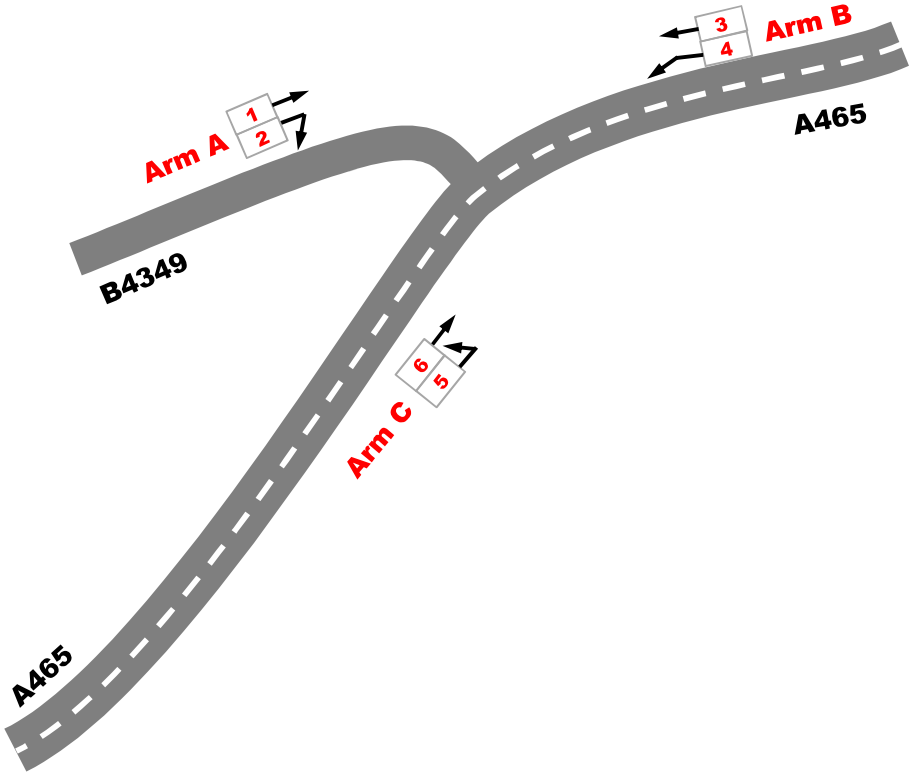
CHECKED DL

APPROVED MH

MCC SITE 64

B4349 / A465 by Newton Coppice





Total HGV Movements*	
ARM	%HGV
A	3.5%
B	5.2%
C	7.8%

Period	ARM A			
	Movement		Total	
	1	2	From	To
AM Peak	760	17	**777**	**785**
Inter Peak	1407	46	**1453**	**1444**
PM Peak	851	17	**868**	**862**

Period	ARM B			
	Movement		Total	
	3	4	From	To
AM Peak	763	739	**1502**	**1493**
Inter Peak	1411	1402	**2813**	**2744**
PM Peak	842	858	**1700**	**1700**

Period	ARM C			
	Movement		Total	
	5	6	From	To
AM Peak	22	733	**755**	**756**
Inter Peak	33	1337	**1370**	**1448**
PM Peak	20	849	**869**	**875**

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

*** Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period**

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-64

• FIGURE TITLE

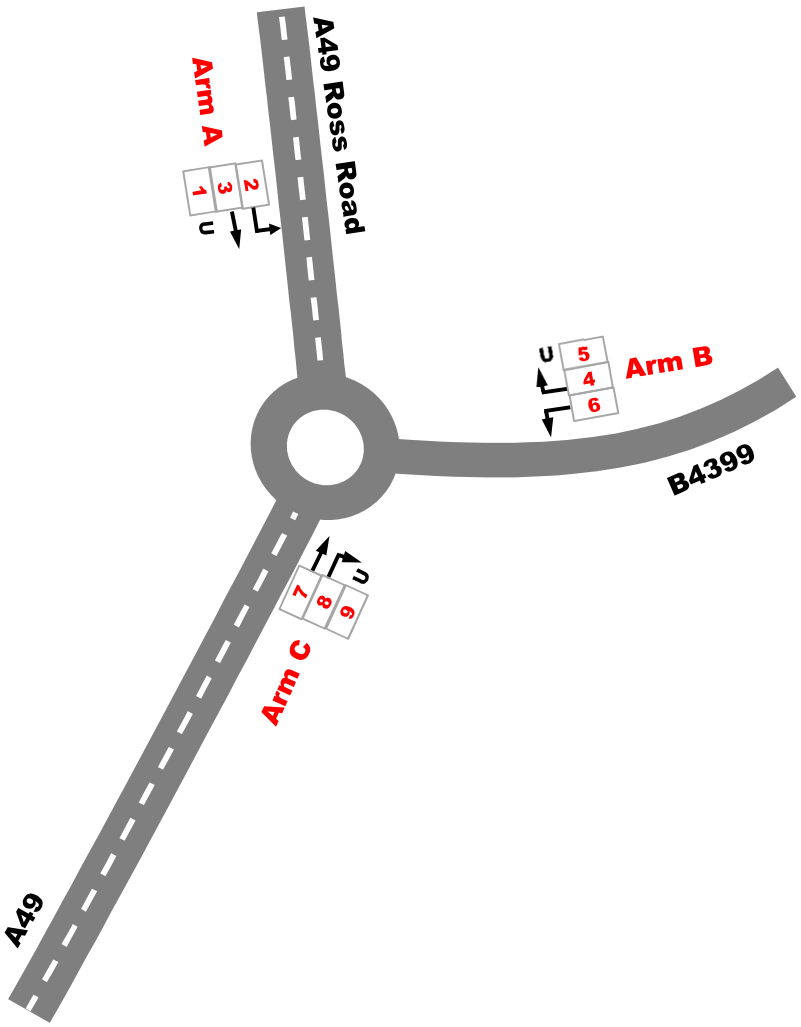
MCC SITE 64 Summary

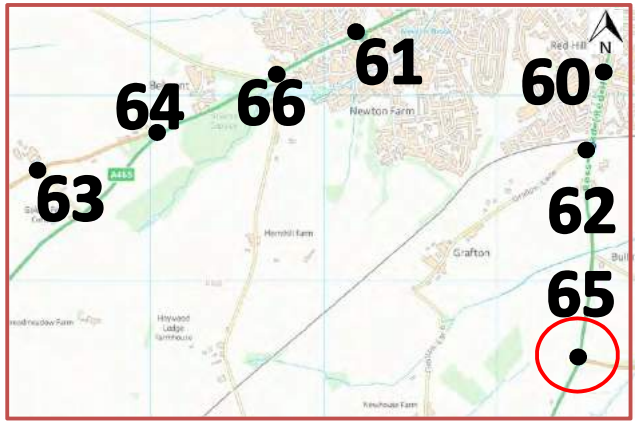
WSP | PARSONS BRINCKERHOFF

• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH

MCC SITE 65

Bullinghope Roundabout





Total HGV Movements*	
ARM	%HGV
A	11.8%
B	26.8%
C	9.2%

Period	ARM A				
	Movement			Total	
	1	2	3	From	To
AM Peak	1	204	1133	**1338**	**1598**
Inter Peak	1	284	2331	**2616**	**2709**
PM Peak	1	83	1230	**1314**	**1732**

Period	ARM B				
	Movement			Total	
	4	5	6	From	To
AM Peak	147	3	340	**490**	**916**
Inter Peak	339	16	589	**944**	**947**
PM Peak	366	3	529	**898**	**354**

Period	ARM C				
	Movement			Total	
	7	8	9	From	To
AM Peak	1450	709	2	**2161**	**1475**
Inter Peak	2369	647	14	**3030**	**2934**
PM Peak	1365	268	4	**1637**	**1763**

REV	DATE	DESCRIPTION	BY	CHKD	APPD

NOTES:

*** Total HGV movements represents the total proportion of HGV movements from each arm over the 12-hour survey period**

• PROJECT

Hereford Relief Road - Report of Surveys

• FIGURE NUMBER

Figure 4-65

• FIGURE TITLE

MCC SITE 65 Summary

WSP | PARSONS BRINCKERHOFF

• DATE	18/11/2016	DRAWN BY	GS
• SCALE	NTS	CHECKED	DL
		APPROVED	MH