SURREY
COUNTY COUNCIL

REIGATE & BANSTEAD BOROUGH COUNCIL
LOCAL PLAN

Strategic Highway Assessment Report

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1 INTRODUCTION

1.1 Overview

1.1.1 Reigate and Banstead is in the process of finalising their Development Management Plan, which sets out where the level of development established in the 2014 adopted Core Strategy will be accommodated with the borough. Surrey County Council has been commissioned to assess the traffic impact of the preferred development option using the county's strategic highway model, SINTRAM. The overall aim is to help inform the likely cumulative impact of the development sites which have been identified, and to highlight junctions and sections of road to focus mitigation solutions. This will aid the borough by providing the transport evidence base to inform the Regulation 19 consultation.

1.1.2 This document sets out the development and validation of the model, the forecasting methodology, as well as the results and appraisal of the cumulative traffic impact of the potential development sites and potential highway mitigation proposals.

1.1.3 This study does not consider aspects such as:

- accessibility to facilities and services by either car or non-car modes from the potential development sites;
- the impact on existing public transport services such as passenger overcrowding and possible delays to services as a result of increased traffic congestion; and
- what opportunities there might be for reducing the number of car trips to and from any potential new developments by enhancing sustainable transport facilities and services.

1.1.4 Accessibility issues and impacts on public transport services may need to be considered in separate study work. The consideration of increasing sustainable travel and identifying additional highway mitigation could be done at a later stage, potentially to support submission to the Secretary of State or Examination in Public. This report will act as a useful starting point for undertaking such additional study work.

1.2 Objectives

1.2.1 The purpose of this study was to evaluate the estimated traffic impacts of the potential developments.

1.2.2 The objectives of the study were to:

- Identify and calculate the number and distribution of vehicle trips based on the quantum and locations of potential developments, including residential and commercial developments, from the planning data provided by Reigate & Banstead Borough Council;
- Act as a starting point for identifying the locations that may require further investigation regarding traffic impacts;
- Report the main traffic issues; also
- Consider the potential cumulative impact in terms of the National Planning Policy Framework in particular:
    - Assess the quality and capacity of infrastructure for transport;
    - Provide residential and commercial sites in appropriate and accessible locations; and
    - Encourage solutions which reduce congestion.

1.2.3 Note that in accordance with the National Planning Policy Framework all individual developments that generate significant amounts of movement should be supported by a specific Transport Statement or Transport Assessment.

2 BASE MODEL DEVELOPMENT AND VALIDATION

2.1 Model and Scope

2.1.1 Surrey County Council's strategic model, SINTRAM version 6 (21/08/17) was used for the appraisal, with OmniTRANS modelling program, version 6.1.16.

2.1.2 SINTRAM is a strategic highway model for the county of Surrey. The model encapsulates the road network of Surrey and surrounding local authorities. **Figure 2.1** presents the entire model area.

2.1.3 Within the Surrey area all motorways, A and B roads, together with most local C and D roads are represented within SINTRAM. Where traffic junctions and traffic signals have a significant effect in terms of delay or route choice, details of their layout and/or timing of the signals have been included in the model.

2.1.4 Strategic models, such as SINTRAM, use aggregate descriptions of traffic such as flow, density, speed and the relationships between them. The model is unable to answer detailed questions regarding traffic interactions, such as queuing and individual driver behaviour. It can, however, provide approximate answers to transport issues across a broad geographical area, including the level of vehicle demand, junctions and stretches of road that will be operating above their theoretical capacity, and highlighting areas where some form of mitigation is likely to be required to reduce the impact of potential development sites. This makes SINTRAM a suitable tool for assessing the potential traffic impacts of the development sites at this initial review stage.

2.1.5 As indicated above, once the development sites are established by a planning application with confirmed detail of their composition and access to the highway, more detailed transport modelling will be required. This is often a core element of the development's Transport Assessment which forms a key part of the planning application.

2.2 Base Year

2.2.1 The model base year is 2009.

2.2.2 To bring the model more up to date, it has been reviewed and enhanced in Reigate and Banstead, and a reference year of 2014 has been created. These revisions are described in **Sections 2.5** and **2.9** respectively.

2.3 Modes of Transport

2.3.1 Vehicle classes that are represented in the model are: car; light goods vehicles (LGV); and heavy goods vehicles (HGV).

2.4 Time periods

2.4.1 The model represents a twelve-hour weekday (0700 – 1900), broken down into the following time periods:

- Weekday average AM peak hour (0700 – 1000);
- Weekday average inter peak hour (1000 – 1600) and
- Weekday average PM peak hour (1600 – 1900).

2.4.2 The weekday average AM and PM peak hours have been assessed.

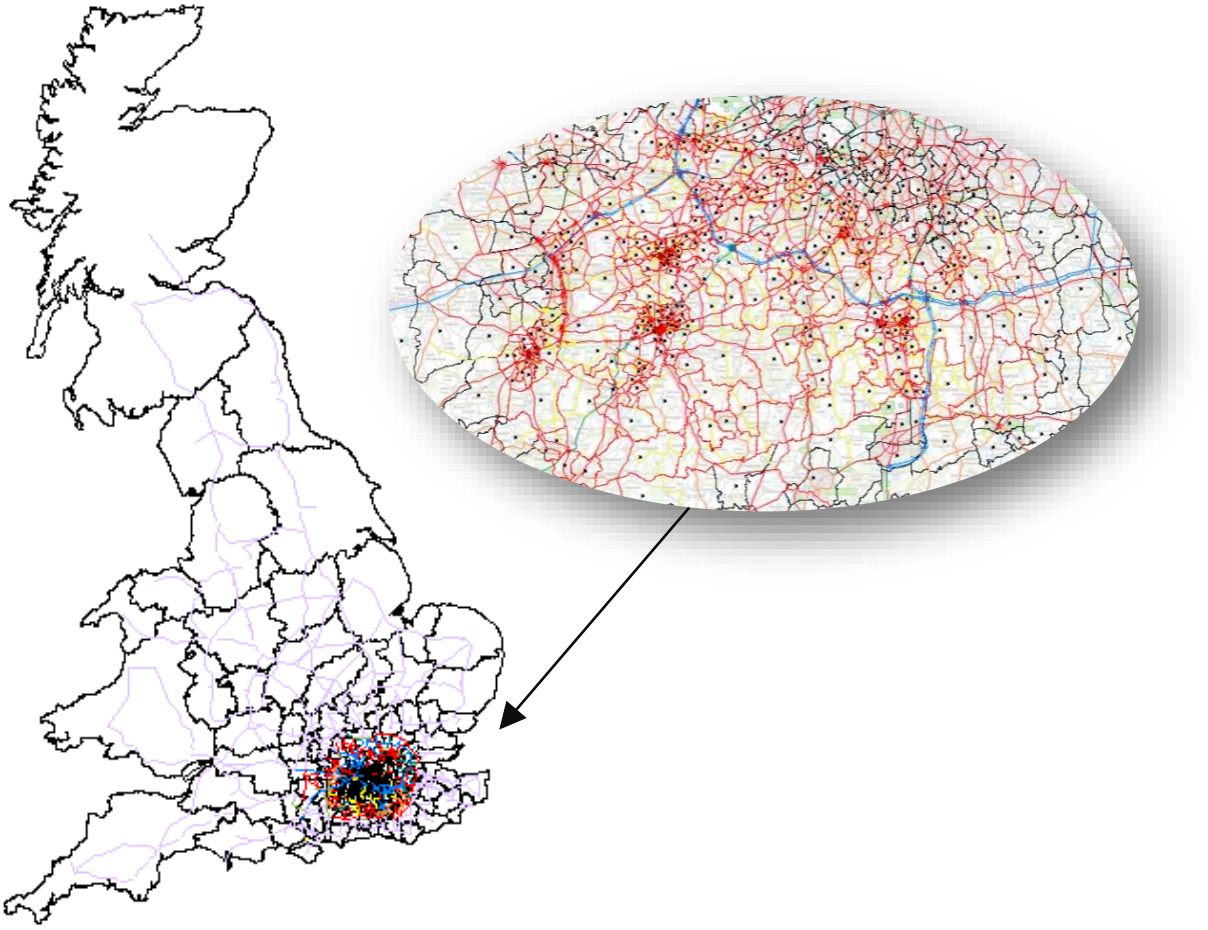

Figure 2.1: Model extent

2.5 Study Area and Base Model Development

2.5.1 The base model was reviewed and enhanced in the study area of Reigate and Banstead borough, to ensure that it was suitable for the evaluation of the cumulative highway impact arising from the potential development sites.

2.5.2 This included an area wide audit of the model network to:

- Ensure that the network is up to date;
- Ensure that the network coverage is sufficient for this appraisal;
- Check link type classification;
- Check junction configuration; and
- Ensure that the access points of large potential development sites are reflected by the appropriate location of the zone centroid connectors.

2.5.3 The audit was assisted by site visits, aerial photography and Surrey County Council's speed limit dataset. Where necessary additional highway network and junctions were inserted into the model, and centroid connectors adjusted accordingly. In particular, special attention was given to the areas of Merstham, east of Redhill, South Park and Horley, where the largest of the potential development sites have been proposed.

2.6 Zones

2.6.1 A zone represents a geographical area where vehicle trips are generated by the land uses contained within.

2.6.2 The borough of Reigate and Banstead is split into 41 zones, listed below and shown in **Figure 2.2**.

105	Redhill - Marketfield Way
106	Reigate - Reigate Hill
110	Reigate - Reigate Road / Linkfield Corner
113	Redhill – Earlswood
114	Redhill - Earlswood Common
116	Horley – East
163	Redhill - Holmethorpe East
164	Redhill – Town Centre
166	Horley Town Centre
264	Horley - Meath Green
271	Horley - North East
272	Reigate - Gatton Park and Wray Park
273	Reigate - Nutley Lane area and Reigate Business Park
276	Reigate – Woodhatch
287	Redhill - Redstone Hill and Kingswood Business Centre
288	Redhill - Brighton Rd
289	Redhill – Station
290	Reigate Town Centre
293	Horley – Haroldslea
302	Reigate - Reigate Heath
308	South Earlswood
312	Redhill - Marketfield Way
313	Redhill - St Johns
376	Redhill – Town Centre
392	Salfords
393	Kingswood
394	Chipstead and Hooley
395	Tadworth and Walton on the Hill
396	Nork
397	Banstead
398	Merstham
399	Tattenham Corner
400	Burgh Heath and Preston
504	East Surrey Hospital and Whitebushes
518	Reigate - Doversgreen and South Park
569	ERM 1 to 3 East of Redhill
570	ERM 4 and 5 Merstham
571	SSW2 South Park
572	SSW 7 and 9 Doversgreen
573	Commercial Horley
574	Residential NW Sector Horley

2.6.3 The zones were reviewed to ensure that they were suitable for the assessment of the development sites. Six new zones, shown in red, were created to contain the largest development sites and to ensure that the vehicle trips generated would access the highway network at a relevant point. This ensured that their impacts on the highway network could be captured more accurately.

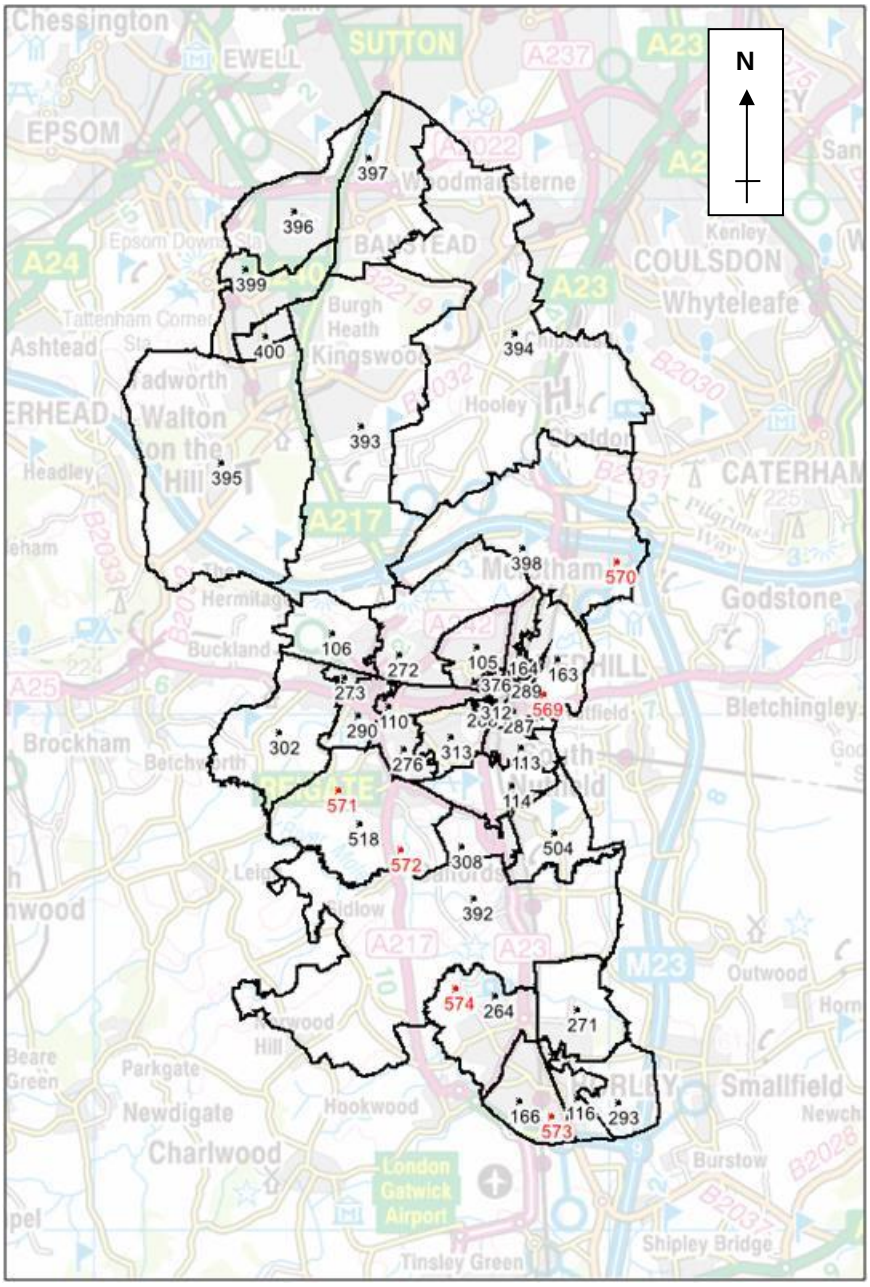

Figure 2.2: Zone plan

2.7 Assignment

2.7.1 The base matrices were assigned to the network using a fixed trip equilibrium assignment. This was performed using the method of successive averages (MSA) for 100 assignment iterations.

2.8 2009 Base Model Validation

2.8.1 Validation compares modelled with observed data. In this case observed and modelled link flows at 113 locations in the borough have been compared for the model time period, in accordance with the Department for Transport's validation acceptability guidelines[1], presented in **Table 2.1**.

Criteria	Acceptability Guidelines
Link Flows	
Individual flows within 100 vph of counts for flows less than 700 vph	> 85% of cases
Individual flows within 15% of counts for flows from 700 to 2,700 vph	
Individual flows within 400 vph of counts for flows more than 2,700 vph	
GEH < 5 for individual flows	

Table 2.1: Validation acceptability guidelines

2.8.1 Link flow validation compares the absolute differences between modelled flows and observed counts, together with the presentation of the GEH (Geoffrey E. Havers) statistic. The GEH statistic is a form of the Chi-squared statistic that incorporates both relative and absolute errors, defined as:

$$GEH = \sqrt{\frac{(M-C)^2}{(M+C)/2}}$$

GEH is the GEH statistic
M is the modelled flow
C is the observed flow

2.8.2 **Table 2.2** presents the summary of the validation of the weekday average AM peak hour and average PM peak hour in terms of the Department for Transport's acceptability guidelines. The flow and GEH criteria have been met.

Surrey	Average AM Peak Hour (0700 – 1000)			Average PM Peak Hour (1600 – 1900)		
	Values	% Met Criteria	Counts Met Criteria	Values	% Met Criteria	Counts Met Criteria
No. of counts	113	-	-	113	-	-
Average GEH	2.56	-	-	2.86	-	-
GEH > 10	3	-	-	3	-	-
GEH < 5	98	87%	Yes	100	88%	Yes
Flow criteria	100	88%	Yes	99	88%	Yes

Table 2.2: Link flow validation results for Reigate and Banstead

2.8.3 **Figures 2.3 and 2.4** show the modelled flows plotted against the observed with best-fit regression line and correlation coefficient (R^2) for the average AM peak hour (0700-1000) and average PM peak hour (1600-1900) respectively. This helps visualise the goodness of fit. An R^2 value greater than 0.95 is considered to indicate that the model reflects observed traffic flows well.

2.8.4 A full comparison of observed and modelled flows is provided in **Appendix A**.

[1] Department for Transport (2014) Transport Appraisal Guidance *Unit M3.1, Highway Assignment Modelling*.

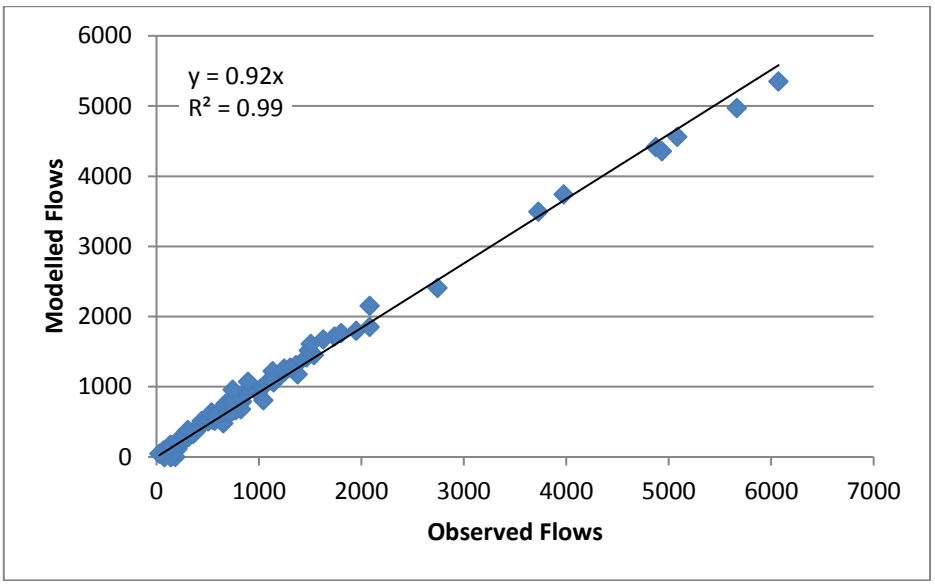

Figure 2.3: Comparison plot of modelled against observed link flows with best-fit regression line and correlation coefficient (R^2) for the weekday average AM peak hour (0700 – 1000)

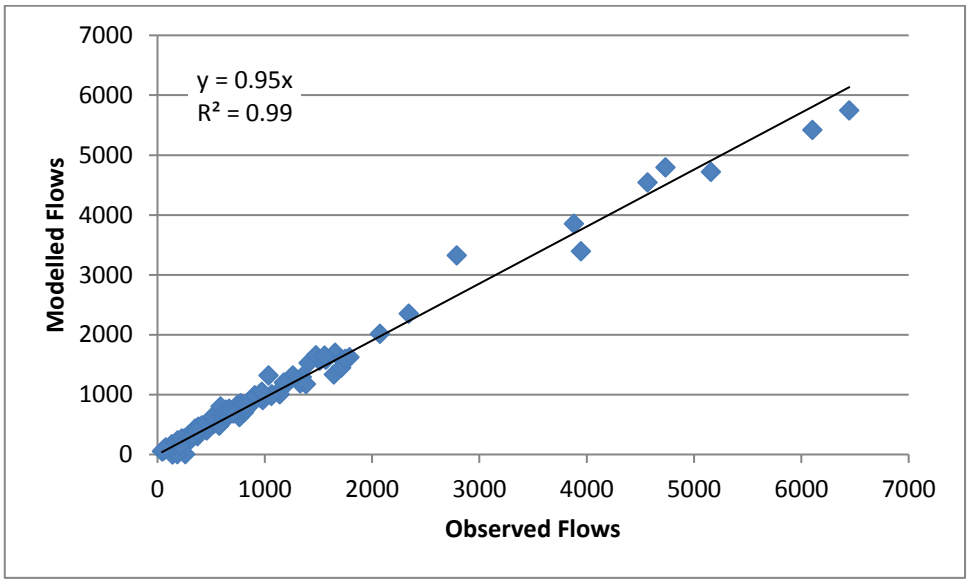

Figure 2.4: Comparison plot of modelled against observed link flows with best-fit regression line and correlation coefficient (R^2) for the weekday average PM peak hour (1600 – 1900)

2.8.5 **Figures 2.5 and 2.6** display observed versus model flow bandwidth plots for the weekday average AM and PM peak hours respectively.

2.8.6 The bandwidths are proportional to the level of flow. A bandwidth coloured green indicates that an observed count is present on the link. Where the green bands have a yellow edge, the model flow is less than the observed flow. Where the green bands show a blue edge, the model flow is greater than the observed flow.

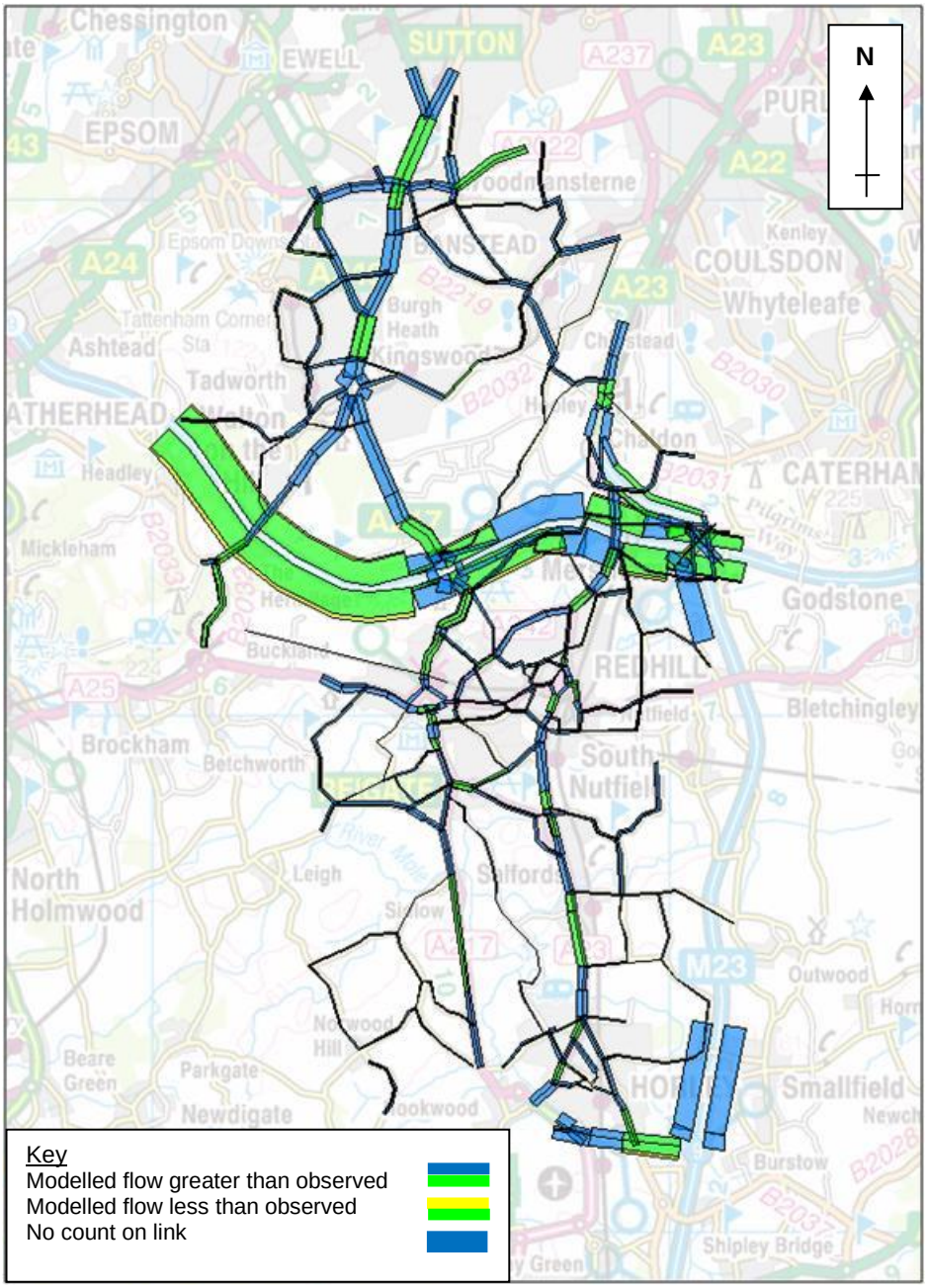

Figure 2.5: Link flow validation for the average AM peak hour (0700 – 1000)

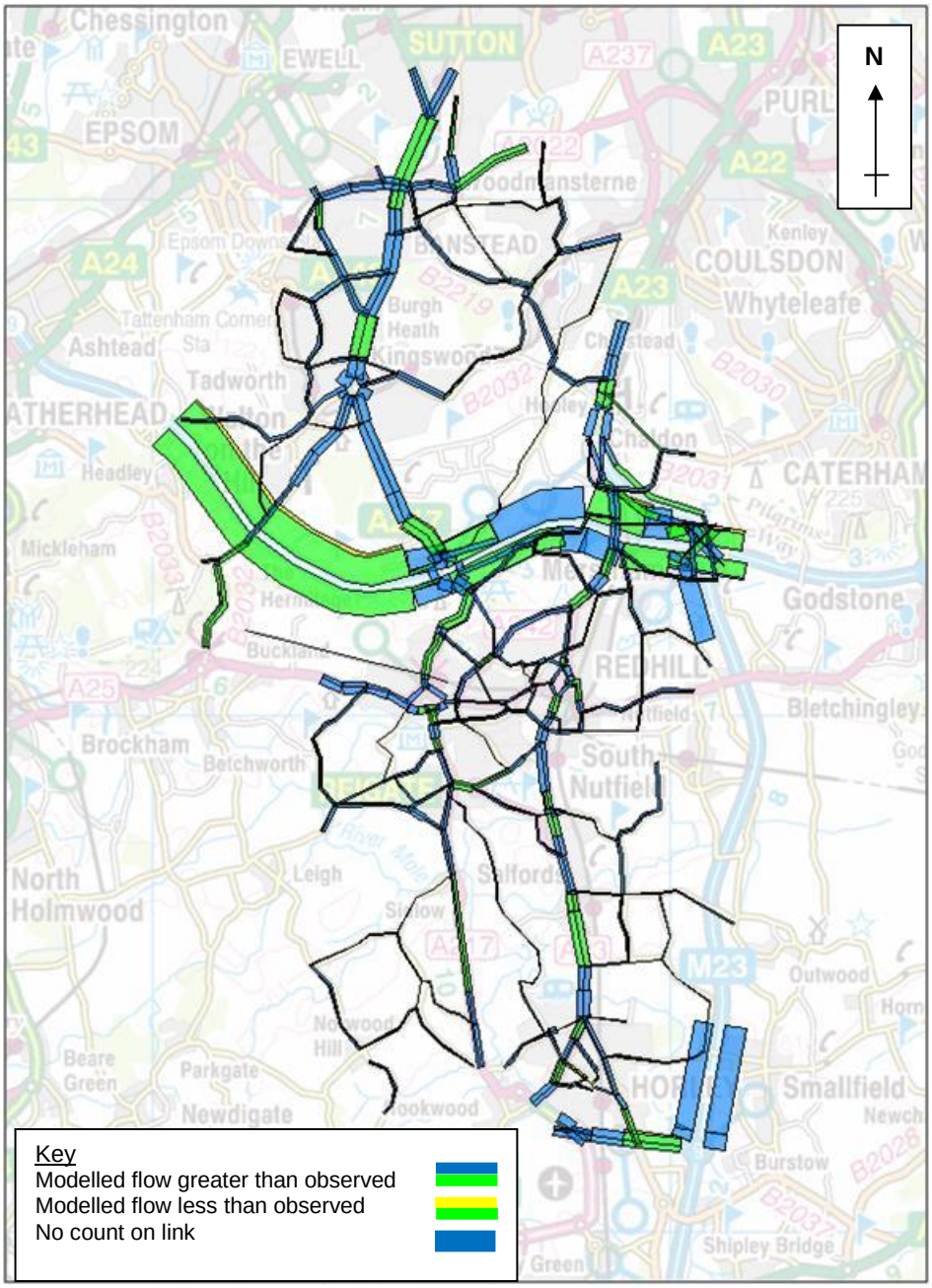

Figure 2.6: Link flow validation for the average PM peak hour (1600 – 1900)

2.9 2014 Reference Year

2.9.1 Given the model base year is more than 5 years past from the present day, a 2014 reference year has been created. This is to bring the model base up to date and to reflect 2014 trends.

2.9.2 64 observed counts within Surrey were extracted from the Department for Transport's manual classified count annual survey program for the years 2009 and 2014. From these, growth factors have been derived, as shown in **Table 2.3**, and applied to the 2009 validated trip matrices for each vehicle type.

	Car	LGV	HGV	All
Average AM peak hour (0700 – 1000)				
2009 Total Flow	154,686	26,131	12,383	193,201
2014 Total Flow	148,765	28,453	12,814	190,031
Growth Factor	**0.962**	**1.089**	**1.035**	**0.984**

Average PM peak hour (1600 – 1900)				
2009 Total Flow	159,878	21,736	7609	189,223
2014 Total Flow	162,471	24,292	7747	194,510
Growth Factor	**1.016**	**1.118**	**1.018**	**1.028**

Table 2.3: 2009 to 2014 growth factors

2.9.3 It can be seen that the number of cars has reduced during the weekday average AM peak hour between 2009 and 2014, but there has been a growth in the number of light and heavy goods vehicles.

3 MODEL FORECASTING, TRIP GENERATION AND TRIP DISTRIBUTION

3.1 Forecast Year

3.1.1 The model forecast year is 2031.

3.2 Forecast Scenarios

3.2.1 To identify the traffic impacts of potential development sites, four scenarios have been assessed.

3.2.2 **Scenario A**, the do-minimum baseline growth, includes committed developments identified from the base year of 2014 to the forecast year 2031, plus windfalls. Committed developments comprise of sites which have already been built or are in the process of construction or have planning permission. This Scenario acts as the reference case for all other scenarios.

3.2.3 **Scenario B** is a continuation of Scenario A plus the preferred options for development.

3.2.4 **Scenario C** is similar to Scenario B containing the preferred options for development, however it does not contain the Horley Strategic employment site or access road.

3.3 Development Sites and Pro-Forma

3.3.1 Information regarding the composition of both commercial and residential development sites to be considered in this appraisal was provided by Reigate & Banstead Borough Council in the form of the county council's pro-forma. This was based on the Borough Council's draft Regulation 19 pre-submission Development Management Plan. The pro-forma was finalised on 09/08/2017.

3.3.2 Each development site listed in the pro-forma was matched to the model zone system using the grid references provided and Geographic Information System (GIS).

3.3.3 **Figure 3.1** geographically presents the commercial development sites that have been set out in the pro-forma. **Figure 3.2** shows the same but for residential sites.[2]

[2] These maps are produced at A0 size and therefore the quality is inhibited in this report. As a result these maps have also been issued separately to this document.

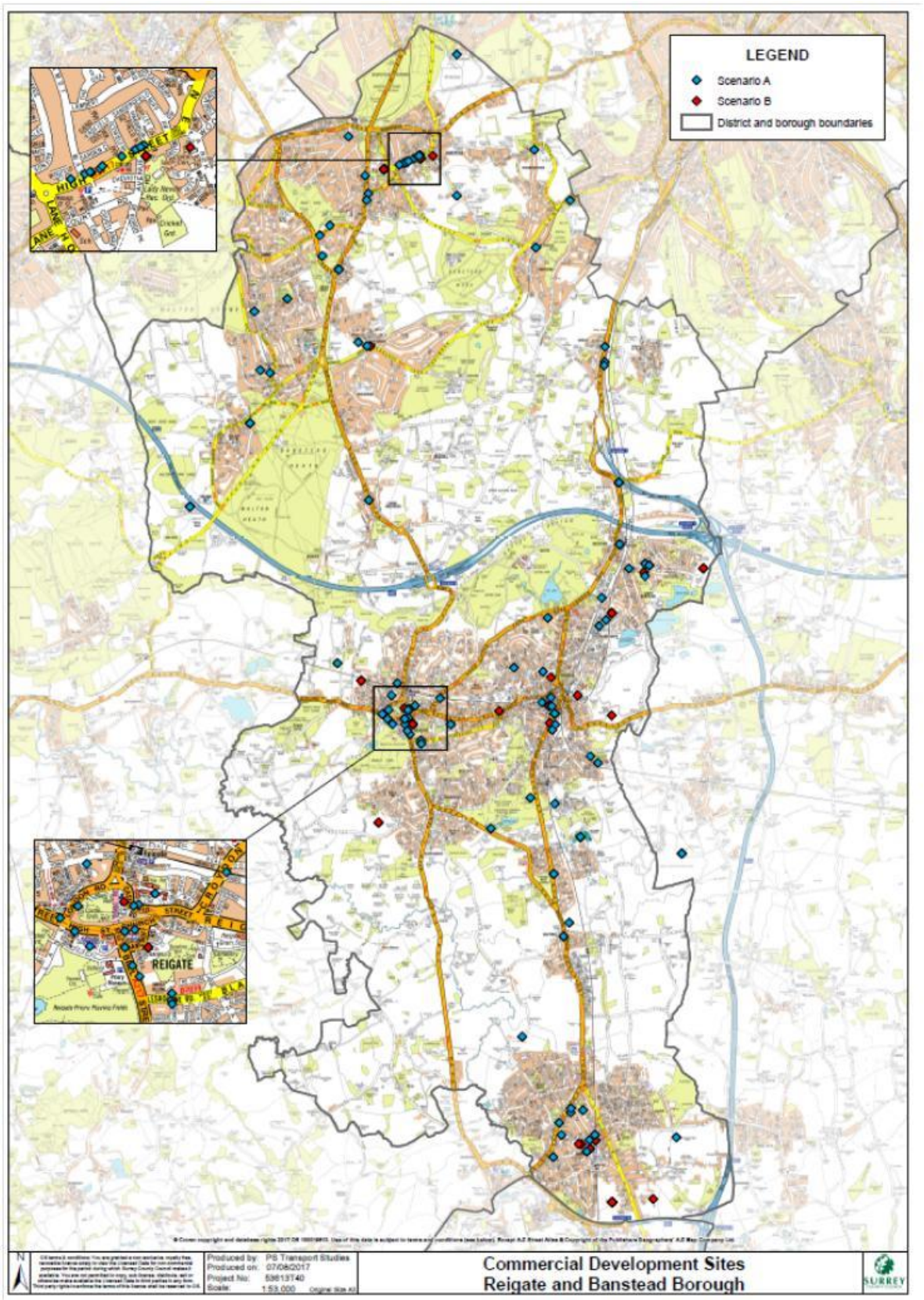

Figure 3.1: Commercial development sites in Reigate and Banstead

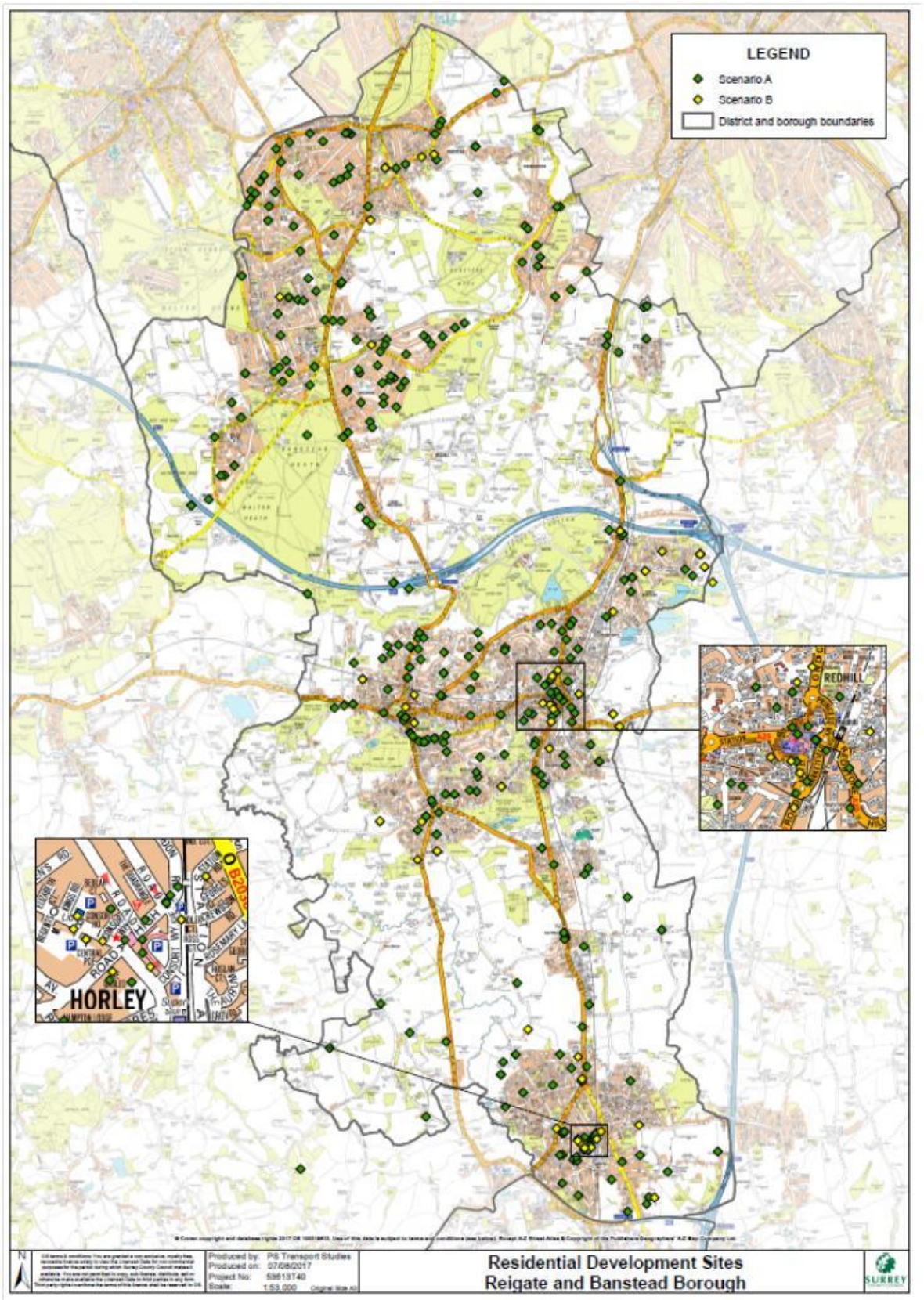

Figure 3.2: Residential development sites in Reigate and Banstead

3.4 Vehicle Trip Generation

3.4.1 Vehicle trips generated by each development site were calculated using the information contained within the pro-forma and the Trip Rate Information Computer Database (TRICS) version 2015 7.2.4. External and background growth was also considered, as detailed in the following **Section 3.5**.

3.4.2 TRICS is the national standard database system of trip generation and analysis used in the planning application process. The database holds thousands of trip rate surveys generated by different land uses and location type.

3.4.3 For developments within Reigate and Banstead, the database was interrogated for sites of a similar geographical location and land use in line with guidance from the 2016 Good Practice Guide. The database produces trip rates per 100sqm gross floor area (GFA), site area (Ha), number of residents or by residential unit. The resulting trip rates were applied to the size and composition of each development to calculate the trip generation for each site. Consideration was also made to the previous or existing land use of the development site and the trips it would have created. These trips were deducted from those generated by the new development to prevent double counting.

3.4.4 The trip generation was calculated separately for vehicles arriving and departing each development site. This was also split into the vehicle types: car, LGV and HGV, similarly informed by the information contained within the TRICS database.

3.4.5 At this concept stage, all development related trips have been assumed to be new trips, and as such can be considered to represent a worst case Scenario. No allowance has been made for linked, pass-by, diverted or transferred trips.

3.4.6 The resulting trip generation by each modelled Reigate and Banstead zone for Scenarios A, B and C are shown in **Tables 3.1-3.6** for the weekday average AM (0700-1000) and PM (1600-1900) peak hours.

3.4.7 A summary of all the scenarios for the whole of Reigate and Banstead borough has also been provided in **Table 3.7** for the weekday average AM peak hour and in **Table 3.8** for the weekday average PM peak hour.

3.4.8 Negative values are due to a greater number of vehicle trips being generated from the previous development(s) than the new site(s) being proposed. Where negative trips were present in the new zones 569 to 574, these were removed from the surrounding zone when applied in the model.

3.4.9 Scenario A represents the baseline growth across the borough of 4,805 net residential units. Scenario A generates an estimated 1,628 vehicle trips during the weekday average AM peak hour (0700 – 1000) and an estimated 2,321 vehicle trips during the weekday average PM peak hour (1600 – 1900).

3.4.10 Scenario B comprises of the baseline growth plus potential development sites totalling 2,310 net residential units more than Scenario A. It has been estimated that this will give a net increase of 2,536 vehicle trips in the weekday average AM peak hour and 3,123 vehicle trips in the weekday average PM peak hour. The largest number of additional trips in Scenario B is in zone 573 which contains the Horley Commercial development.

3.4.11 Scenario C is very similar to Scenario B with baseline growth plus potential development sites, however it does not contain the Horley Strategic employment site. The amount of potential net residential units is the same as Scenario B at 2,310 units. It has been estimated that Scenario C will give a net increase of 815 vehicle trips in the weekday average AM peak hour and 1,161 vehicle trips in the weekday average PM peak hour.

Reigate and Banstead Zone		All Vehicles		Arrivals			Departures		
No.	**Name**	**Arrivals**	**Departures**	**Car**	**LGV**	**HGV**	**Car**	**LGV**	**HGV**
105	Redhill - Marketfield Way	10.87	22.74	9.67	0.98	0.22	20.33	1.99	0.41
106	Reigate - Reigate Hill	11.19	21.38	10.00	1.09	0.11	19.01	2.15	0.22
110	Reigate - Reigate Road / Linkfield Corner	10.15	10.73	9.71	0.35	0.09	9.98	0.60	0.15
113	Redhill – Earlswood	16.67	31.31	15.21	1.24	0.21	28.26	2.69	0.37
114	Redhill - Earlswood Common	-21.69	17.04	-22.42	0.58	0.15	14.41	2.30	0.34
116	Horley – East	6.69	15.39	5.99	0.64	0.06	13.75	1.47	0.16
163	Redhill - Holmethorpe East	5.48	16.57	5.18	0.33	-0.03	14.89	1.48	0.20
164	Redhill – Town Centre	3.70	8.59	3.31	0.33	0.05	7.70	0.77	0.11
166	Horley Town Centre	-34.35	-13.75	-31.85	-2.38	-0.11	-13.76	-0.25	0.26
264	Horley - Meath Green	4.92	21.19	4.19	0.62	0.10	18.87	2.04	0.28
271	Horley - North East	2.26	5.28	2.01	0.22	0.03	4.70	0.50	0.08
272	Reigate - Gatton Park and Wray Park	8.39	21.04	7.55	0.70	0.14	18.84	1.84	0.36
273	Reigate - Nutley Lane area and Reigate Business Park	0.43	0.73	0.37	0.05	0.01	0.63	0.08	0.02
276	Reigate – Woodhatch	-3.85	9.42	-3.75	-0.07	-0.03	8.34	0.93	0.15
287	Redhill - Redstone Hill and Kingswood Business Centre	2.45	5.33	2.19	0.21	0.05	4.77	0.46	0.10
288	Redhill - Brighton Road	105.31	120.14	91.87	11.66	1.78	104.57	13.48	2.09
289	Redhill – Station	1.08	4.67	0.82	0.22	0.04	3.99	0.59	0.09
290	Reigate Town Centre	-90.45	-77.07	-84.37	-5.20	-0.87	-72.18	-4.22	-0.67
293	Horley – Haroldslea	2.00	4.28	1.77	0.21	0.02	3.80	0.43	0.04
302	Reigate - Reigate Heath	-21.19	-9.79	-19.80	-1.58	0.19	-9.58	-0.57	0.36
308	South Earlswood	4.00	7.94	3.41	0.46	0.14	6.76	0.91	0.27
312	Redhill - Marketfield Way	3.69	4.21	3.61	0.10	-0.02	3.76	0.42	0.04
313	Redhill - St Johns	-0.02	4.38	0.04	-0.06	-0.01	3.97	0.36	0.05
376	Redhill – Town Centre	-13.47	-11.17	-12.71	-0.66	-0.10	-10.70	-0.42	-0.05
392	Salfords	3.45	16.61	2.53	0.73	0.20	14.08	2.01	0.52
393	Kingswood	12.42	33.61	10.34	1.70	0.38	28.78	3.96	0.87
394	Chipstead and Hooley	96.24	114.50	86.21	7.91	2.13	101.81	9.99	2.69
395	Tadworth and Walton on the Hill	17.53	35.63	14.87	2.07	0.58	31.26	3.67	0.71
396	Nork	39.31	85.23	35.00	3.60	0.71	75.74	8.14	1.35
397	Banstead	24.82	29.22	21.14	2.68	1.00	25.08	3.09	1.06
398	Merstham	-8.01	16.84	-8.09	0.00	0.08	14.43	1.96	0.45
399	Tattenham Corner	61.86	71.46	54.42	5.66	1.78	62.96	6.59	1.90
400	Burgh Heath and Preston	43.15	55.72	40.55	2.22	0.37	50.63	4.37	0.71
504	East Surrey Hospital and Whitebushes	8.86	15.01	7.84	0.90	0.12	13.27	1.57	0.18
518	Reigate - Doversgreen and South Park	4.44	10.93	3.95	0.42	0.07	9.73	1.03	0.16
569	ERM 1 to 3 East of Redhill	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
570	ERM 4 and 5 Merstham	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
571	SSW2 South Park	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
572	SSW 7 and 9 Doversgreen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
573	Commercial Horley	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
574	Residential NW Sector Horley	184.90	399.52	164.22	18.94	1.74	355.55	40.24	3.73
Totals		**503.24**	**1124.85**	**434.98**	**56.86**	**11.40**	**988.42**	**116.66**	**19.77**

Table 3.1: Scenario A proposed minus existing trip generation for the weekday average AM peak hour (0700 – 1000)

Reigate and Banstead Zone		All Vehicles		Arrivals			Departures		
No.	Name	Arrivals	Departures	Car	LGV	HGV	Car	LGV	HGV
105	Redhill - Marketfield Way	26.72	19.14	24.15	2.16	0.41	17.13	1.66	0.35
106	Reigate - Reigate Hill	23.09	14.74	20.48	2.37	0.24	13.11	1.48	0.15
110	Reigate - Reigate Road / Linkfield Corner	7.22	6.49	6.54	0.54	0.14	5.98	0.40	0.11
113	Redhill – Earlswood	32.22	22.20	29.02	2.84	0.37	20.08	1.86	0.27
114	Redhill - Earlswood Common	25.48	5.23	21.76	3.27	0.44	2.93	2.04	0.26
116	Horley – East	16.29	10.44	14.57	1.55	0.17	9.34	1.00	0.11
163	Redhill - Holmethorpe East	18.96	11.01	16.96	1.73	0.26	10.08	0.87	0.07
164	Redhill – Town Centre	9.28	6.03	8.32	0.83	0.12	5.41	0.54	0.08
166	Horley Town Centre	-31.92	-42.54	-30.63	-1.33	0.03	-39.97	-2.48	-0.08
264	Horley - Meath Green	22.63	11.29	20.18	2.17	0.29	9.89	1.22	0.18
271	Horley - North East	5.73	3.67	5.10	0.55	0.08	3.27	0.35	0.05
272	Reigate - Gatton Park and Wray Park	21.41	16.03	19.24	1.83	0.34	14.33	1.40	0.29
273	Reigate - Nutley Lane area and Reigate Business Park	0.73	0.68	0.63	0.08	0.02	0.59	0.08	0.02
276	Reigate – Woodhatch	11.31	0.68	10.04	1.09	0.17	0.34	0.30	0.03
287	Redhill - Redstone Hill and Kingswood Business Centre	5.41	4.15	4.86	0.46	0.09	3.71	0.36	0.08
288	Redhill - Brighton Road	175.04	165.45	152.29	19.70	3.05	144.09	18.50	2.85
289	Redhill – Station	5.45	3.13	4.53	0.81	0.12	2.59	0.47	0.07
290	Reigate Town Centre	-77.62	-84.54	-71.86	-4.96	-0.80	-78.30	-5.36	-0.88
293	Horley – Haroldslea	4.64	2.87	4.13	0.47	0.04	2.55	0.29	0.03
302	Reigate - Reigate Heath	-13.61	-18.27	-13.06	-0.90	0.34	-17.29	-1.28	0.31
308	South Earlswood	8.56	3.67	7.31	0.97	0.28	3.17	0.40	0.10
312	Redhill - Marketfield Way	84.83	60.79	82.91	1.57	0.34	59.69	0.92	0.19
313	Redhill - St Johns	4.22	1.11	3.84	0.33	0.05	1.08	0.03	0.00
376	Redhill – Town Centre	-13.41	-13.51	-12.84	-0.51	-0.06	-12.83	-0.60	-0.08
392	Salfords	18.19	4.61	15.49	2.16	0.54	3.69	0.77	0.15
393	Kingswood	24.72	11.73	19.58	4.19	0.95	9.08	2.22	0.43
394	Chipstead and Hooley	128.88	115.22	113.86	11.86	3.16	102.33	10.23	2.66
395	Tadworth and Walton on the Hill	47.46	29.43	41.85	4.72	0.90	25.66	3.09	0.68
396	Nork	92.35	61.01	82.05	8.83	1.47	54.27	5.71	1.03
397	Banstead	63.13	60.55	56.76	5.03	1.34	54.36	4.85	1.34
398	Merstham	27.71	4.20	24.86	2.34	0.50	3.51	0.55	0.14
399	Tattenham Corner	77.75	71.50	68.51	7.17	2.08	62.94	6.55	2.01
400	Burgh Heath and Preston	88.20	64.79	81.48	5.66	1.06	60.01	3.99	0.79
504	East Surrey Hospital and Whitebushes	16.01	10.35	14.13	1.71	0.18	9.15	1.09	0.12
518	Reigate - Doversgreen and South Park	12.28	7.82	10.94	1.16	0.19	6.97	0.74	0.12
569	ERM 1 to 3 East of Redhill	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
570	ERM 4 and 5 Merstham	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
571	SSW2 South Park	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
572	SSW 7 and 9 Doversgreen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
573	Commercial Horley	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
574	Residential NW Sector Horley	433.22	267.64	385.43	43.74	4.05	238.11	27.02	2.50
Totals		**1402.56**	**918.81**	**1243.42**	**136.21**	**22.94**	**811.03**	**91.25**	**16.53**

Table 3.2: Scenario A proposed minus existing trip generation for the weekday average PM peak hour (1600 – 1900)

Reigate and Banstead Zone		All Vehicles		Arrivals			Departures		
No.	**Name**	**Arrivals**	**Departures**	**Car**	**LGV**	**HGV**	**Car**	**LGV**	**HGV**
105	Redhill - Marketfield Way	-5.55	17.24	-5.29	-0.19	-0.07	15.68	1.38	0.19
106	Reigate - Reigate Hill	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110	Reigate - Reigate Road / Linkfield Corner	30.33	30.25	30.61	-0.91	0.63	29.89	-0.16	0.53
113	Redhill – Earlswood	-1.15	5.11	-0.25	-0.60	-0.30	4.90	0.25	-0.05
114	Redhill - Earlswood Common	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
116	Horley – East	3.74	8.47	3.06	0.64	0.04	7.14	1.24	0.09
163	Redhill - Holmethorpe East	-2.07	12.16	-2.13	0.09	-0.03	10.69	1.30	0.18
164	Redhill – Town Centre	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166	Horley Town Centre	-7.34	8.66	-4.22	-2.60	-0.53	10.84	-1.84	-0.34
264	Horley - Meath Green	17.82	43.52	15.81	1.85	0.16	38.58	4.48	0.47
271	Horley - North East	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
272	Reigate - Gatton Park and Wray Park	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
273	Reigate - Nutley Lane area and Reigate Business Park	19.41	8.47	23.56	-3.27	-0.89	10.52	-1.60	-0.45
276	Reigate – Woodhatch	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
287	Redhill - Redstone Hill and Kingswood Business Centre	-30.56	-13.39	-29.35	-1.35	0.14	-13.45	-0.13	0.18
288	Redhill - Brighton Road	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
289	Redhill – Station	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
290	Reigate Town Centre	0.72	-1.62	1.67	-0.90	-0.05	0.22	-1.74	-0.10
293	Horley – Haroldslea	1.35	3.00	1.20	0.13	0.02	2.66	0.29	0.04
302	Reigate - Reigate Heath	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
308	South Earlswood	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
312	Redhill - Marketfield Way	34.31	54.91	34.38	0.31	-0.38	51.70	3.03	0.17
313	Redhill - St Johns	-15.77	-5.23	-14.91	-0.87	0.01	-5.02	-0.24	0.02
376	Redhill – Town Centre	44.24	44.16	42.36	1.43	0.45	42.14	1.56	0.45
392	Salfords	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
393	Kingswood	-2.20	4.15	-1.73	-0.29	-0.18	3.51	0.49	0.15
394	Chipstead and Hooley	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
395	Tadworth and Walton on the Hill	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
396	Nork	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
397	Banstead	4.64	15.66	3.84	0.73	0.07	13.69	1.67	0.30
398	Merstham	-1.41	23.61	-2.16	0.58	0.17	20.93	2.19	0.49
399	Tattenham Corner	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
400	Burgh Heath and Preston	3.67	8.17	3.26	0.35	0.05	7.26	0.79	0.12
504	East Surrey Hospital and Whitebushes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
518	Reigate - Doversgreen and South Park	23.11	18.04	21.60	1.43	0.07	16.80	1.17	0.07
569	ERM 1 to 3 East of Redhill	73.14	111.34	68.26	4.52	0.36	101.58	8.96	0.80
570	ERM 4 and 5 Merstham	29.42	44.05	26.86	2.29	0.27	39.51	4.12	0.41
571	SSW2 South Park	32.25	71.42	28.73	3.23	0.30	63.71	7.05	0.66
572	SSW 7 and 9 Doversgreen	15.91	34.84	14.15	1.61	0.15	31.04	3.47	0.32
573	Commercial Horley	934.47	786.06	856.90	69.11	8.46	718.97	60.37	6.73
574	Residential NW Sector Horley	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Totals		**1202.47**	**1333.04**	**1116.22**	**77.29**	**8.96**	**1223.52**	**98.10**	**11.43**

Table 3.3: Scenario B proposed minus existing trip generation for the weekday average AM peak hour (0700 – 1000)

Reigate and Banstead Zone		All Vehicles		Arrivals			Departures		
No.	Name	Arrivals	Departures	Car	LGV	HGV	Car	LGV	HGV
105	Redhill - Marketfield Way	19.66	2.19	17.90	1.56	0.21	1.79	0.38	0.01
106	Reigate - Reigate Hill	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110	Reigate - Reigate Road / Linkfield Corner	7.04	4.88	6.93	-0.05	0.17	5.41	-0.75	0.23
113	Redhill – Earlswood	6.94	1.71	6.40	0.51	0.03	2.23	-0.29	-0.24
114	Redhill - Earlswood Common	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
116	Horley – East	9.14	4.59	7.67	1.37	0.10	3.78	0.76	0.05
163	Redhill - Holmethorpe East	10.62	1.04	9.10	1.33	0.20	0.52	0.47	0.04
164	Redhill – Town Centre	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166	Horley Town Centre	23.21	-0.05	25.27	-1.72	-0.33	3.18	-2.73	-0.50
264	Horley - Meath Green	48.82	28.67	43.26	5.03	0.53	25.45	2.93	0.30
271	Horley - North East	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
272	Reigate - Gatton Park and Wray Park	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
273	Reigate - Nutley Lane area and Reigate Business Park	-1.22	9.94	0.35	-1.32	-0.26	13.10	-2.57	-0.59
276	Reigate – Woodhatch	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
287	Redhill - Redstone Hill and Kingswood Business Centre	20.98	-7.17	19.64	1.10	0.24	-7.13	-0.23	0.18
288	Redhill - Brighton Road	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
289	Redhill – Station	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
290	Reigate Town Centre	-1.77	-0.54	0.35	-2.00	-0.11	1.22	-1.67	-0.09
293	Horley – Haroldslea	3.17	2.06	2.82	0.31	0.05	1.83	0.20	0.03
302	Reigate - Reigate Heath	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
308	South Earlswood	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
312	Redhill - Marketfield Way	156.91	156.01	148.31	8.35	0.25	148.93	7.19	-0.11
313	Redhill - St Johns	-5.10	-11.80	-4.90	-0.22	0.03	-11.19	-0.63	0.02
376	Redhill – Town Centre	52.12	48.80	49.67	1.91	0.54	46.59	1.71	0.50
392	Salfords	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
393	Kingswood	4.38	-2.08	3.75	0.51	0.12	-1.58	-0.28	-0.22
394	Chipstead and Hooley	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
395	Tadworth and Walton on the Hill	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
396	Nork	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
397	Banstead	19.67	11.48	17.08	2.23	0.36	9.82	1.39	0.26
398	Merstham	24.58	6.39	21.77	2.30	0.50	5.50	0.76	0.13
399	Tattenham Corner	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
400	Burgh Heath and Preston	8.64	5.61	7.68	0.83	0.12	4.99	0.54	0.08
504	East Surrey Hospital and Whitebushes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
518	Reigate - Doversgreen and South Park	11.88	17.68	11.00	0.81	0.06	16.48	1.13	0.07
569	ERM 1 to 3 East of Redhill	103.93	72.80	93.70	9.36	0.86	66.31	5.96	0.53
570	ERM 4 and 5 Merstham	59.71	39.92	54.30	4.86	0.55	36.43	3.12	0.37
571	SSW2 South Park	77.16	47.68	68.81	7.63	0.72	42.52	4.72	0.44
572	SSW 7 and 9 Doversgreen	37.70	23.29	33.58	3.76	0.35	20.75	2.33	0.22
573	Commercial Horley	988.43	973.41	905.62	74.83	7.97	893.04	71.88	8.50
574	Residential NW Sector Horley	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Totals		**1686.59**	**1436.48**	**1550.05**	**123.29**	**13.26**	**1329.96**	**96.31**	**10.21**

Table 3.4: Scenario B proposed minus existing trip generation for the weekday average PM peak hour (1600 – 1900)

Reigate and Banstead Zone		All Vehicles		Arrivals			Departures		
No.	Name	Arrivals	Departures	Car	LGV	HGV	Car	LGV	HGV
105	Redhill - Marketfield Way	-5.55	17.24	-5.29	-0.19	-0.07	15.68	1.38	0.19
106	Reigate - Reigate Hill	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110	Reigate - Reigate Road / Linkfield Corner	30.33	30.25	30.61	-0.91	0.63	29.89	-0.16	0.53
113	Redhill – Earlswood	-1.15	5.11	-0.25	-0.60	-0.30	4.90	0.25	-0.05
114	Redhill - Earlswood Common	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
116	Horley – East	3.74	8.47	3.06	0.64	0.04	7.14	1.24	0.09
163	Redhill - Holmethorpe East	-2.07	12.16	-2.13	0.09	-0.03	10.69	1.30	0.18
164	Redhill – Town Centre	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166	Horley Town Centre	-7.34	8.66	-4.22	-2.60	-0.53	10.84	-1.84	-0.34
264	Horley - Meath Green	17.82	43.52	15.81	1.85	0.16	38.58	4.48	0.47
271	Horley - North East	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
272	Reigate - Gatton Park and Wray Park	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
273	Reigate - Nutley Lane area and Reigate Business Park	19.41	8.47	23.56	-3.27	-0.89	10.52	-1.60	-0.45
276	Reigate – Woodhatch	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
287	Redhill - Redstone Hill and Kingswood Business Centre	-30.56	-13.39	-29.35	-1.35	0.14	-13.45	-0.13	0.18
288	Redhill - Brighton Road	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
289	Redhill – Station	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
290	Reigate Town Centre	0.72	-1.62	1.67	-0.90	-0.05	0.22	-1.74	-0.10
293	Horley – Haroldslea	1.35	3.00	1.20	0.13	0.02	2.66	0.29	0.04
302	Reigate - Reigate Heath	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
308	South Earlswood	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
312	Redhill - Marketfield Way	34.31	54.91	34.38	0.31	-0.38	51.70	3.03	0.17
313	Redhill - St Johns	-15.77	-5.23	-14.91	-0.87	0.01	-5.02	-0.24	0.02
376	Redhill – Town Centre	44.24	44.16	42.36	1.43	0.45	42.14	1.56	0.45
392	Salfords	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
393	Kingswood	-2.20	4.15	-1.73	-0.29	-0.18	3.51	0.49	0.15
394	Chipstead and Hooley	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
395	Tadworth and Walton on the Hill	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
396	Nork	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
397	Banstead	4.64	15.66	3.84	0.73	0.07	13.69	1.67	0.30
398	Merstham	-1.41	23.61	-2.16	0.58	0.17	20.93	2.19	0.49
399	Tattenham Corner	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
400	Burgh Heath and Preston	3.67	8.17	3.26	0.35	0.05	7.26	0.79	0.12
504	East Surrey Hospital and Whitebushes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
518	Reigate - Doversgreen and South Park	23.11	18.04	21.60	1.43	0.07	16.80	1.17	0.07
569	ERM 1 to 3 East of Redhill	73.14	111.34	68.26	4.52	0.36	101.58	8.96	0.80
570	ERM 4 and 5 Merstham	29.42	44.05	26.86	2.29	0.27	39.51	4.12	0.41
571	SSW2 South Park	32.25	71.42	28.73	3.23	0.30	63.71	7.05	0.66
572	SSW 7 and 9 Doversgreen	15.91	34.84	14.15	1.61	0.15	31.04	3.47	0.32
573	Commercial Horley	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
574	Residential NW Sector Horley	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Totals		**267.99**	**546.98**	**259.32**	**8.18**	**0.49**	**504.55**	**37.73**	**4.70**

Table 3.5: Scenario C proposed minus existing trip generation for the weekday average AM peak hour (0700 – 1000)

Reigate and Banstead Zone		All Vehicles		Arrivals			Departures		
No.	Name	Arrivals	Departures	Car	LGV	HGV	Car	LGV	HGV
105	Redhill - Marketfield Way	19.66	2.19	17.90	1.56	0.21	1.79	0.38	0.01
106	Reigate - Reigate Hill	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110	Reigate - Reigate Road / Linkfield Corner	7.04	4.88	6.93	-0.05	0.17	5.41	-0.75	0.23
113	Redhill – Earlswood	6.94	1.71	6.40	0.51	0.03	2.23	-0.29	-0.24
114	Redhill - Earlswood Common	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
116	Horley – East	9.14	4.59	7.67	1.37	0.10	3.78	0.76	0.05
163	Redhill - Holmethorpe East	10.62	1.04	9.10	1.33	0.20	0.52	0.47	0.04
164	Redhill – Town Centre	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166	Horley Town Centre	23.21	-0.05	25.27	-1.72	-0.33	3.18	-2.73	-0.50
264	Horley - Meath Green	48.82	28.67	43.26	5.03	0.53	25.45	2.93	0.30
271	Horley - North East	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
272	Reigate - Gatton Park and Wray Park	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
273	Reigate - Nutley Lane area and Reigate Business Park	-1.22	9.94	0.35	-1.32	-0.26	13.10	-2.57	-0.59
276	Reigate – Woodhatch	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
287	Redhill - Redstone Hill and Kingswood Business Centre	20.98	-7.17	19.64	1.10	0.24	-7.13	-0.23	0.18
288	Redhill - Brighton Road	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
289	Redhill – Station	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
290	Reigate Town Centre	-1.77	-0.54	0.35	-2.00	-0.11	1.22	-1.67	-0.09
293	Horley – Haroldslea	3.17	2.06	2.82	0.31	0.05	1.83	0.20	0.03
302	Reigate - Reigate Heath	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
308	South Earlswood	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
312	Redhill - Marketfield Way	156.91	156.01	148.31	8.35	0.25	148.93	7.19	-0.11
313	Redhill - St Johns	-5.10	-11.80	-4.90	-0.22	0.03	-11.19	-0.63	0.02
376	Redhill – Town Centre	52.12	48.80	49.67	1.91	0.54	46.59	1.71	0.50
392	Salfords	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
393	Kingswood	4.38	-2.08	3.75	0.51	0.12	-1.58	-0.28	-0.22
394	Chipstead and Hooley	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
395	Tadworth and Walton on the Hill	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
396	Nork	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
397	Banstead	19.67	11.48	17.08	2.23	0.36	9.82	1.39	0.26
398	Merstham	24.58	6.39	21.77	2.30	0.50	5.50	0.76	0.13
399	Tattenham Corner	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
400	Burgh Heath and Preston	8.64	5.61	7.68	0.83	0.12	4.99	0.54	0.08
504	East Surrey Hospital and Whitebushes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
518	Reigate - Doversgreen and South Park	11.88	17.68	11.00	0.81	0.06	16.48	1.13	0.07
569	ERM 1 to 3 East of Redhill	103.93	72.80	93.70	9.36	0.86	66.31	5.96	0.53
570	ERM 4 and 5 Merstham	59.71	39.92	54.30	4.86	0.55	36.43	3.12	0.37
571	SSW2 South Park	77.16	47.68	68.81	7.63	0.72	42.52	4.72	0.44
572	SSW 7 and 9 Doversgreen	37.70	23.29	33.58	3.76	0.35	20.75	2.33	0.22
573	Commercial Horley	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
574	Residential NW Sector Horley	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Totals		**698.16**	**463.06**	**644.43**	**48.46**	**5.28**	**436.93**	**24.43**	**1.71**

Table 3.6: Scenario C proposed minus existing trip generation for the weekday average PM peak hour (1600 – 1900)

Scenario	Arrivals	Departures	Total
A	503	1125	1628
B	1202	1333	2536
C	268	547	815

Table 3.7: Net trip generation summary for all the Reigate and Banstead development sites captured in the pro-forma, weekday average AM peak hour (0700-1000)

Scenario	Arrivals	Departures	Total
A	1403	919	2321
B	1687	1436	3123
C	698	463	1161

Table 3.8: Net trip generation summary for all the Reigate and Banstead development sites captured in the pro-forma, weekday average PM peak hour (1600-1900)

3.5 External and Background Traffic Growth

3.5.1 Traffic growth forecasts have been based on the development trip generation calculated from TRICS set out above, and TEMPRO (Trip End Model Program).

3.5.2 TEMPRO, supplied by the Department for Transport, is based on the National Trip End Model (NTEM) used to derive forecast trip ends.

3.5.3 Outside the study area of Reigate and Banstead borough, standard TEMPRO forecast factors have been used to growth vehicle trips. Note that TEMPRO growth has also been used for Gatwick airport and therefore takes into account employment, but not passenger trips.

3.5.4 In Reigate and Banstead, only background growth from TEMPRO has been applied, using alternative planning assumptions whereby jobs and population were changed to remain the same as the reference year 2014. This provided background growth factors which only represent changes in demographics and car ownership.

3.5.5 Since the pro-forma supplies up to date estimates of housing and commercial developments and at a finer geographical scale than TEMPRO, the trip rates calculated from TRICS have been added to the background growth for the borough. Together these have provided the optimum estimates of demand in all the model scenarios.

3.6 Vehicle Trip Distribution

3.6.1 The origins and destinations of trips travelling to and from the development sites, known as trip distribution, were derived from the Office of National Statistics (ONS) Census 2011 journey to work dataset.

3.6.2 The borough of Reigate and Banstead was split into the following four areas based on land use characteristics:

- North (Tadworth / Banstead);
- East (Redhill);
- South (Salfords / Horley); and
- West (Reigate).

3.6.3 Separate distributions were comprised for each of these areas using the journey to work dataset. Since the majority of travel from home to work occurs in the AM peak, it was assumed that the home end of the trip is the origin, and work is the destination. This assumption was reversed in the PM peak. Additional trips proposed to occur within one of the four areas then had the distribution of that general area applied. Therefore the distributions applied to any future development sites included in this

study are based on the average existing observed trip patterns for the four general areas of the borough.

3.7 Forecast Network

3.7.1 The forecast network is an exact copy of the base but with the following changes listed below. These are highway schemes of strategic importance, committed or completed since the 2009 base model was developed.

- M25 junction 16 to 23 widening of the carriageway from dual 3 lanes to dual 4 lanes;
- M25 junction 27 to 30 widening of the carriageway from dual 3 lanes to dual 4 lanes;
- M25 new Cobham services that can be accessed from both sides of the carriageway and permits u-turns between junctions 9 and 10;
- M3 hard shoulder running between junctions 2 and 4a;
- A3 Hindhead tunnel and associated local junction alterations;
- Sheerwater link road, Woking;
- Redhill balanced network;
- New signalled junction at A25 South Street with Junction Road converted to two-way between this junction and the Waitrose entrance, Dorking;
- A24 South Street converted to two-way, with associated local junction alterations, Epsom;
- Increase to two lanes of travel between Toshiba and Hospital roundabouts in an eastbound direction, Frimley;
- Improvements to the signalled junction of the A243 Leatherhead Road with B280 Fair Oak Lane and Rushett Lane, Malden Rushett; and
- Signalled junction of Egerton Road with Gill Avenue, Guildford, formerly known as Hospital roundabout.

3.8 Assignment

3.8.1 It has been assumed that suitable access to and egress from the development sites can be achieved.

3.8.2 The trips within the forecast matrices have been fixed when assigned to the network. In comparison to a variable demand approach, where demand for each origin and destination pair can vary according to demand elsewhere to reflect behavioural change, this represents a worst case situation and makes the impact of the development sites more transparent to aid the decision making process.

3.8.3 The forecast matrices were assigned to the network using a fixed trip equilibrium assignment. This was performed using the method of successive averages (MSA) for 700 assignment iterations.

4 MODEL RESULTS AND ANALYSES

4.1 Overview

4.1.1 All results presented within this report represent modelled forecast traffic impacts on highways in the borough of Reigate and Banstead. In this section of the report the results are presented for all modelled forecast scenarios, comprising the Do-Minimum Scenario A, the Do-Something Scenario B, and the Do Something minus Horley Strategic employment site Scenario C.

4.1.2 Scenario A is the Do-Minimum Scenario which represents a future in which there is only the currently committed development in Reigate and Banstead borough between 2014 and 2031, but accounts for full development in the rest of the United Kingdom to 2031, based on the Department for Transport's forecasts.

4.1.3 Scenario B adds to the above with all planned development in Reigate & Banstead Borough Council's draft pre-submission Local Plan to 2031.

4.1.4 Scenario C is Scenario B above with all planned development in Reigate & Banstead Borough Council's submission draft Local Plan to 2031 minus the Horley Strategic employment site.

4.1.5 The strategic highway assessment therefore accounts for the transport demand from all planned development proposed by Reigate & Banstead Borough Council in the period to 2031, including the new homes, employment space, retail space and schools.

4.1.6 The strategic highway assessment does not take into account the potential for modal shift, or any new or improved sustainable transport choices provided by rail, bus and active modes.

4.1.7 The potential impacts of the draft Local Plan developments can be identified by comparing the Scenario A Do-Minimum with Scenarios B and C which contain these developments.

4.1.8 The morning weekday average AM peak hour (0700-1000) and evening weekday average PM peak hour (1600-1900) were assessed.

4.1.9 An initial assessment of the potential impact of the proposed development has been undertaken by assigning only the additional AM and PM peak trips associated with Scenario B to an uncongested network. This is shown in **Figure 4.1** in the AM and **Figure 4.2** for the PM. This assessment allows the trips arising from the draft submission Local Plan developments to follow the quickest routes in terms of both journey time and distance. The advantage of this assessment is that it shows the preferred routes of travel without congestion and, therefore, indicates where impacts could arise as a result of the draft submission Local Plan.

4.1.10 In **Figure 4.1**, the routes taken by the trips through the model are shown in green, with the line thickness indicating the number of trips: the thicker the line, the more trips use this route through the model. The data is by direction, so the thickness of the line will vary on either side of the link.

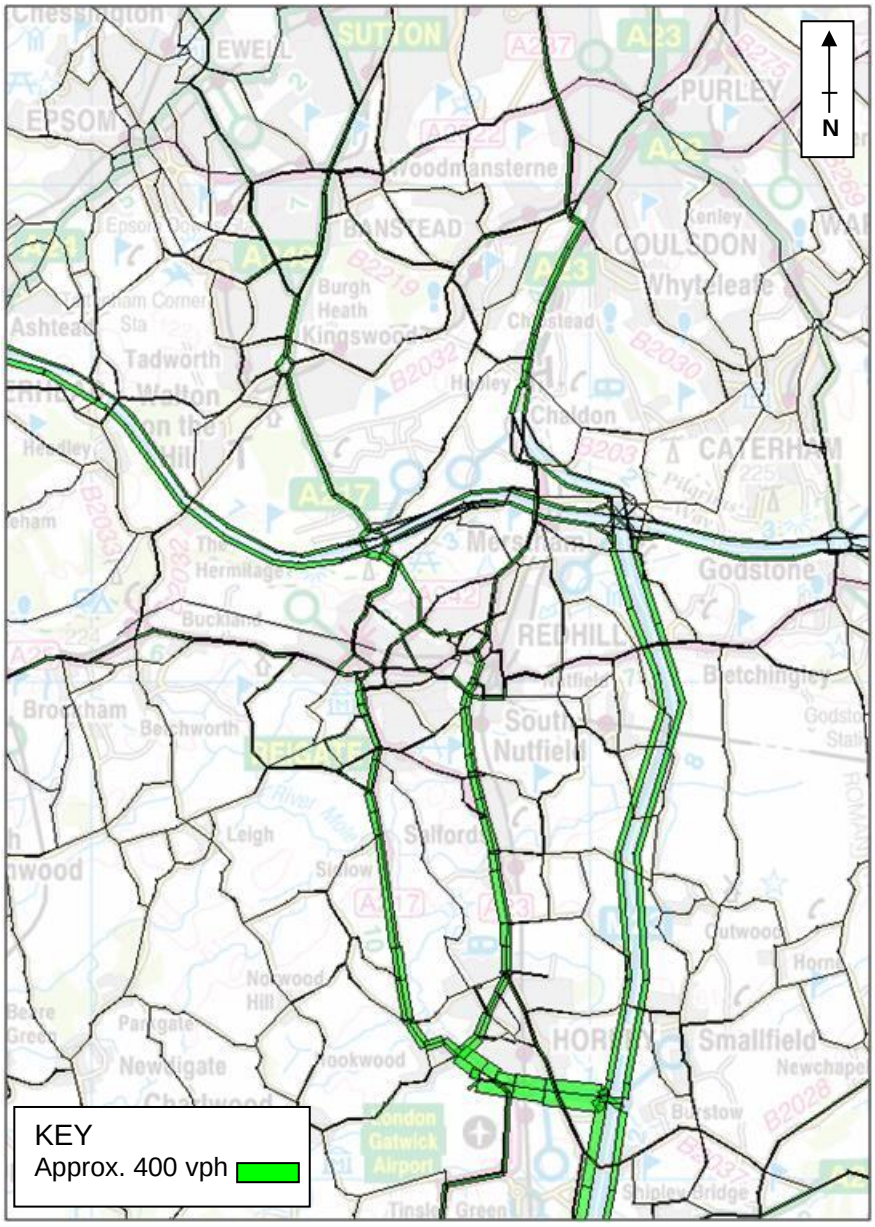

Figure 4.1: Initial assessment: assigning Local Plan related average AM peak hour trips to an uncongested network to show preferred routes of travel

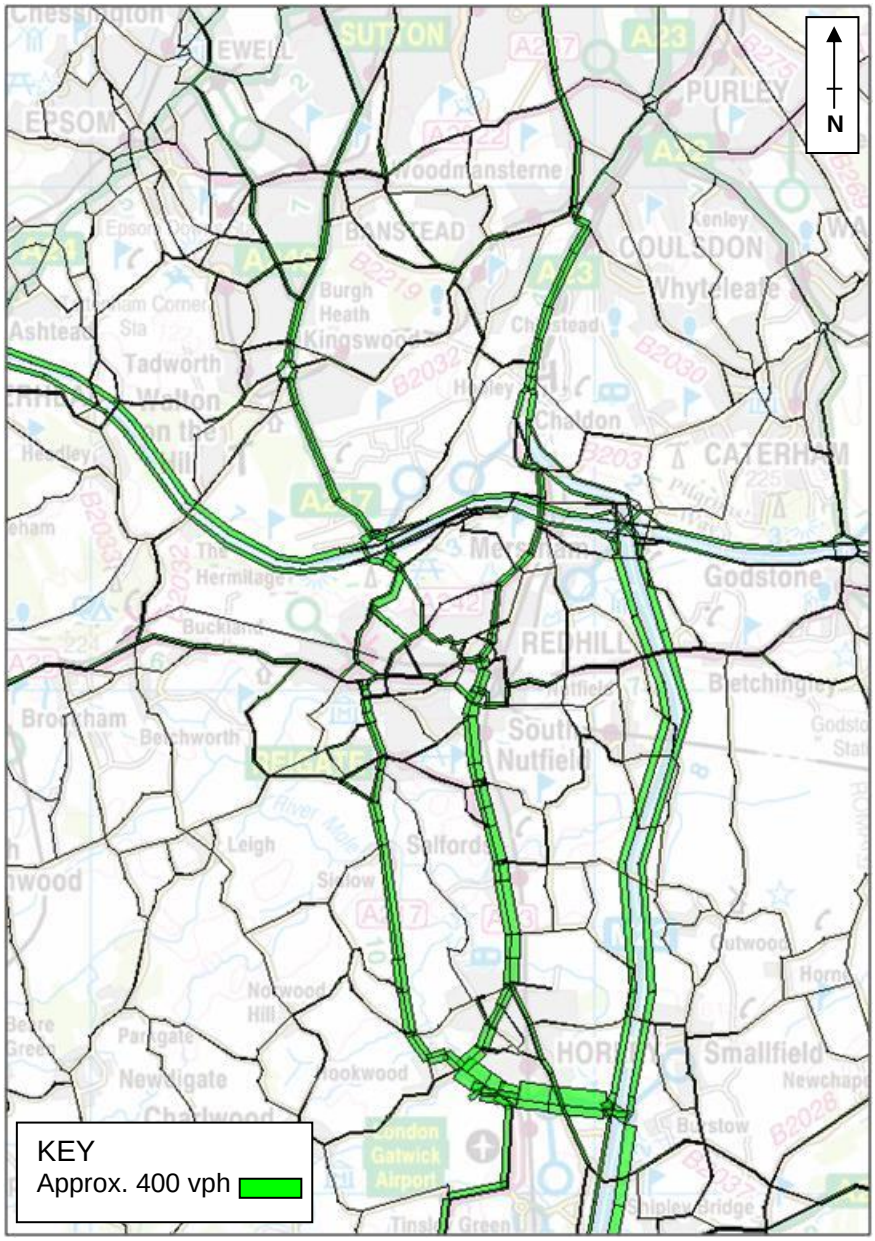

Figure 4.2: Initial assessment: assigning Local Plan related average PM peak hour trips to an uncongested network to show preferred routes of travel

4.1.11 This initial assessment clearly shows the potential impact of the Strategic employment site at Horley, since it is the single largest development. The largest flow is shown on the A23 Airport Way in the vicinity of the development, with the majority of vehicles following the main corridors including the A217, A23 and M23 and the M25 between Junction 9 Leatherhead and Junction 8 Reigate.

4.1.12 It should be noted that this assessment assumes all drivers will follow the lowest cost route as perceived in uncongested conditions. Furthermore it assumes that there is no mitigation in place.

4.2 Network Statistics

4.2.1 **Tables 4.1** and **4.2** present the network summary statistics for the study area of Reigate and Banstead borough, for the weekday average AM (0700 – 1000) and PM (1600-1900) peak hours. This is broken down by road type and for each model Scenario.

4.2.2 In Scenario A, representing baseline growth, the total vehicle kilometres in the AM peak is 360,179, increasing by a maximum of 11,979 vehicle kilometres (3%) in Scenario B. When looking at individual road types, the largest increase in vehicle kilometres from Scenario A to Scenario B occurs on motorways with an increase of 3,970 vehicle kilometres (2%). Further analysis of the traffic impact on the motorways contained within the borough of Reigate and Banstead is provided in **Section 4.8.** In percentage terms the largest increase occurs on minor roads with an increase of 2,892 vehicle kilometres (6%).

4.2.3 In the PM peak, the impact is greater with the total vehicle kilometres increasing from 388,394 in Scenario A by a maximum of 13,684 (4%) in Scenario B. The largest increase occurs on A principal roads with an increase of 4,945 vehicle kilometres (5%), although the highest percentage increase is on minor roads with an increase of 3,589 vehicle kilometres (8%).

4.2.4 As expected given the increase in vehicle kilometres, the increase in vehicle hours when compared against Scenario A is greatest in Scenario B with an increase of 5% in both the AM and PM peaks. Scenario C sees a smaller increase of 2% in the AM peak and 3% in the PM. There are also corresponding reductions in average speed experienced in both time periods, with average speeds reducing by 2% in Scenario B and 1% in Scenario C compared to Scenario A.

4.2.5 Comparison of the network summary statistics for Scenarios B and C highlights the impact of the Strategic employment site of 210,500 sqm GFA at Horley which is estimated to generate over 1750 vehicle trips in both time periods. As a result, the largest increases in flow are focussed in the Horley area with a maximum increase of 334 vph on the A23 Airport Way eastbound occurring in the PM peak in Scenario B when compared against Scenario A. In contrast, the increases in Scenario C when compared against Scenario A are more modest, with a maximum of 118 vph on the A25 Station Road Redhill westbound.

Statistic	Road Type	Scenario A	Scenario B	Scenario C
Values				
Vehicle kilometres (veh km)	Motorway	166,585	170,555	167,734
	Trunk	5,806	5,914	5,852
	A Principal Road	102,907	106,698	104,419
	B Road	39,762	40,979	40,271
	Minor Road	45,120	48,012	47,014
Total		**360,179**	**372,158**	**365,288**
Vehicle hours (veh hr)	Motorway	1,742	1,805	1,760
	Trunk	105	109	107
	A Principal Road	2,500	2,644	2,566
	B Road	1,005	1,046	1,022
	Minor Road	954	1,027	999
Total		**6,305**	**6,631**	**6,453**
Average speed (kph)	Motorway	95.6	94.5	95.3
	Trunk	55.2	54.3	54.9
	A Principal Road	41.2	40.4	40.7
	B Road	39.6	39.2	39.4
	Minor Road	47.3	46.7	47.1
Weighted Average		**57.1**	**56.1**	**56.6**
Difference from Scenario A				
Vehicle kilometres (veh km)	Motorway	-	3,970	1,149
	Trunk	-	108	46
	A Principal Road	-	3,791	1,512
	B Road	-	1,217	509
	Minor Road	-	2,892	1,894
Total		-	**11,979**	**5,110**
Vehicle hours (veh hr)	Motorway	-	63	18
	Trunk	-	4	2
	A Principal Road	-	144	66
	B Road	-	41	17
	Minor Road	-	73	45
Total		-	**326**	**148**
Average speed (kph)	Motorway	-	-1	0
	Trunk	-	-1	0
	A Principal Road	-	-1	-1
	B Road	-	0	0
	Minor Road	-	-1	0
Weighted Average		-	**-1**	**-1**
% Change from Scenario A				
Vehicle kilometres (veh km)	Motorway	-	2%	1%
	Trunk	-	2%	1%
	A Principal Road	-	4%	1%
	B Road	-	3%	1%
	Minor Road	-	6%	4%
Total		-	**3%**	**1%**
Vehicle hours (veh hr)	Motorway	-	4%	1%
	Trunk	-	4%	2%
	A Principal Road	-	6%	3%
	B Road	-	4%	2%
	Minor Road	-	8%	5%
Total		-	**5%**	**2%**
Average speed (kph)	Motorway	-	-1%	0%
	Trunk	-	-2%	-1%
	A Principal Road	-	-2%	-1%
	B Road	-	-1%	-1%
	Minor Road	-	-1%	0%
Average		-	**-2%**	**-1%**

Table 4.1: Weekday average AM peak hour (0700 – 1000) network summary statistics for Reigate and Banstead

Statistic	Road Type	Scenario A	Scenario B	Scenario C
Values				
Vehicle kilometres (veh km)	Motorway	182,936	186,898	183,788
	Trunk	6,773	6,881	6,808
	A Principal Road	109,203	114,148	111,052
	B Road	41,814	42,896	42,374
	Minor Road	47,667	51,256	50,138
Total		**388,394**	**402,078**	**394,159**
Vehicle hours (veh hr)	Motorway	1,972	2,031	1,988
	Trunk	131	136	133
	A Principal Road	2,710	2,895	2,803
	B Road	1,063	1,102	1,084
	Minor Road	1,018	1,107	1,078
Total		**6,893**	**7,271**	**7,085**
Average speed (kph)	Motorway	92.8	92.0	92.5
	Trunk	51.8	50.7	51.2
	A Principal Road	40.3	39.4	39.6
	B Road	39.3	38.9	39.1
	Minor Road	46.8	46.3	46.5
Weighted Average		**56.3**	**55.3**	**55.6**
Difference from Scenario A				
Vehicle kilometres (veh km)	Motorway	-	3,962	852
	Trunk	-	108	35
	A Principal Road	-	4,945	1,849
	B Road	-	1,082	560
	Minor Road	-	3,589	2,471
Total		-	**13,684**	**5,765**
Vehicle hours (veh hr)	Motorway	-	59	16
	Trunk	-	5	2
	A Principal Road	-	185	93
	B Road	-	39	21
	Minor Road	-	89	60
Total		-	**378**	**192**
Average speed (kph)	Motorway	-	-1	0
	Trunk	-	-1	-1
	A Principal Road	-	-1	-1
	B Road	-	0	0
	Minor Road	-	-1	0
Weighted Average		-	**-1**	**-1**
% Change from Scenario A				
Vehicle kilometres (veh km)	Motorway	-	2%	0%
	Trunk	-	2%	1%
	A Principal Road	-	5%	2%
	B Road	-	3%	1%
	Minor Road	-	8%	5%
Total		-	**4%**	**1%**
Vehicle hours (veh hr)	Motorway	-	3%	1%
	Trunk	-	4%	2%
	A Principal Road	-	7%	3%
	B Road	-	4%	2%
	Minor Road	-	9%	6%
Total		-	**5%**	**3%**
Average speed (kph)	Motorway	-	-1%	0%
	Trunk	-	-2%	-1%
	A Principal Road	-	-2%	-2%
	B Road	-	-1%	-1%
	Minor Road	-	-1%	-1%
Average		-	**-2%**	**-1%**

Table 4.2: Weekday average PM peak hour (1600 – 1900) network summary statistics for Reigate and Banstead

4.3 Level of Service (LOS)

4.3.1 Level of service (LOS) is a term used to qualitatively describe the operating conditions of a section of road or turning movement at a junction based on factors such as speed, travel time and delay. The level of service is designated with a letter, A to F, with A representing the best operating conditions and F the worst. **Table 4.3** describes the performance rating of each letter A to F.

A	Free flow	Traffic flows at or above the posted speed limit and motorists have complete mobility between lanes.
B	Reasonable free flow	LOS A speeds are maintained, manoeuvrability within the traffic stream is slightly restricted. Motorists still have a high level of physical and psychological comfort.
C	Stable flow	Ability to manoeuvre through lanes is noticeably restricted and lane changes require more driver awareness. Most experienced drivers are comfortable, roads remain safely below but efficiently close to capacity, and posted speed is maintained. This is the target LOS for some urban and most rural roads.
D	Approaching unstable flow	Speeds slightly decrease as traffic volume slightly increases. Freedom to manoeuvre within the traffic stream is much more limited and driver comfort levels decrease.
E	Unstable flow, operating at capacity	Flow becomes irregular and speed varies rapidly because there are virtually no usable gaps to manoeuvre in the traffic stream and speeds rarely reach the posted limit. Any disruption to traffic flow, such as merging or lane changes will create a shock wave affecting traffic upstream. Drivers' level of comfort becomes poor.
F	Forced or breakdown of flow	Every vehicle moves in lockstep with the vehicle in front of it, with frequent slowing required. Travel time cannot be predicted, with generally more demand than capacity.

Table 4.3: A to F Level of Service (LOS) categories

4.3.2 The methodology for calculating the LOS is set out in *The Highway Capacity Manual* (1994) and has been applied to the analysis of both link flow and junction delay to aid the interpretation of the model results. The calculated LOS has been colour coded using the traffic light colours: green; amber; and red.

4.4 Ratio of Flow to Capacity (RFC)

4.4.1 Another tool for assessing the performance of a stretch of road or a turning movement at a junction is the ratio of flow to capacity (RFC) measure.

4.4.2 An RFC value greater than 1 means that the stretch of road or turning movement has a higher level of traffic flow than its theoretical capacity. This can be generated as a result flow breakdown and extensive queues.

4.4.3 With the exception of signalised junctions, an RFC value below 0.85 is considered acceptable as there is still scope to accommodate future growth. For signalled junctions the threshold is higher at 0.90. A value of between 0.85 and 1, or 0.90 and 1 for signalled junctions, suggests the stretch of road or junction is beginning to struggle with the weight of traffic causing delay, queues and driver stress.

4.4.4 As with LOS, RFC has been applied to the analysis of both link flow and junction delay to aid the interpretation of the model results. All presented RFC values between 0.85 and 1, or 0.90 and 1 for signalled junctions, have been marked in orange text, and in red text for RFC values greater than 1.

4.5 Increase in Link Flow

4.5.1 **Tables 4.4** and **4.5** present the top 10 links which have the greatest increase in flow in Scenarios B to D when compared with Scenario A for the weekday average AM (0700 – 1000) and PM (1600 – 1900) peak hours respectively. Note that roads which are the responsibility of Highways England are dealt with separately in **Section 4.8**.

4.5.2 Scenario B contains all the proposed development including the strategic employment site at Horley. The majority of the roads listed in Scenario B are in the Horley area, with a maximum difference of 208 vph on Lee Street, Horley westbound during the weekday average AM peak. In the weekday average AM peak, all the links shown are forecast to have RFC values of less than 0.85 indicating that they are able to accommodate this growth, with the exception of the B2036 Balcombe Road northbound in Horley. The RFC for this stretch of road is already above the 0.85 performance threshold in Scenario A indicating that it would struggle to accommodate any additional growth. In Scenario B, the RFC value increases to 1.09 showing that the traffic flow is higher than the theoretical capacity of the road.

4.5.3 During the weekday average PM peak, there are increases on Cormongers Lane southbound and the A25 Station Road westbound in Redhill of 152 vph (37%) and 151 vph (41%) respectively in Scenario B. Despite this, the links are still forecast to be within capacity with RFCs of less than 0.7.

4.5.4 Scenario C contains all the proposed developments but excludes the Strategic employment site at Horley. Consequently, flow increases are of a lower magnitude than Scenario B with a maximum of 118 vph on the A25 Station Road Redhill westbound during the weekday average PM peak. The top ten flow increases in this Scenario are focussed on Redhill and Merstham during the weekday average PM peak, with links in Reigate and Horley experiencing increases during the weekday average AM peak. All of the links shown in the top ten flow increases for Scenario C are forecast to have RFCs of less than 0.85 indicating that they are able to accommodate the increase in flow, with the exception of the A23 Brighton Road northbound. This link is forecast to have an RFC greater than one in Scenario A which increases to 1.41 in Scenario C indicating that it would be subject to extensive queuing and delay with a level of service of F.

Rank	Name	Link Ref.	Increase in Flow from Scenario A (vph)	RFC* (pcu)	LOS*
2031 Scenario B (baseline growth, committed developments, proposed developments)					
1	Lee Street, Horley, westbound	17518,1	208	0.61 (0.35)	D (C)
2	Horley Row, Horley, westbound	15685,2	204	0.78 (0.52)	E (D)
3	Mill Lane, Horley, westbound	17636,1	166	0.45 (0.23)	D (B)
4	B2036 Balcombe Road, Horley, northbound	15678,1	162	0.55 (0.45)	D
5	A23 Horley Road, White Bushes, northbound	11834,1	137	0.84 (0.76)	E
6	A23 Horley Road, White Bushes, northbound	8930,2	129	0.75 (0.67)	E
7	B2036 Balcombe Road, Horley, northbound	8874,2	128	1.09 (0.93)	F (E)
8	A23 Horley Road, White Bushes, northbound	8845,1	122	0.52 (0.45)	D
9	A23 Brighton Road, Salfords, northbound	17522,2	117	0.71 (0.64)	E (D)
10	A23 Bonehurst Road, Salfords, northbound	10097,1	115	0.76 (0.69)	E
2031 Scenario C (baseline growth, committed developments, proposed developments minus Horley Strategic employment site)					
1	A217 Reigate Hill, Reigate, northbound	17562,1	79	0.42 (0.39)	C
2	Linkfield Lane, Redhill, westbound	17549,1	67	0.63 (0.54)	D
3	Sandcross Lane, Reigate, northbound	19920,2	66	0.22 (0.16)	B
4	Wray Lane, Reigate, northbound	8813,1	65	0.40 (0.34)	C
5	Lee Street, Horley, westbound	17518,1	58	0.42 (0.35)	C
6	London Road North, Merstham, northbound	8948,2	58	0.58 (0.54)	D
7	Horley Row, Horley, westbound	15685,2	56	0.60 (0.52)	D
8	B2034 Blackborough Road, Reigate, westbound	11880,1	56	0.33 (0.26)	C (B)
9	Gatton Bottom, Merstham, westbound	17560,2	55	0.43 (0.39)	D (C)
10	B2034 Blackborough Road, Reigate, westbound	10557,2	54	0.28 (0.21)	C (B)

*If the RFC and LOS values differ between the two comparative scenarios, the reference Scenario RFC and LOS values are displayed in brackets

Table 4.4: Weekday average AM peak hour (0700 – 1000) top 10 links with the highest increase in flow compared with Scenario A.

Rank	Name	Link Ref.	Increase in Flow from Scenario A (vph)	RFC* (pcu)	LOS*
2031 Scenario B (baseline growth, committed developments, proposed developments)					
1	A23 Bonehurst Road, Horley, southbound	10097,2	164	0.89 (0.80)	E
2	B2036 Balcombe Road, Horley, northbound	15680,1	158	0.69 (0.50)	E (D)
3	Cormongers Lane, Redhill, southbound	15857,2	152	0.47 (0.35)	D
4	A25 Station Road, Redhill, westbound	17528,2	151	0.67 (0.47)	E (D)
5	A23 Bonehurst Road, Horley, northbound	17522,2	148	0.73 (0.64)	E (D)
6	A23 Brighton Road, Horley, northbound	8851,1	139	0.99 (0.81)	E
7	A25 Nutfield Road, Redhill, eastbound	8927,2	134	0.58 (0.47)	D
8	C64 Massetts Road, Horley, eastbound	15668,1	126	1.06 (0.90)	F (E)
9	A23 Bonehurst Road, Salfords, northbound	17523,2	125	0.36 (0.32)	C
10	Mill Lane, Horley	17518,2	124	0.75 (0.59)	E (D)
2031 Scenario C (baseline growth, committed developments, proposed developments minus Horley Strategic employment site)					
1	A25 Station Road, Redhill, westbound	17528,2	118	0.62 (0.47)	D
2	Gatton Bottom, Merstham, eastbound	17581,2	95	0.40 (0.31)	C
3	A23 Brighton Road, Redhill, northbound	17525,1	93	1.41 (1.29)	F
4	London Road North, Merstham, northbound	8948,2	90	0.70 (0.64)	E
5	A25 Matthews Road, Redhill, northbound	9241,2	85	0.57 (0.47)	D
6	A25 Nutfield Road, Redhill, eastbound	17589,2	81	0.66 (0.56)	E (D)
7	A25 Station Road, Redhill, westbound	17529,1	78	0.41 (0.31)	C
8	A25 Nutfield Road, Redhill, eastbound	19929,1	77	0.65 (0.56)	E (D)
9	Cormongers Lane, Redhill, southbound	15857,2	75	0.41 (0.35)	C
10	Linkfield Lane, Redhill, westbound	17549,1	74	0.48 (0.39)	D (C)

*If the RFC and LOS values differ between the two comparative scenarios, the reference Scenario RFC and LOS values are displayed in brackets

Table 4.5: Weekday average PM peak hour (1600 – 1900) top 10 links with the highest increase in flow compared with Scenario A.

4.5.5 Flow difference plots for the entire study area of Reigate and Banstead borough have been presented for Scenarios B and C in comparison to Scenario A in **Figures 4.3** and **4.4** respectively. Bandwidths coloured red show an increase in flow, whereas those coloured blue represent a decrease in flow, with their size being proportional to the increase or decrease.

4.5.6 **Figure 4.3** presents the difference in flow between Scenarios A and B. Scenario B contains the preferred locations for development together with the Horley Strategic employment site and hence shows the worst impact of the scenarios. It can be seen that the largest increase in flow are centred on the main routes feeding Horley, Redhill, Merstham and South Park and specifically on the approach to/from the strategic employment site from the M23.

4.5.7 **Figure 4.4** show the difference in flow between Scenarios A and C. Scenario C contains the preferred options for development but excludes the Horley Strategic employment site. It can be seen that the impact on the M23 is dramatically reduced in this Scenario compared to Scenario B. The impacts of Scenario C are more evenly dispersed across the borough as a whole.

4.5.8 The model also indicates that there will be an increase in vehicle flow on the M23 and M25 in Scenario B, and to a lesser extent in Scenario C. Further analysis of the traffic impact on the borough's motorways is contained in **Section 4.8**.

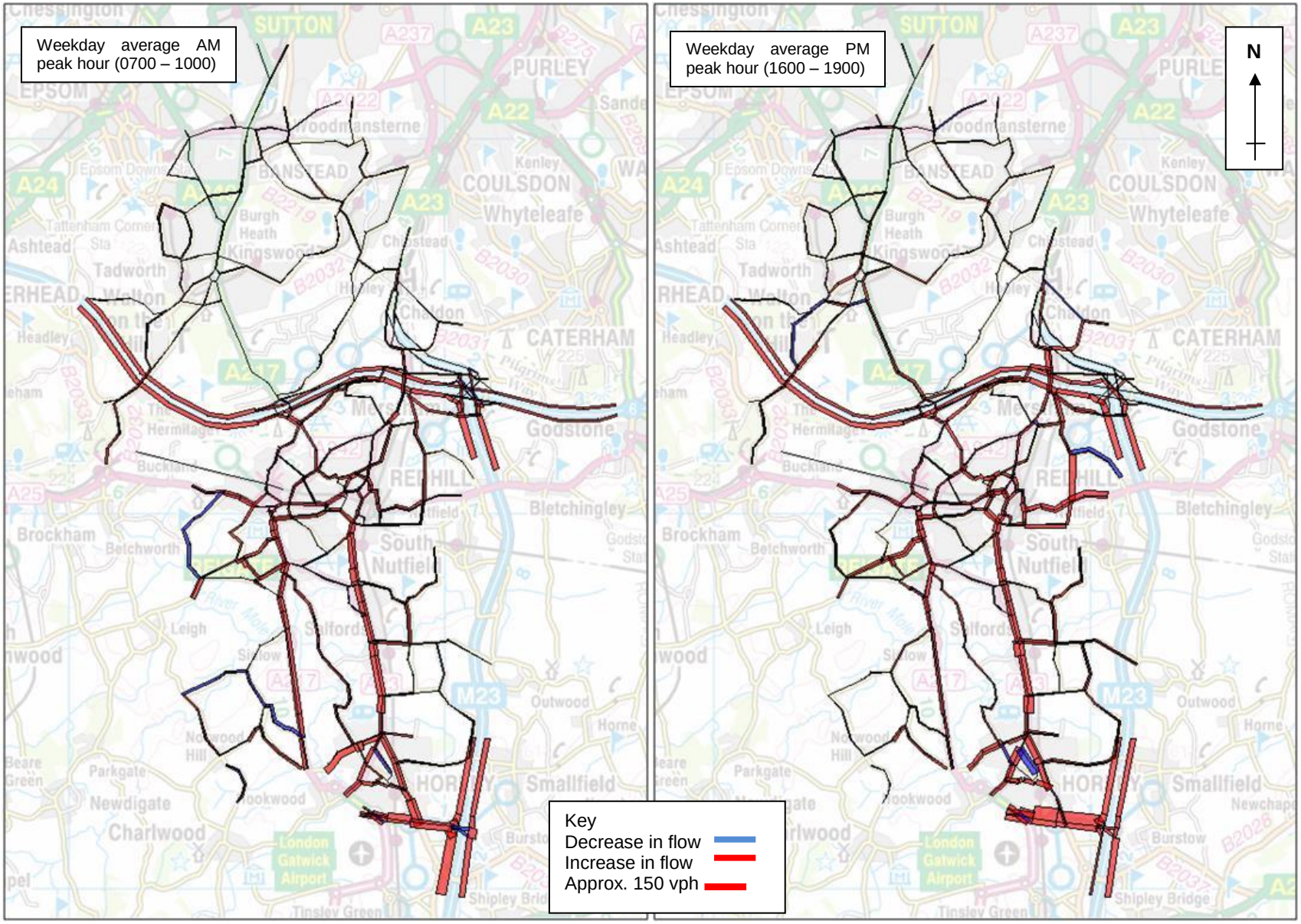

Figure 4.3: Flow difference plot of Scenario B compared to Scenario A.

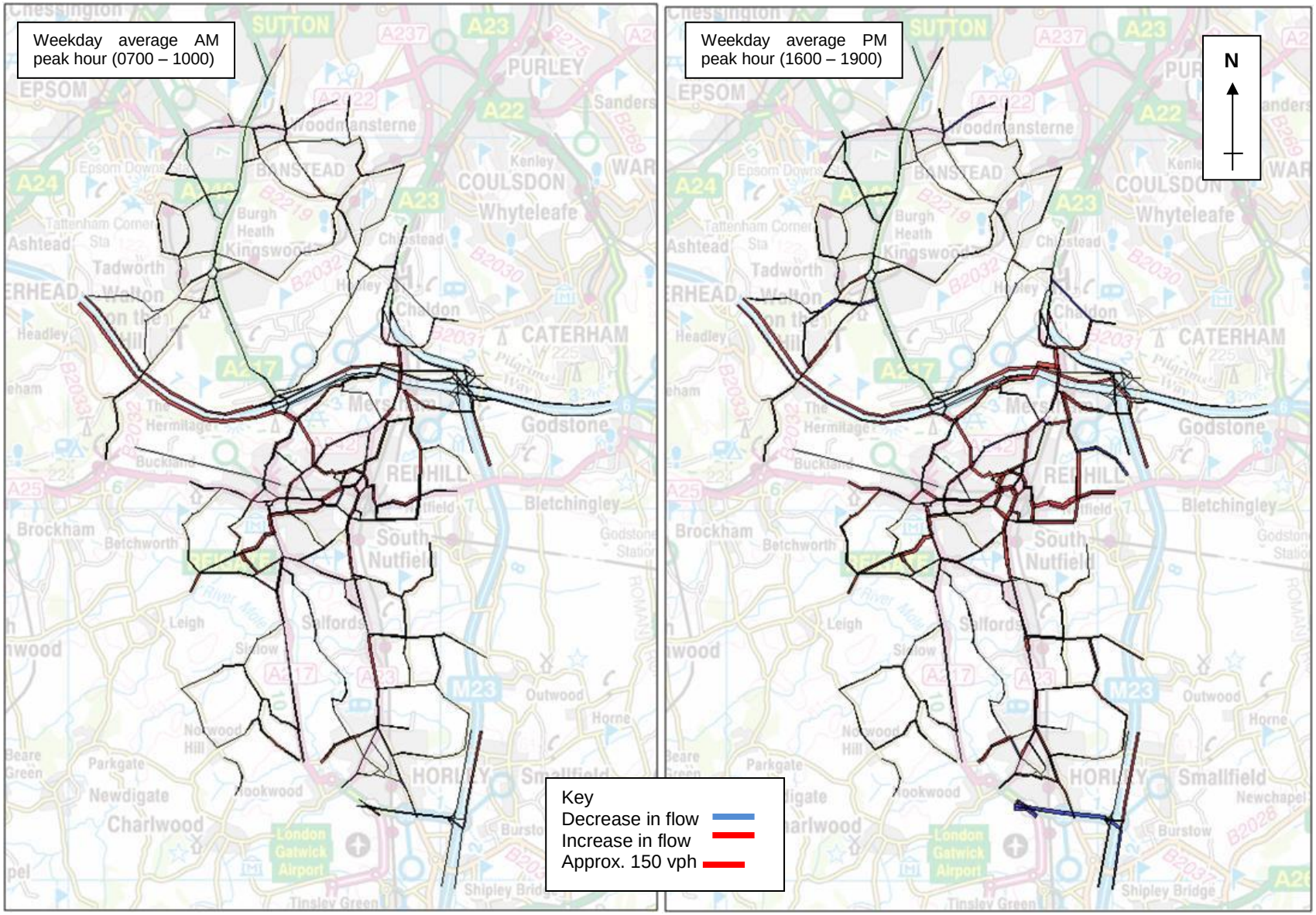

Figure 4.4: Flow difference plot of Scenario C compared to Scenario A

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4.6 Link Capacity

4.6.1 **Figures 4.5** to **4.7** show which links would operate nearly at, or above capacity, for each of the modelled scenarios. Links shaded orange have an RFC value of between 0.85 and 0.99, whereas those shaded red have an RFC value above 1. RFC values above 0.85 result in vehicle delay and driver stress.

4.6.2 All of the weekday average AM peak hour (0700 – 1000) plots are similar. Likewise there are few differences between the weekday average PM peak hour (1600 – 1900) diagrams. **Figures 4.5** to **4.7** show that the majority of the links highlighted will already be operating at or close to capacity in Scenario A, with the additional traffic generated in Scenarios B and C exacerbating the issues.

4.6.3 In Scenario A, **Figure 4.5** shows that north of the M25, the following roads are shown as operating above, or having limited capacity during peak times:

- A217 Belmont Rise;
- B2230 Brighton Road;
- A23 Brighton Road;
- A240 Reigate Road;
- A2022 Fir Tree Road;
- A2022 Winkworth Road;
- B2219 Lower Park Road;
- B2218 Sutton Lane;
- B2221 Tattenham Way;
- B2221 Great Tattenhams;
- B2032 Chipstead Valley Road;
- B2220 Tadworth Street;
- B2220 Chequers Lane; and
- Shelvers Way.

4.6.4 Roads in and around Reigate which are shown as operating above or having limited capacity in Scenario A include the following, as shown in **Figure 4.5**:

- A217 Reigate Hill;
- A217 Bell Street / Cockshot Hill;
- A217 Dovers Green Road
- A25 West Street;
- A25 Buckland Road;
- A242 Croydon Road / Gatton Park Road; and
- A2044 Woodhatch Road.
-

4.6.5 As shown in **Figure 4.5**, in Scenario A, roads surrounding Redhill identified as operating above, or having limited capacity include:

- A23 London Road through Merstham;
- A23 Brighton Road;
- A25 Redstone Hill;
- Linkfield Lane; and
- Nutfield Road.

4.6.6 Near Horley, spare road capacity is also limited or non-existent on the following roads as shown in **Figure 4.5**:

- A23 Brighton Road;
- B2036 Balcombe Road; and
- Massetts Road.

4.6.7 In addition, in Scenario A, **Figure 4.5** shows that the M25 mainline between junctions 8 and 7 in an anticlockwise direction, the M23 mainline between junctions 9 and 10 in a southbound direction, the M25 clockwise off-slip at junction 7 for the M23, and the M23 northbound off-slip at junction 8 for the M25, are shown to be under high stress from vehicle demand.

4.6.8 North of the M25 and surrounding Redhill and Reigate, **Figure 4.6** shows that the addition of the development contained within Scenario B simply exacerbates the existing capacity issues rather than creating any new problem areas. Near Horley, the additional traffic generated results in more links with RFC values above 0.85 including the A23 Bonehurst Road as well as longer sections of the B2036 Balcombe Road and A23 Brighton Road.

4.6.9 **Figure 4.7** presents links which are nearly operating at, or above capacity, for Scenario C. Scenario C contains all of the potential development sites excluding the Strategic employment site at Horley. Comparison against **Figure 4.5** shows that the additional traffic generated by the Scenario C exacerbates the existing congestion issues and does not result in any new areas of congestion.

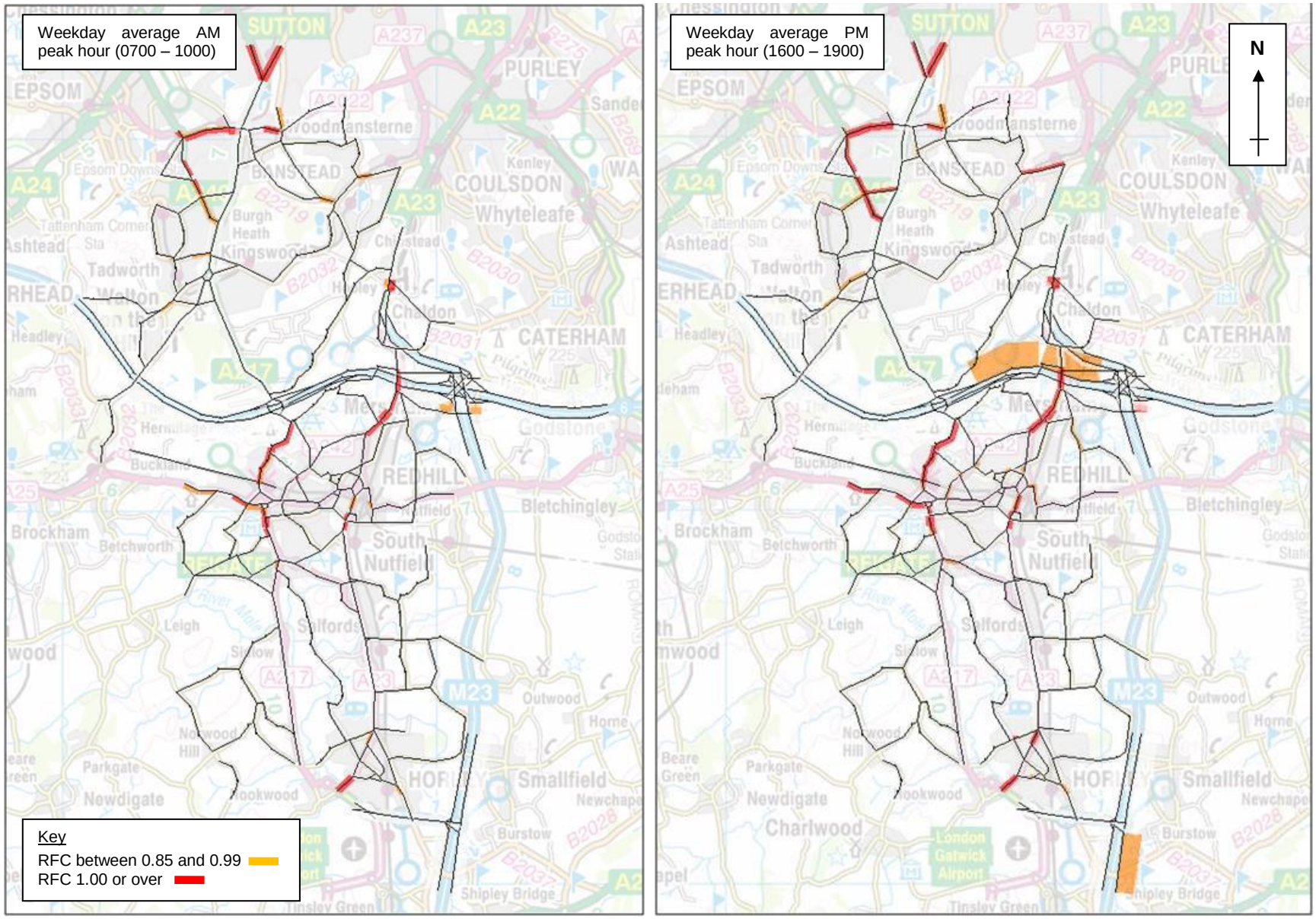


Figure 4.5: Scenario A link values RFC greater than 0.85

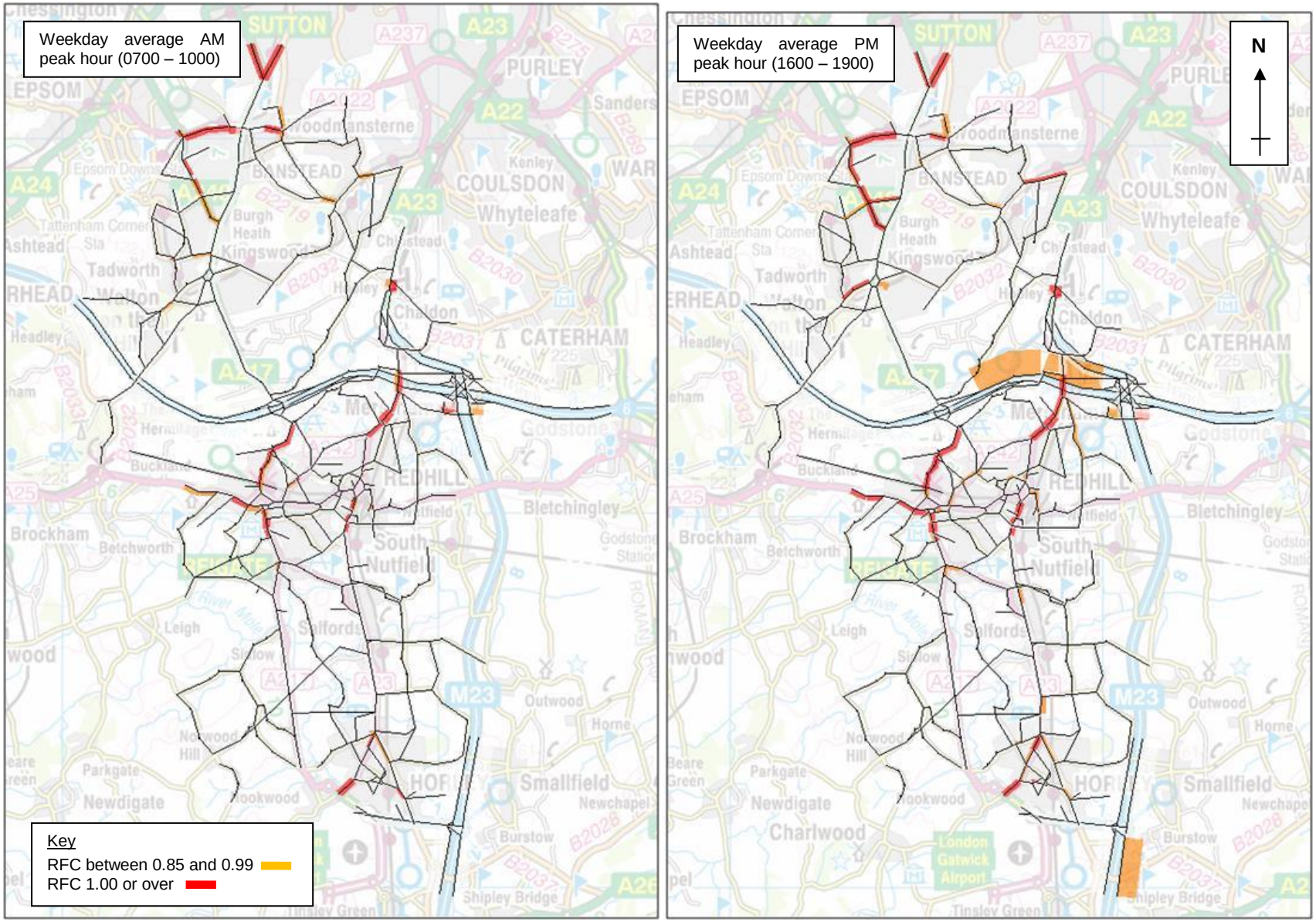


Figure 4.6: Scenario B link values RFC greater than 0.85

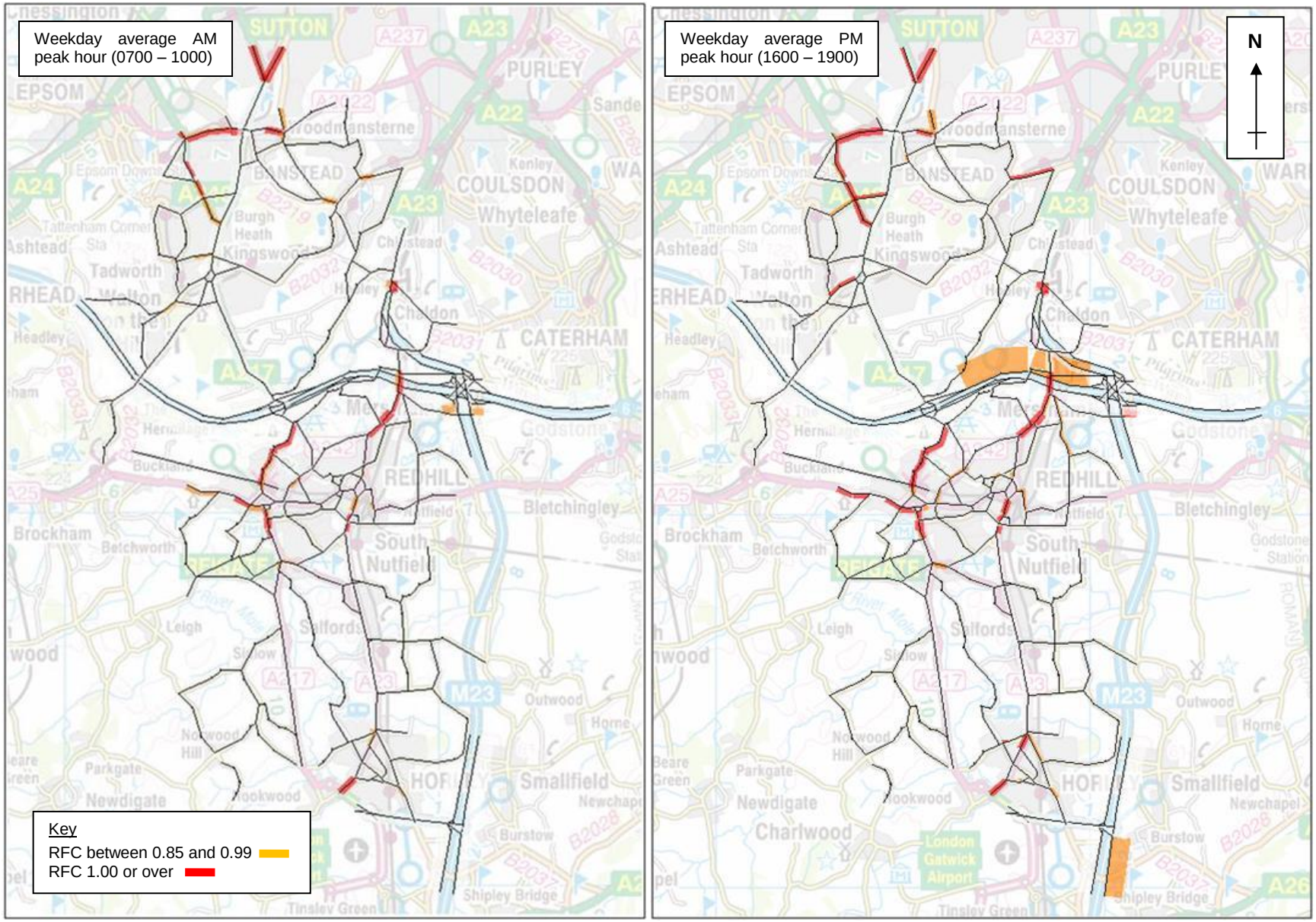


Figure 4.7: Scenario C link values RFC greater than 0.85 for the weekday average AM peak hour (0700 – 1000))

4.7 Increase in Junction Delay

4.7.1 **Tables 4.6** and **4.7** presents the top 10 junctions which have the greatest increase in average delay in Scenario B compared to Scenario A for the weekday average AM (0700 – 1000) and PM (1600 – 1900) peak hours respectively. **Tables 4.8** and **4.9** present the same comparison with Scenario A for Scenario C.

4.7.2 The maximum increase in delay in Scenario B is 21 seconds in the weekday average AM peak hour for the junction of the A25 Reigate Road with the A242 Croydon Road and A25 Church Street in Reigate. In the weekday average PM peak hour the maximum increase is 24 seconds for the junction of Slipshatch Road with Prices Lane and Sandcross Lane in Woodhatch. Nevertheless, the RFC values for these junctions are 0.33 or less, so the increases of up to 24 second delay per vehicle will not cause any deterioration in the operation of the junction.

4.7.3 RFC values of between 0.85 and 1, or 0.90 and 1 for signalled junctions, suggest that the junction is beginning to struggle with the weight of traffic, causing delay, queues and driver stress. As shown in **Tables 4.6** and **4.7**, several of the junctions experiencing the greatest increase in delay as a result of the development within Scenario B are those which will already have limited capacity or be operating over theoretical capacity in 2031 without the additional proposed development. In these locations, the deterioration of traffic conditions would result in a reduction in driver comfort levels and increased stress. These include the following:

- A217 Reigate Hill Interchange (M25 J8);
- A2022 Winkworth Road / Croydon Lane junction with B2218 Sutton Lane and B2217 Sutton Lane, Banstead;
- B290 Station Approach Road junction with B2220 Tadworth Street, Tadworth;
- Massetts Road junction with Victoria Road, Horley
- A217 Reigate Hill junction with Gatton Bottom Reigate;
- A23 London Road junction with Star Lane, Hooley; and
- A23 Brighton Road junction with Dean Lane, Hooley.

4.7.4 In Scenario C, the maximum increase in delay at any junction is less than 8 seconds. Despite this, some of the largest delay increases occur at junctions which are already close to or operating above theoretical capacity. These locations are the same as those listed for Scenario B above. Any increase in traffic at these locations would exacerbate existing queues and increase driver stress.

Scenario B (baseline growth, committed development, proposed development)						
Rank	**Name**	**Type**	**Node Ref.**	**Increase in Average Delay from Sc. A (seconds)**	**Sc.B RFC***	**Sc.B LOS***
Compared to Scenario A (baseline growth and committed development)						
1	A25 Reigate Road, A242 Croydon Road, A25 Church Street	Priority	15259	21.4	0.32 (0.28)	D (A)
2	A217 Brighton Road, Reigate Hill Interchange (M25 J8)	Signal	13298	19.7	1.06 (1.05)	F
3	A23 London Road, Star Lane	Signal	13095	14.4	0.82 (0.80)	F (E)
4	Slipshatch Road, Prices Lane and Sandcross Lane	Priority	13305	13.1	0.33 (0.32)	C (A)
5	A217 Reigate Hill and Gatton Bottom	Priority	13141	5.6	1.00 (0.83)	E
6	Prices Lane, A217 Cockshot Hill, A2044 Woodhatch Road	Signal	13303	5.2	0.70 (0.64)	E
7	A2022 Winkworth Road/Croydon Lane, B2218 Sutton Lane, B2217 Sutton Lane	Roundabout	13079	4.5	1.07 (1.06)	F
8	A23 Brighton Road, Mill Street, Holley Lane	Signal	13313	4.0	0.66 (0.63)	E (D)
9	A217 Reigate Hill, Reigate Hill Interchange (M25 J8)	Signal	14132	3.9	0.86 (0.85)	D
10	B290 Station Approach Road and B2220 Tadworth Street	Signal	13433	3.0	0.86 (0.85)	E

*If the RFC and LOS values differ between the two comparative scenarios, the reference Scenario RFC and LOS values are displayed in brackets

Table 4.6: Weekday average AM peak hour (0700 – 1000) top 10 junctions with the highest increase in average vehicle delay of Scenario B compared with Scenario A.

Scenario B (baseline growth, committed development, proposed development)						
Rank	**Name**	**Type**	**Node Ref.**	**Increase in Average Delay from Sc. A (seconds)**	**Sc.B RFC***	**Sc.B LOS***
Compared to Scenario A (baseline growth and committed development)						
1	Slipshatch Road, Prices Lane and Sandcross Lane	Priority	13305	23.8	0.38 (0.37)	E (C)
2	A25 Reigate Road, A242 Croydon Road, A25 Church Street	Priority	15259	22.4	0.32 (0.30)	E (B)
3	Massetts Road, Victoria Road	Signal	14514	17.4	0.96 (0.93)	F
4	Prices Lane, A217 Cockshot Hill, A2044 Woodhatch Road	Signal	13303	10.6	0.79 (0.74)	F
5	A23 Brighton Road, Dean Lane	Priority	14659	9.8	0.97 (0.94)	C (A)
6	B290 Station Approach Road and B2220 Tadworth Street	Signal	13433	8.7	1.04	F
7	A217 Brighton Road, Reigate Hill Interchange (M25 J8)	Signal	13298	8.3	1.28 (1.25)	F
8	A217 Reigate Hill, Reigate Hill Interchange (M25 J8)	Signal	14132	5.8	0.95 (0.93)	D
9	A23 London Road, Star Lane	Signal	13095	5.2	0.94 (0.92)	F
10	B2032 Dorking Road, B290 New Road, B290 Mill Road	Priority	13068	4.9	0.52 (0.49)	A

*If the RFC and LOS values differ between the two comparative scenarios, the reference Scenario RFC and LOS values are displayed in brackets

Table 4.7: Weekday average PM peak hour (1600 – 1900) top 10 junctions with the highest increase in average vehicle delay of Scenario B compared with Scenario A.

Scenario C (baseline growth, committed development, proposed development minus Horley Strategic employment site)						
Rank	**Name**	**Type**	**Node Ref.**	**Increase in Average Delay from Sc. A (seconds)**	**Sc.C RFC***	**Sc.C LOS***
Compared to Scenario A (baseline growth and committed development)						
1	A23 London Road, Star Lane	Signal	13095	6.6	0.81 (0.80)	F (E)
2	Slipshatch Road, Prices Lane and Sandcross Lane	Priority	13305	6.3	0.33 (0.32)	C (A)
3	A217 Brighton Road, Reigate Hill Interchange (M25 J8)	Signal	13298	6.0	1.05	F
4	A25 Reigate Road, A242 Croydon Road, A25 Church Street	Priority	15259	5.7	0.29 (0.28)	B (A)
5	A217 Reigate Hill and Gatton Bottom	Priority	13141	4.5	0.96 (0.83)	E
6	A217 Reigate Hill, Reigate Hill Interchange (M25 J8)	Signal	14132	2.5	0.85	D
7	A2022 Winkworth Road/Croydon Lane, B2218 Sutton Lane, B2217 Sutton Lane	Roundabout	13079	2.4	1.06	F
8	A23 Brighton Road, Mill Street, Holley Lane	Signal	13313	2.0	0.64 (0.63)	D (C)
9	A23 Brighton Road, Massetts Road	Signal	14511	1.8	0.64	D
10	B290 Station Approach Road and B2220 Tadworth Street	Signal	13433	1.7	0.86 (0.85)	D

*If the RFC and LOS values differ between the two comparative scenarios, the reference Scenario RFC and LOS values are displayed in brackets

Table 4.8: Weekday average AM peak hour (0700 – 1000) top 10 junctions with the highest increase in average vehicle delay of Scenario C compared with Scenario A.

Scenario C (baseline growth, committed development, proposed development minus Horley Strategic employment site)						
Rank	**Name**	**Type**	**Node Ref.**	**Increase in Average Delay from Sc. A (seconds)**	**Sc.C RFC***	**Sc.C LOS***
Compared to Scenario A (baseline growth and committed development)						
1	B290 Station Approach Road and B2220 Tadworth Street	Signal	13433	7.8	1.04	F
2	A23 Brighton Road, Dean Lane	Priority	14659	4.6	0.95 (0.94)	B (A)
3	B2032 Dorking Road, B2220 Chequers Lane	Priority	14257	3.3	0.42 (0.41)	B (A)
4	A217 Reigate Hill, Reigate Hill Interchange (M25 J8)	Signal	14132	3.3	0.94 (0.93)	E
5	A25 Nutfield Road, Cormongers Lane	Priority	13398	3.0	0.32 (0.31)	A
6	A25 Reigate Road, A242 Croydon Road, A25 Church Street	Priority	15259	2.9	0.30	C (B)
7	B2032 Dorking Road, B290 New Road, B290 Mill Road	Priority	13068	2.5	0.52 (0.49)	A
8	A242 Croydon Road, Raglan Road	Priority	15753	2.4	0.36	B
9	A23 London Road, Frenches Road, Linkfield Lane	Signal	13315	2.3	0.63 (0.62)	E
10	A23 London Road, Star Lane	Signal	13095	2.3	0.93 (0.92)	F

*If the RFC and LOS values differ between the two comparative scenarios, the reference Scenario RFC and LOS values are displayed in brackets

Table 4.9: Weekday average PM peak hour (1600 – 1900) top 10 junctions with the highest increase in average vehicle delay of Scenario C compared with Scenario A.

4.7.5 **Figures 4.8** to **4.13** present the average junction delay in Reigate and Banstead borough for Scenarios A to C for all modelled junctions for the weekday average AM (0700-1000) and PM (1600-1900) peak hours. The diameter of the circles corresponds to the estimated level of delay. Junctions with an average delay value of 50 seconds or more in any Scenario are individually reported and have been listed below in a descending order of magnitude;

- A217 Brighton Road, Reigate Hill interchange (M25 J8);
- A23 London Road, Star Lane, Hooley;
- A2022 Winkworth Road / Croydon Lane, B2218 Sutton Lane, B2217 Sutton Lane, Banstead;
- A217 Brighton Road, A217 Belmont Rise, B2230 Brighton Road, Banstead;
- B290 Station Approach Road and B2220 Tadworth Street, Tadworth;
- A217 Brighton Road, A2022 Fir Tree Road, A2022 Winkworth Road, Banstead;
- Massetts Road, Victoria Road, Horley;
- A217 Brighton Road signalled northbound approach arm to Bonsor Drive roundabout, Tadworth;
- Prices Lane, A217 Cockshot Hill, A2044 Woodhatch Road, Woodhatch;
- A217 Reigate Hill and Gatton Bottom; and
- Frenches Road, Battlebridge Lane, Redhill.

4.7.6 Average vehicle delay at Reigate level crossing is between 41 and 44 seconds in all scenarios.

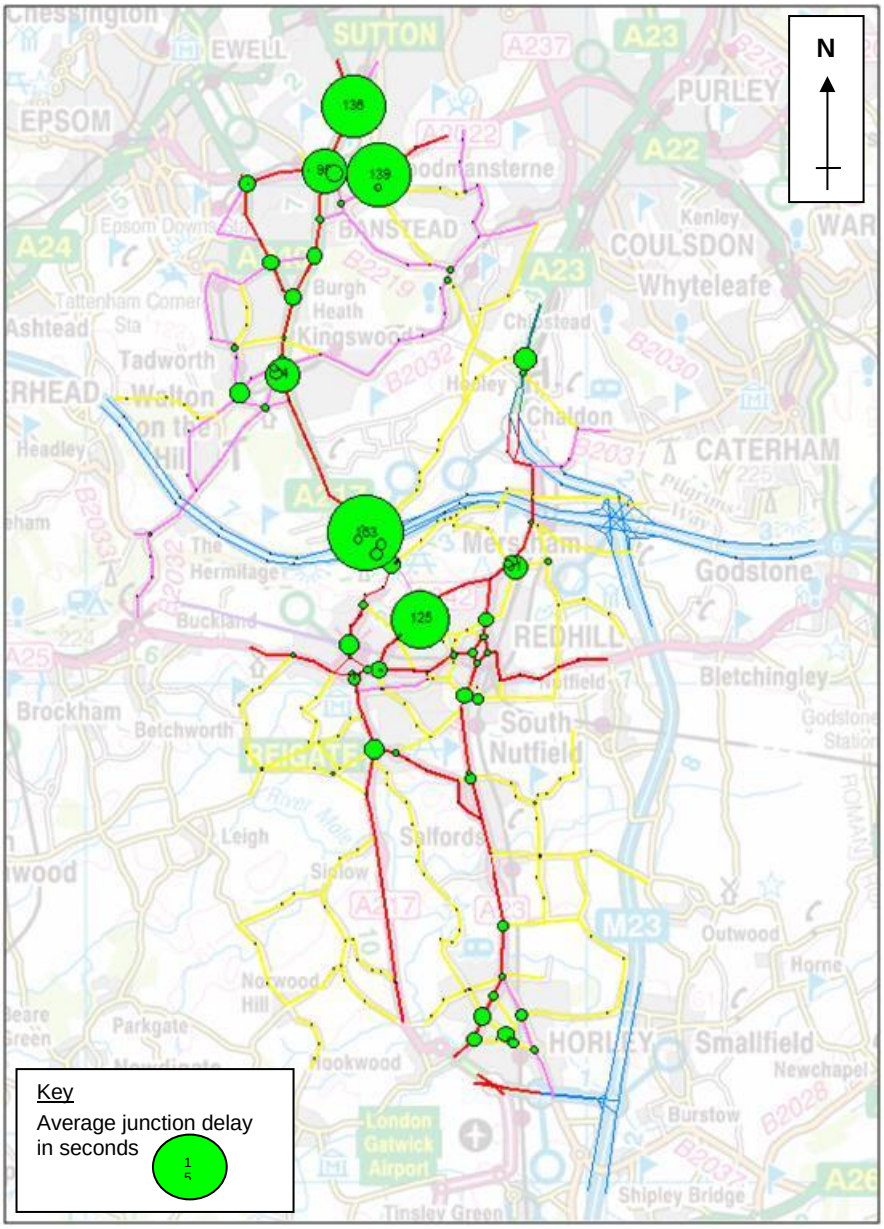


Figure 4.8: Average junction delay for Scenario A for the weekday average AM peak hour (0700 – 1000)

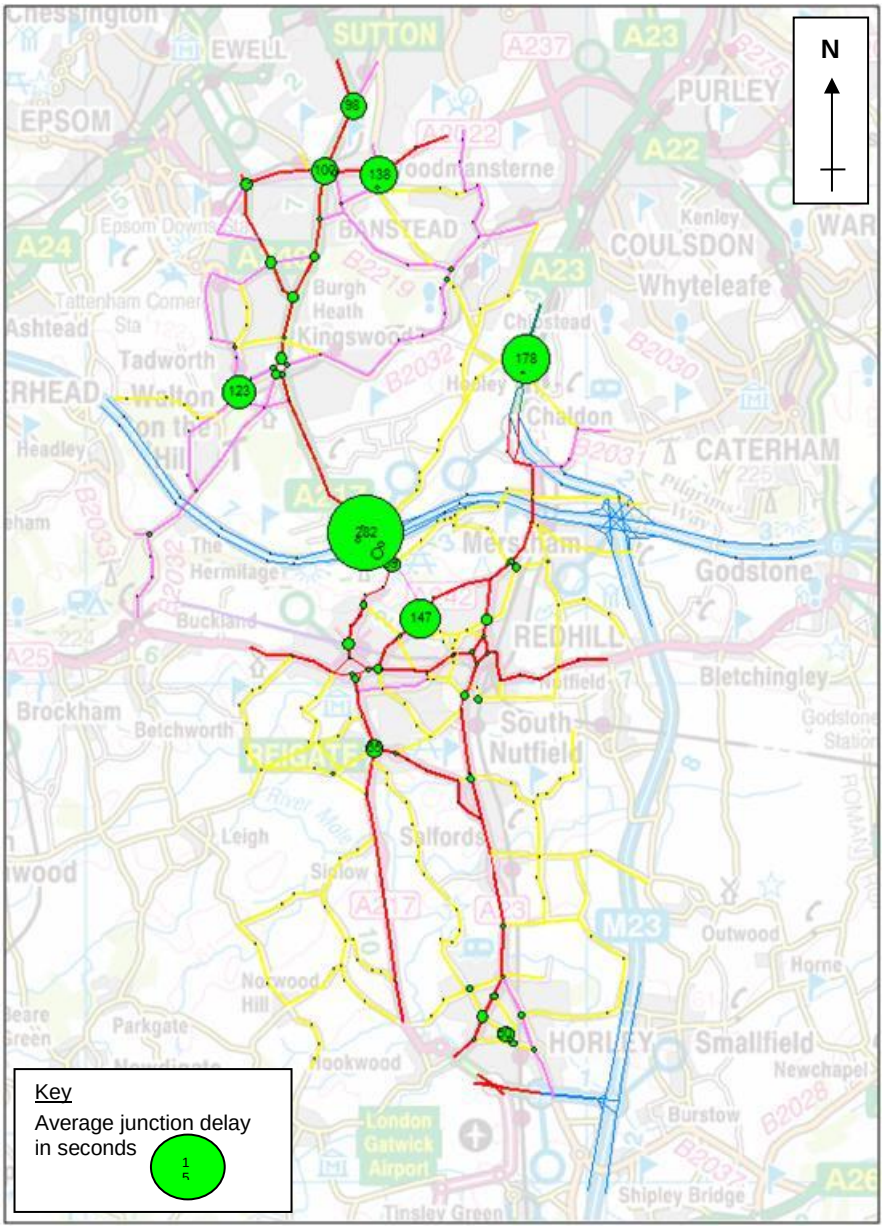


Figure 4.9: Average junction delay for Scenario A for the weekday average PM peak hour (1600 – 1900)

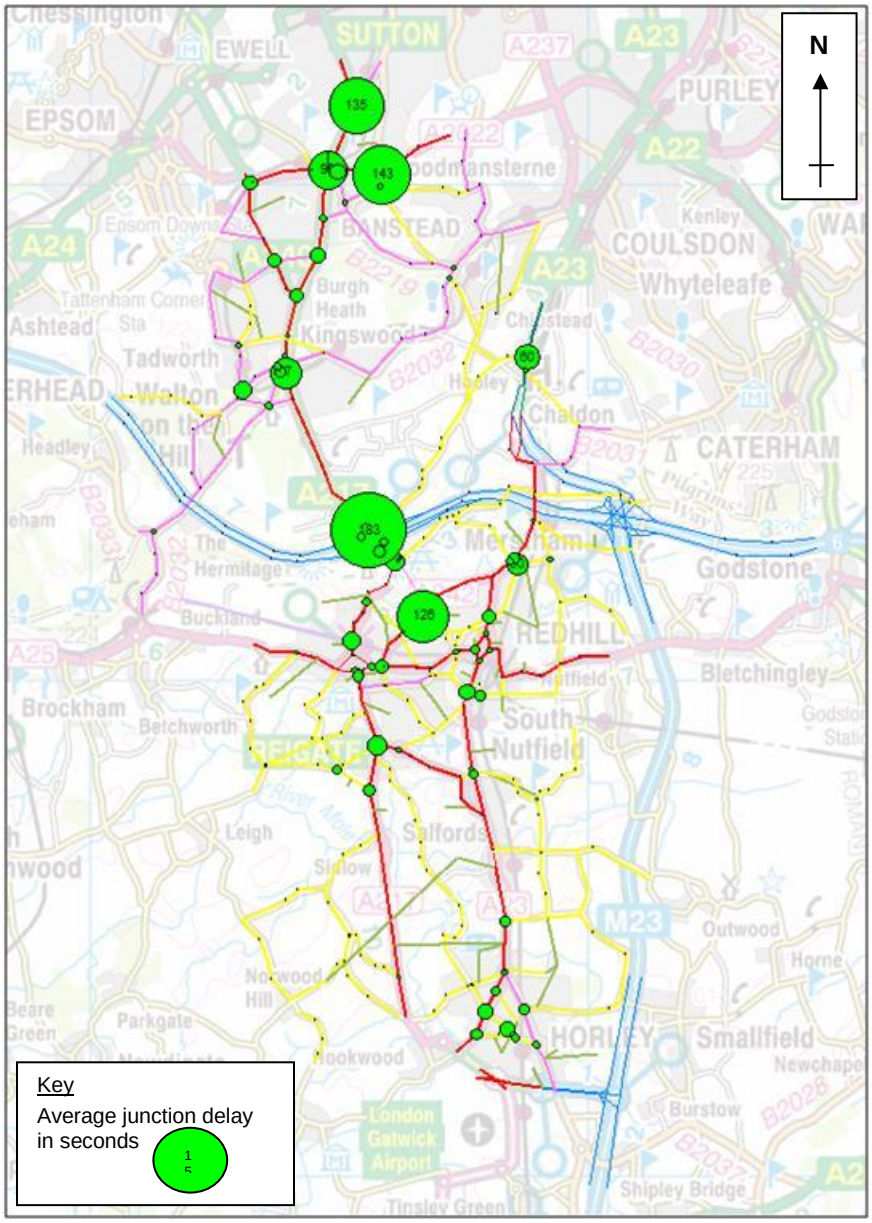


Figure 4.10: Average junction delay for Scenario B for the weekday average AM peak hour (0700 – 1000)

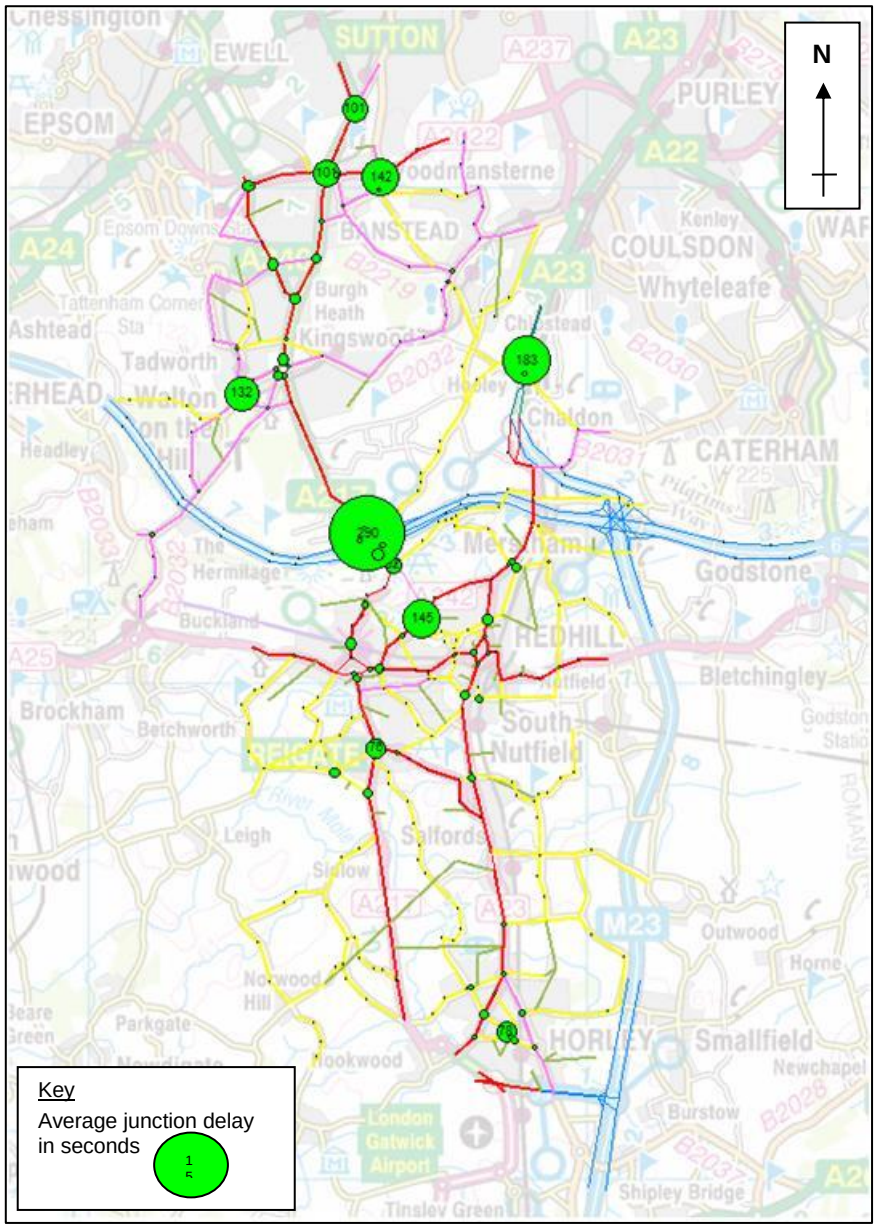


Figure 4.11: Average junction delay for Scenario B for the weekday average PM peak hour (1600 – 1900)

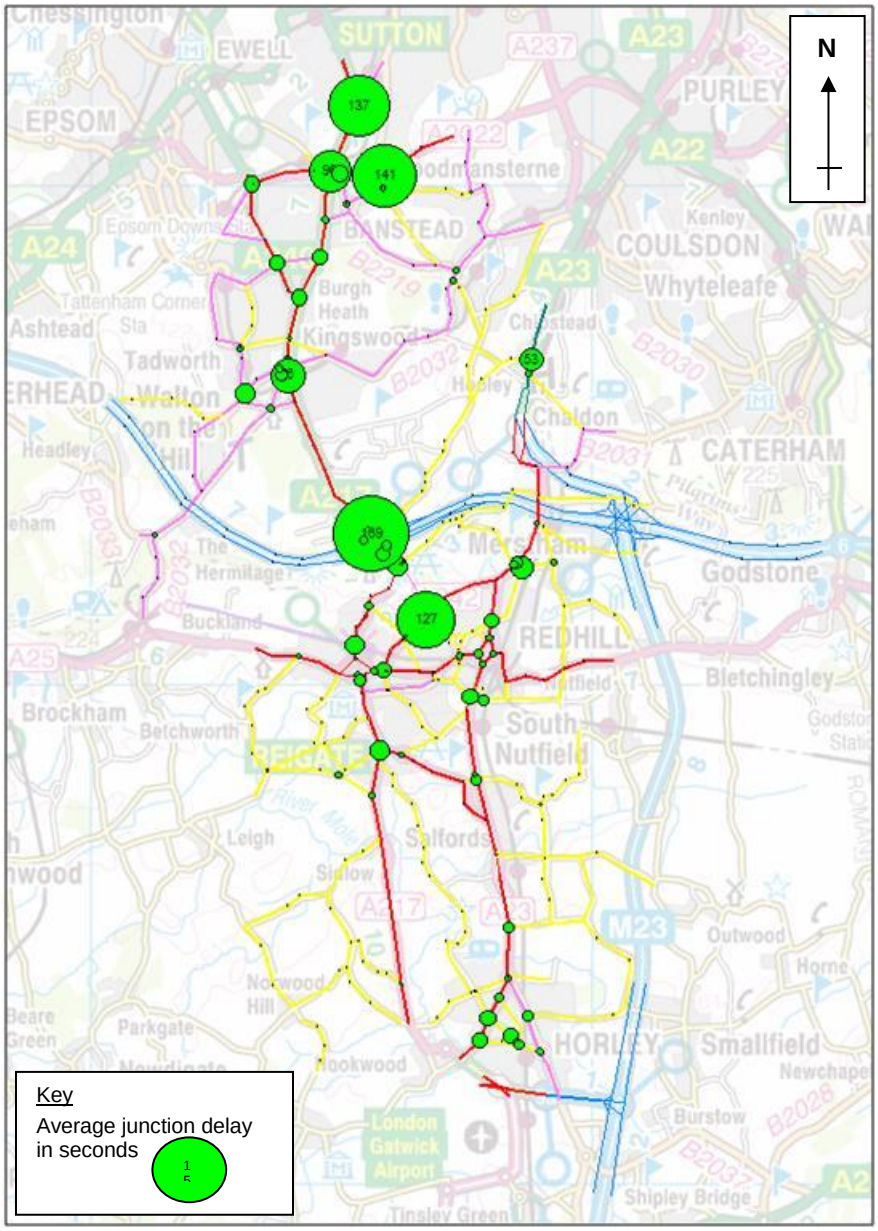


Figure 4.12: Average junction delay for Scenario C for the weekday average AM peak hour (0700 – 1000)

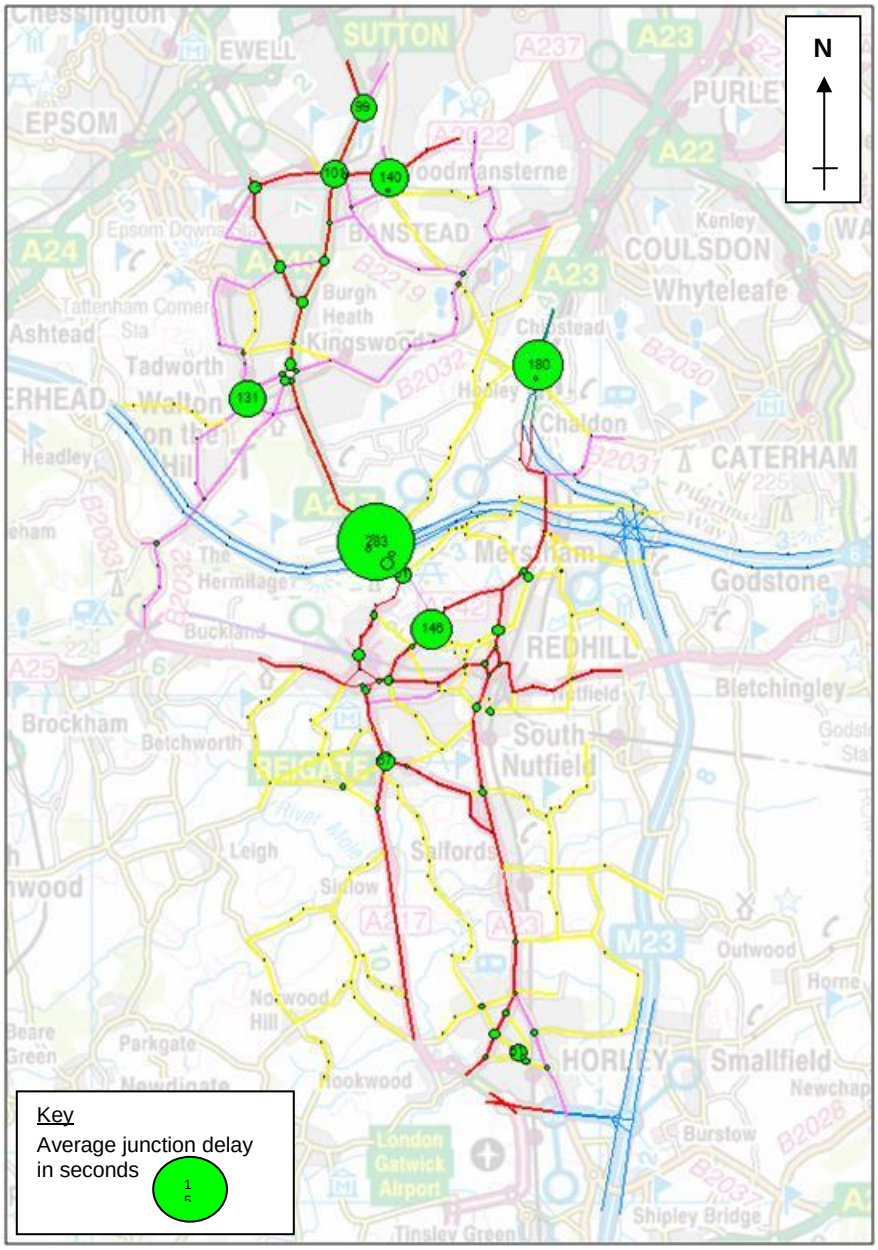


Figure 4.13: Average junction delay for Scenario C for the weekday average PM peak hour (1600 – 1900)

4.8 The Motorway Network

4.8.1 Reigate and Banstead borough contains sections of the strategic network, namely the M25, M23 and A23 trunk. These roads are the responsibility of Highways England. The impact of all the model scenarios on the Highways England road network within Reigate and Banstead is set out in **Tables 4.10** and **4.11** for the weekday average AM (0700–1000) and PM (1600 – 1900) peak hours respectively and shown graphically in **Figure 4.14** and **4.15**.

4.8.2 It can be seen that flow on the M25 is tidal. In the AM peak the predominant flow is in the clockwise or westbound direction, whilst in the PM peak it is in the anticlockwise or eastbound direction of travel.

4.8.3 In Scenario B there are some sizeable increases in flow on the Highways England network, notably an increase of 334 vph in the PM peak on the A23 Airport way eastbound during the PM peak, and an increase of 267 vph on the M23 northbound

between junctions 9 and 10 during the AM peak. The highest percentage increase occurs on the M23 northbound off slip at junction 9, with an increase of 41% or 245 vph during the AM peak. These equate to increases of 18% and 7% respectively compared to Scenario A. The specified sections of road are in close proximity to the large Strategic employment site situated south of Horley and directly accessing the M23 at junction 9a.

4.8.4 Those links which incur an increase greater than 100 vph in Scenario B compared against Scenario A are listed below for the AM Peak:

- M25 mainline junctions 9 to 8 anticlockwise (102vph, 2%);
- M25 mainline junctions 8 to 9 clockwise (134 vph, 2%);
- M25 mainline junction 7 to 8 clockwise (111 vph, 2%);
- M23 junction 8 northbound exit to M25 junction 7 (110 vph, 3%);
- M23 mainline junctions 9 to 8 northbound (170 vph, 4%);
- M23 mainline junctions 8 to 9 southbound (136 vph, 3%);
- M23 junction 9 northbound off-slip (245 vph, 41%);
- M23 junction 9 northbound on-slip (148 vph, 14%);
- M23 mainline junctions 9 to 9a westbound (154 vph, 8%);
- M23 mainline junctions 10 to 9 northbound (267 vph, 7%);
- M23 mainline junctions 9 to 10 southbound (149 vph, 5%); and
- A23 Airport Way eastbound (149 vph, 10%).

4.8.5 Those links which incur an increase greater than 100 vph or 10% in Scenario B compared against Scenario A are listed below for the PM Peak

- M25 mainline junctions 8 to 9 clockwise (133 vph, 3%);
- M25 mainline junction 7 to 8 clockwise (124 vph, 2%);
- M23 junction 8 northbound exit to M25 junction 7 (168 vph, 5%);
- M23 mainline junctions 9 to 8 northbound (170 vph, 4%);
- M23 mainline junctions 8 to 9 southbound (132 vph, 3%);
- M23 junction 9 northbound on-slip (202 vph, 32%)
- M23 mainline junctions 9 to 9a westbound (130 vph, 10%);
- M23 mainline junction 9a to 9 eastbound (289 vph, 17%);
- M23 mainline junctions 9 to 10 southbound (174 vph, 3%);
- A23 Airport Way eastbound (334 vph, 20%); and
- A23 Airport Way westbound (160 vph, 13%).

4.8.6 In Scenario C, the increases in flow on Highways England roads are much reduced compared against Scenario B. In the weekday average AM peak, the maximum increase is 82 vph on the M25 clockwise between junctions 8 and 9, whilst in the weekday average PM peak it is 64 vph for the M25 junction 7 anticlockwise exit to the M23. These equate to 1 and 2% respectively. In percentage terms the maximum increase is 10% in the weekday average AM peak on the M25 junction 8 clockwise on-slip, whilst in the PM peak it is 5% on the same section.

4.8.7 **Tables 4.10** and **4.11** shows that some of the sections of Highways England network experiencing an increase in flow are operating with limited capacity, indicated by RFC values close to, or in excess of 0.85. During the weekday average AM peak these include the M25 clockwise between junctions 7 and 8, the M23 northbound exit to the M25 and the A23 between Church lane and Star Lane, both north and southbound. During the weekday average PM peak links operating with RFCs above 0.85 include the M29 anticlockwise between junctions 9 and 8, the M25 anticlockwise between junctions 8 and 7, the M23 northbound exit to the M25, the A23 between Church lane and Star Lane, both north and southbound, and the M23 southbound between junctions 9 and 10. These sections of the Strategic Road network have either no, or very limited spare capacity to accommodate increases in

traffic and consequently any increase in flow would exacerbate existing queuing and delays.

4.8.8 During both time periods there are also decreases in flow on sections of the Highways England network. Although the M25 and M23 are designed for long distance trips they are also used for travel to nearby towns. Changes in flow patterns at congested junctions on route to the motorway will impact the route choice of some of these trips.

Section of Motorway or Trunk Road	Scenario A	Scenario B	Scenario C
Absolute Flow (vph)			
M25 mainline junctions 9 to 8 anticlockwise	4596	4698	4642
M25 mainline junctions 8 to 9 clockwise	5543	5677	5625
M25 junction 8 anticlockwise off-slip	*750*	*790*	*765*
M25 junction 8 anticlockwise on-slip	*779*	*795*	*783*
M25 junction 8 clockwise off-slip	*1156*	*1190*	*1162*
M25 junction 8 clockwise on-slip	*740*	*797*	*813*
M25 mainline junctions 8 to 7 anticlockwise	4625	4704	4661
M25 mainline junction 7 to 8 clockwise	5959	6069	5973
M25 junction 7 anticlockwise exit to M23 junction 8	2236	2255	2260
M25 junction 7 clockwise exit to M23 junction 8	1565	1599	1546
M25 mainline junctions 7 to 6 anticlockwise	4314	4370	4321
M25 mainline junctions 6 to 7 clockwise	5315	5376	5310
M23 junction 8 northbound exit to M25 junction 7	3715	3825	3722
M23 junction 8 southbound exit to M25 junction 7	1925	1921	1920
A23 between Church Lane and Star Lane northbound	1315	1363	1341
A23 between Church Lane and Star Lane southbound	1731	1756	1737
M23 mainline junctions 8 to 7 northbound	834	850	814
M23 mainline junctions 7 to 8 southbound	1169	1179	1164
M23 mainline junctions 9 to 8 northbound	4213	4383	4222
M23 mainline junctions 8 to 9 southbound	4216	4352	4250
M23 junction 9 northbound off-slip	*604*	*849*	*600*
M23 junction 9 northbound on-slip	*1039*	*1186*	*1048*
M23 junction 9 southbound off-slip	*1420*	*1329*	*1422*
M23 junction 9 southbound on-slip	*432*	*354*	*400*
M23 mainline junctions 9 to 9a westbound	2024	2178	2022
M23 mainline junction 9a to 9 eastbound	1471	1540	1448
M23 mainline junctions 10 to 9 northbound	3779	4046	3775
M23 mainline junctions 9 to 10 southbound	3228	3377	3228
A23 Airport Way eastbound	1471	1620	1448
A23 Airport Way westbound	2024	2109	2022
Difference from Scenario A & Percentage change from Scenario A			
M25 mainline junctions 9 to 8 anticlockwise	-	102 (2%)	47 (1%)
M25 mainline junctions 8 to 9 clockwise	-	134 (2%)	82 (1%)
M25 junction 8 anticlockwise off-slip	-	*40 (5%)*	*15 (2%)*
M25 junction 8 anticlockwise on-slip	-	*17 (2%)*	*4 (1%)*
M25 junction 8 clockwise off-slip	-	*34 (3%)*	*6 (1%)*
M25 junction 8 clockwise on-slip	-	*57 (8%)*	*73 (10%)*
M25 mainline junctions 8 to 7 anticlockwise	-	79 (2%)	36 (1%)
M25 mainline junction 7 to 8 clockwise	-	111 (2%)	14 (0%)
M25 junction 7 anticlockwise exit to M23 junction 8	-	19 (1%)	24 (1%)
M25 junction 7 clockwise exit to M23 junction 8	-	34 (2%)	-19 (-1%)
M25 mainline junctions 7 to 6 anticlockwise	-	56 (1%)	7 (0%)
M25 mainline junctions 6 to 7 clockwise	-	61 (1%)	-6 (0%)
M23 junction 8 northbound exit to M25 junction 7	-	110 (3%)	7 (0%)

Section of Motorway or Trunk Road	Scenario A	Scenario B	Scenario C
M23 junction 8 southbound exit to M25 junction 7	-	-5 (0%)	-5 (0%)
A23 between Church Lane and Star Lane northbound	-	48 (4%)	26 (2%)
A23 between Church Lane and Star Lane southbound	-	24 (1%)	6 (0%)
M23 mainline junctions 8 to 7 northbound	-	17 (2%)	-20 (-2%)
M23 mainline junctions 7 to 8 southbound	-	10 (1%)	-5 (0%)
M23 mainline junctions 9 to 8 northbound	-	170 (4%)	9 (0%)
M23 mainline junctions 8 to 9 southbound	-	136 (3%)	34 (1%)
M23 junction 9 northbound off-slip	-	*245 (41%)*	*-4 (-1%)*
M23 junction 9 northbound on-slip	-	*148 (14%)*	*9 (1%)*
M23 junction 9 southbound off-slip	-	*-91 (-6%)*	*1 (0%)*
M23 junction 9 southbound on-slip	-	*-78 (-18%)*	*-32 (-7%)*
M23 mainline junctions 9 to 9a westbound	-	154 (8%)	-3 (0%)
M23 mainline junction 9a to 9 eastbound	-	70 (5%)	-23(-2%)
M23 mainline junctions 10 to 9 northbound	-	267 (7%)	-4 (0%)
M23 mainline junctions 9 to 10 southbound	-	149 (5%)	0 (0%)
A23 Airport Way eastbound	-	149 (10%)	-23 (-2%)
A23 Airport Way westbound	-	85 (4%)	-3 (0%)
RFC and Level of Service			
M25 mainline junctions 9 to 8 anticlockwise	0.69 C	0.70 C	0.70 C
M25 mainline junctions 8 to 9 clockwise	0.82 D	0.84 D	0.83 D
M25 junction 8 anticlockwise off-slip	*0.22 A*	*0.23 A*	*0.22 A*
M25 junction 8 anticlockwise on-slip	*0.23 A*	*0.23 A*	*0.23 A*
M25 junction 8 clockwise off-slip	*0.32 B*	*0.33 B*	*0.32 B*
M25 junction 8 clockwise on-slip	*0.44 B*	*0.47 B*	*0.48 B*
M25 mainline junctions 8 to 7 anticlockwise	0.69 C	0.70 C	0.70 C
M25 mainline junction 7 to 8 clockwise	0.87 D	0.88 D	0.87 D
M25 junction 7 anticlockwise exit to M23 junction 8	0.67 C	0.68 C	0.68 C
M25 junction 7 clockwise exit to M23 junction 8	0.44 B	0.45 B	0.43 B
M25 mainline junctions 7 to 6 anticlockwise	0.64 C	0.65 C	0.64 C
M25 mainline junctions 6 to 7 clockwise	0.78 D	0.79 D	0.78 D
M23 junction 8 northbound exit to M25 junction 7	1.06 F	1.09 F	1.06 F
M23 junction 8 southbound exit to M25 junction 7	0.57 C	0.57 C	0.57 C
A23 between Church Lane and Star Lane northbound	1.03 F	1.06 F	1.05 F
A23 between Church Lane and Star Lane southbound	1.31 F	1.33 F	1.32 F
M23 mainline junctions 8 to 7 northbound	0.17 A	0.17 A	0.16 A
M23 mainline junctions 7 to 8 southbound	0.16 A	0.17 A	0.16 A
M23 mainline junctions 9 to 8 northbound	0.80 D	0.83 D	0.80 D
M23 mainline junctions 8 to 9 southbound	0.81 D	0.83 D	0.81 D
M23 junction 9 northbound off-slip	*0.17 A*	*0.23 A*	*0.17 A*
M23 junction 9 northbound on-slip	*0.30 A*	*0.33 B*	*0.30 A*
M23 junction 9 southbound off-slip	*0.39 B*	*0.36 B*	*0.39 B*
M23 junction 9 southbound on-slip	*0.12 A*	*0.09 A*	*0.11 A*
M23 mainline junctions 9 to 9a westbound	0.56 C	0.59 C	0.56 C
M23 mainline junction 9a to 9 eastbound	0.41 B	0.43 B	0.41 B
M23 mainline junctions 10 to 9 northbound	0.71 C	0.76 D	0.71 C
M23 mainline junctions 9 to 10 southbound	0.62 C	0.65 C	0.62 C
A23 Airport Way eastbound	0.45 B	0.49 B	0.44 B
A23 Airport Way westbound	0.60 C	0.62 C	0.60 C

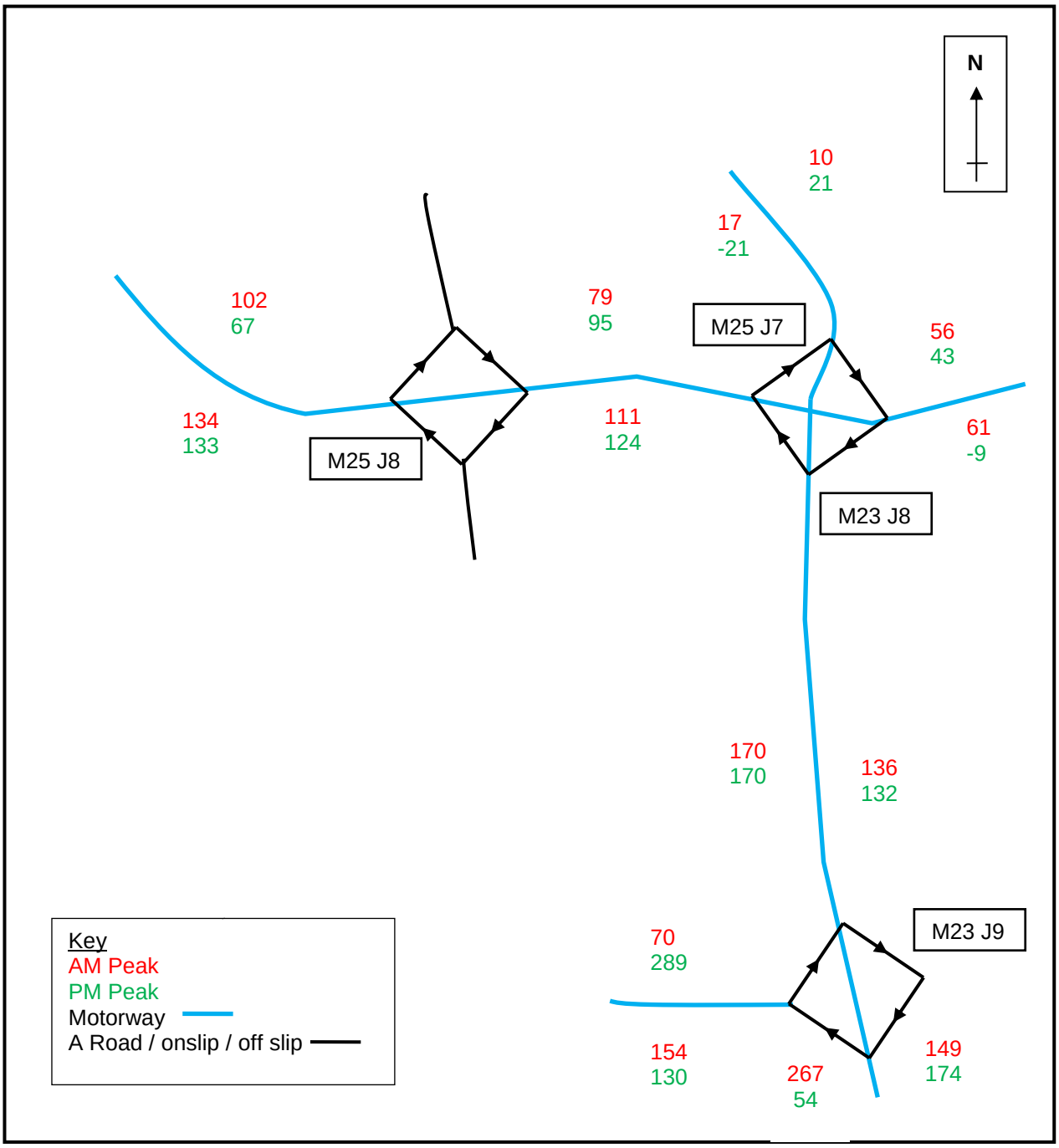
Table 4.10: Weekday average AM peak hour (0700 – 1000) traffic flow summary for the motorway network

Section of Motorway or Trunk Road	Scenario A	Scenario B	Scenario C
Absolute Flow (vph)			
M25 mainline junctions 9 to 8 anticlockwise	6286	6353	6344
M25 mainline junctions 8 to 9 clockwise	5034	5167	5076
M25 junction 8 anticlockwise off-slip	*683*	*695*	*685*
M25 junction 8 anticlockwise on-slip	*1178*	*1216*	*1183*
M25 junction 8 clockwise off-slip	*944*	*974*	*949*
M25 junction 8 clockwise on-slip	*847*	*887*	*888*
M25 mainline junctions 8 to 7 anticlockwise	6781	6875	6843
M25 mainline junction 7 to 8 clockwise	5131	5255	5137
M25 junction 7 anticlockwise exit to M23 junction 8	2832	2928	2895
M25 junction 7 clockwise exit to M23 junction 8	1365	1353	1345
M25 mainline junctions 7 to 6 anticlockwise	5890	5932	5886
M25 mainline junctions 6 to 7 clockwise	4825	4816	4810
M23 junction 8 northbound exit to M25 junction 7	3115	3283	3117
M23 junction 8 southbound exit to M25 junction 7	1941	1985	1938
A23 between Church Lane and Star Lane northbound	1677	1699	1687
A23 between Church Lane and Star Lane southbound	1793	1851	1822
M23 mainline junctions 8 to 7 northbound	1180	1158	1145
M23 mainline junctions 7 to 8 southbound	1159	1180	1153
M23 mainline junctions 9 to 8 northbound	3987	4157	3966
M23 mainline junctions 8 to 9 southbound	4551	4683	4603
M23 junction 9 northbound off-slip	*669*	*754*	*650*
M23 junction 9 northbound on-slip	*621*	*823*	*627*
M23 junction 9 southbound off-slip	*571*	*616*	*589*
M23 junction 9 southbound on-slip	*1008*	*1096*	*921*
M23 mainline junctions 9 to 9a westbound	1241	1371	1239
M23 mainline junction 9a to 9 eastbound	1630	1919	1548
M23 mainline junctions 10 to 9 northbound	4035	4089	3989
M23 mainline junctions 9 to 10 southbound	4988	5162	4935
A23 Airport Way eastbound	1630	1964	1548
A23 Airport Way westbound	1241	1401	1239
Difference from Scenario A & Percentage change from Scenario A			
M25 mainline junctions 9 to 8 anticlockwise	-	67 (1%)	58 (1%)
M25 mainline junctions 8 to 9 clockwise	-	133 (3%)	42 (1%)
M25 junction 8 anticlockwise off-slip	-	*11 (2%)*	*1 (0%)*
M25 junction 8 anticlockwise on-slip	-	*39 (3%)*	*5 (0%)*
M25 junction 8 clockwise off-slip	-	*31 (3%)*	*5 (1%)*
M25 junction 8 clockwise on-slip	-	*40 (5%)*	*41 (5%)*
M25 mainline junctions 8 to 7 anticlockwise	-	95 (1%)	62 (1%)
M25 mainline junction 7 to 8 clockwise	-	124 (2%)	6 (0%)

Section of Motorway or Trunk Road	Scenario A	Scenario B	Scenario C
M25 junction 7 anticlockwise exit to M23 junction 8	-	96 (3%)	64 (2%)
M25 junction 7 clockwise exit to M23 junction 8	-	-12 (-1%)	-20 (-1%)
M25 mainline junctions 7 to 6 anticlockwise	-	43 (1%)	-4 (0%)
M25 mainline junctions 6 to 7 clockwise	-	-9 (0%)	-15 (0%)
M23 junction 8 northbound exit to M25 junction 7	-	168 (5%)	2 (0%)
M23 junction 8 southbound exit to M25 junction 7	-	44 (2%)	-2 (0%)
A23 between Church Lane and Star Lane northbound	-	22 (1%)	10 (1%)
A23 between Church Lane and Star Lane southbound	-	59 (3%)	29 (2%)
M23 mainline junctions 8 to 7 northbound	-	-21 (-2%)	-34 (-3%)
M23 mainline junctions 7 to 8 southbound	-	21 (2%)	-7 (-1%)
M23 mainline junctions 9 to 8 northbound	-	170 (4%)	-21 (-1%)
M23 mainline junctions 8 to 9 southbound	-	132 (3%)	52 (1%)
M23 junction 9 northbound off-slip	-	*85 (13%)*	*-19 (-3%)*
M23 junction 9 northbound on-slip	-	*202 (32%)*	*5 (1%)*
M23 junction 9 southbound off-slip	-	*45 (8%)*	*18 (3%)*
M23 junction 9 southbound on-slip	-	*87 (9%)*	*-87 (-9%)*
M23 mainline junctions 9 to 9a westbound	-	130 (10%)	-2 (0%)
M23 mainline junction 9a to 9 eastbound	-	289 (18%)	-82 (-5%)
M23 mainline junctions 10 to 9 northbound	-	54 (1%)	-46 (-1%)
M23 mainline junctions 9 to 10 southbound	-	174 (3%)	-53 (-1%)
A23 Airport Way eastbound	-	334 (20%)	-82 (-5%)
A23 Airport Way westbound	-	160 (13%)	-2 (0%)
RFC and Level of Service			
M25 mainline junctions 9 to 8 anticlockwise	0.90 D	0.90 D	0.90 D
M25 mainline junctions 8 to 9 clockwise	0.73 C	0.75 D	0.74 C
M25 junction 8 anticlockwise off-slip	*0.20 A*	*0.20 A*	*0.20 A*
M25 junction 8 anticlockwise on-slip	*0.32 B*	*0.33 B*	*0.33 B*
M25 junction 8 clockwise off-slip	*0.27 A*	*0.28 A*	*0.27 A*
M25 junction 8 clockwise on-slip	*0.47 B*	*0.49 B*	*0.49 B*
M25 mainline junctions 8 to 7 anticlockwise	0.96 E	0.97 E	0.97 E
M25 mainline junction 7 to 8 clockwise	0.75 D	0.77 D	0.75 D
M25 junction 7 anticlockwise exit to M23 junction 8	0.80 D	0.83 D	0.82 D
M25 junction 7 clockwise exit to M23 junction 8	0.37 B	0.37 B	0.37 B
M25 mainline junctions 7 to 6 anticlockwise	0.84 D	0.85 D	0.84 D
M25 mainline junctions 6 to 7 clockwise	0.71 C	0.71 C	0.71 C
M23 junction 8 northbound exit to M25 junction 7	0.88 D	0.92 E	0.88 D
M23 junction 8 southbound exit to M25 junction 7	0.56 C	0.57 C	0.56 C
A23 between Church Lane and Star Lane northbound	1.27 F	1.28 F	1.28 F
A23 between Church Lane and Star Lane southbound	1.32 F	1.36 F	1.34 F
M23 mainline junctions 8 to 7 northbound	0.22 A	0.22 A	0.22 A

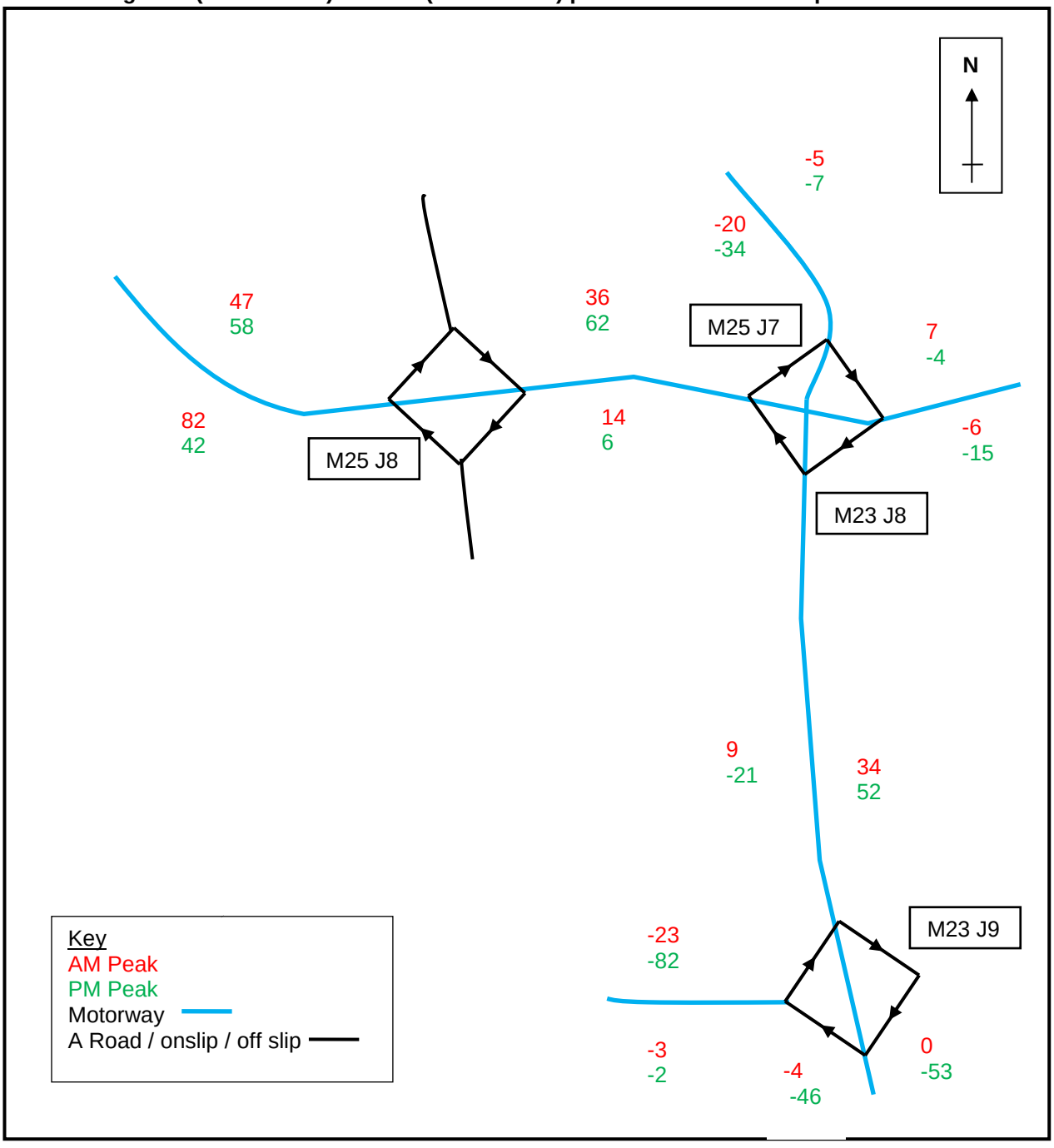
Section of Motorway or Trunk Road	Scenario A	Scenario B	Scenario C
M23 mainline junctions 7 to 8 southbound	0.16 A	0.16 A	0.16 A
M23 mainline junctions 9 to 8 northbound	0.74 C	0.77 D	0.74 C
M23 mainline junctions 8 to 9 southbound	0.83 D	0.86 D	0.84 D
M23 junction 9 northbound off-slip	*0.19 A*	*0.21 A*	*0.18 A*
M23 junction 9 northbound on-slip	*0.17 A*	*0.22 A*	*0.17 A*
M23 junction 9 southbound off-slip	*0.16 A*	*0.17 A*	*0.17 A*
M23 junction 9 southbound on-slip	*0.31 A*	*0.33 B*	*0.28 A*
M23 mainline junctions 9 to 9a westbound	0.35 B	0.39 B	0.35 B
M23 mainline junction 9a to 9 eastbound	0.48 B	0.55 C	0.45 B
M23 mainline junctions 10 to 9 northbound	0.76 D	0.77 D	0.75 D
M23 mainline junctions 9 to 10 southbound	0.93 E	0.96 E	0.92 E
A23 Airport Way eastbound	0.52 C	0.61 C	0.49 B
A23 Airport Way westbound	0.38 B	0.43 B	0.38 B

Table 4.11: Weekday average PM peak hour (1600 – 1900) traffic flow summary for the motorway network



** Note that this is a simplified diagram and as such the on and off slip roads are more complicated on street, notably at the M25 junction 17/ M23 junction 8 interchange.*

Figure 4.14: Changes in mainline motorway flow from Scenario A to B for the weekday average AM (0700 – 1000) and PM (1600 – 1900) peak hours in vehicles per hour.



***** *Note that this is a simplified diagram and as such the on and off slip roads are more complicated on street, notably at the M25 junction 17/ M23 junction 8 interchange.*

Figure 4.15: Changes in mainline motorway flow from Scenario A to C for the weekday average AM (0700 – 1000) and PM (1600 – 1900) peak hours in vehicles per hour.

4.9 Cross Boundary Impacts

4.9.1 Traffic flows on A principal and B roads which cross into neighbouring authorities have been analysed for all scenarios in **Tables 4.12** - **4.15**. The roads have been listed in a clockwise direction, starting with the London borough of Sutton.

4.9.2 **Tables 4.12** and **4.13** show the traffic flows for each Scenario on A principal and B roads which enter into Reigate and Banstead borough from neighbouring authorities for the weekday average AM (0700 – 1000) and PM (1600-1900) peak hours.

4.9.3 In Scenario B, the maximum increases occur in the weekday average AM peak, with 162 vph entering the borough of Reigate and Banstead from West Sussex via the B2036 Balcombe Road. This equates to a 22% increase in flow on this route which is in the immediate vicinity of the large Strategic employment site south of Horley. The rest of the flow increases in Scenario B are more modest and all under 75 vph in both time periods. In Scenario C, the maximum increase in flow for any A or B road entering Reigate and Banstead borough is 58 vph on the A25 Buckland Road eastbound during the weekday average PM peak.

4.9.4 **Tables 4.14** and **4.15** present the flow of vehicles leaving Reigate and Banstead borough and travelling into neighbouring local authorities in the weekday average AM (0700 – 1000) and PM (1600-1900) peak hours. In Scenario B the maximum increase is on the A25 Nutfield Road travelling eastbound into Tandridge which experiences an increase of 134 vph compared to Scenario A during the weekday average PM peak hour. This appears to be attributable to vehicles re-routeing east of Redhill with southbound vehicles switching from Nutfield Marsh Road and Coopers Hill Road to Cormongers Lane and Mid Street via the A25. The same phenomenon results in the maximum increase in Scenario C of 62 vph occurring on the A25 Nutfield Road eastbound during the weekday average PM peak. All other increases in Scenario C are less than 25 vph in both time periods.

Link Ref.	Road	Direction of Travel	Local Authority Trips Travelling To	2031 Scenario A	2031 Scenario B	2031 Scenario C
Vehicle flows (vph)						
16258,2	A217 Belmont Rise	Southboun	Sutton	866	868	868
1915,1	B2230 Brighton Road	Southboun	Sutton	1092	1107	1092
8266,2	B2218 Sutton Lane	Southboun	Sutton	1073	1087	1089
8268,2	A2022 Croydon Lane	Westbound	Croydon	861	859	856
16109,1	B278 Carshalton Road	Southboun	Croydon	466	469	468
1948,1	B2032 Outwood Lane	Westbound	Croydon	655	670	669
1952,1	A23 Brighton Road	Southboun	Croydon	1321	1325	1319
17601,1	B2031 Dean Lane	Westbound	Tandridge	517	512	516
8927,1	A25 Nutfield Road	Westbound	Tandridge	379	371	371
15678,1	B2036 Balcombe Road	Northbound	West Sussex	751	913	768
8858,1	A23 Brighton Road	Northbound	Mole Valley	1056	1120	1055
8866,1	A217 Reigate Road	Northbound	Mole Valley	713	786	738
8816,1	A25 Buckland Road	Eastbound	Mole Valley	685	729	694
17611,1	B2032 Pebble Hill Road	Northbound	Mole Valley	832	872	856
17613,1	B2033 Headley Common Rd	Eastbound	Mole Valley	308	296	295
17791,2	B290 Tattenham Corner	Southboun	Epsom & Ewell	283	271	278
17789,2	B2221 Tattenham Crescent	Eastbound	Epsom & Ewell	350	363	355
11368,1	B284 Yew Tree Bottom Road	Eastbound	Epsom & Ewell	254	252	254
17619,1	B291 Fir Tree Road	Northbound	Epsom & Ewell	327	324	324
10200,2	A240 Reigate Road	Southboun	Epsom & Ewell	686	691	687
Difference from Scenario A (vph) & Percentage change from Scenario A						
16258,2	A217 Belmont Rise	Southboun	Sutton	-	1 (0%)	2 (0%)
1915,1	B2230 Brighton Road	Southboun	Sutton	-	15 (1%)	0 (0%)
8266,2	B2218 Sutton Lane	Southboun	Sutton	-	15 (1%)	16 (2%)
8268,2	A2022 Croydon Lane	Westbound	Croydon	-	-2 (0%)	-5 (-1%)
16109,1	B278 Carshalton Road	Southboun	Croydon	-	3 (1%)	1 (0%)
1948,1	B2032 Outwood Lane	Westbound	Croydon	-	15 (2%)	15 (2%)
1952,1	A23 Brighton Road	Southboun	Croydon	-	4 (0%)	-2 (0%)
17601,1	B2031 Dean Lane	Westbound	Tandridge	-	-5 (-1%)	-1 (0%)
8927,1	A25 Nutfield Road	Westbound	Tandridge	-	-7 (-2%)	-8 (-2%)
15678,1	B2036 Balcombe Road	Northbound	West Sussex	-	162 (22%)	17 (2%)
8858,1	A23 Brighton Road	Northbound	Mole Valley	-	64 (6%)	-2 (0%)
8866,1	A217 Reigate Road	Northbound	Mole Valley	-	73 (10%)	25 (3%)
8816,1	A25 Buckland Road	Eastbound	Mole Valley	-	44 (6%)	9 (1%)
17611,1	B2032 Pebble Hill Road	Northbound	Mole Valley	-	41 (5%)	24 (3%)
17613,1	B2033 Headley Common Rd	Eastbound	Mole Valley	-	-11 (-4%)	-12 (-4%)
17791,2	B290 Tattenham Corner	Southboun	Epsom & Ewell	-	-13 (-4%)	-5 (-2%)
17789,2	B2221 Tattenham Crescent	Eastbound	Epsom & Ewell	-	13 (4%)	5 (2%)
11368,1	B284 Yew Tree Bottom Road	Eastbound	Epsom & Ewell	-	-2 (-1%)	0 (0%)
17619,1	B291 Fir Tree Road	Northbound	Epsom & Ewell	-	-3 (-1%)	-3 (-1%)
10200,2	A240 Reigate Road	Southboun	Epsom & Ewell	-	5 (1%)	1 (0%)
RFC (pcu)						
16258,2	A217 Belmont Rise	Southboun	Sutton	1.11	1.12	1.12
1915,1	B2230 Brighton Road	Southboun	Sutton	1.40	1.42	1.40
8266,2	B2218 Sutton Lane	Southboun	Sutton	0.96	0.97	0.97
8268,2	A2022 Croydon Lane	Westbound	Croydon	0.52	0.52	0.52
16109,1	B278 Carshalton Road	Southboun	Croydon	0.61	0.61	0.61
1948,1	B2032 Outwood Lane	Westbound	Croydon	0.87	0.89	0.89
1952,1	A23 Brighton Road	Southboun	Croydon	0.47	0.47	0.47
17601,1	B2031 Dean Lane	Westbound	Tandridge	0.44	0.44	0.44
8927,1	A25 Nutfield Road	Westbound	Tandridge	0.33	0.32	0.32

Link Ref.	Road	Direction of Travel	Local Authority Trips Travelling To	2031 Scenario A	2031 Scenario B	2031 Scenario C
15678,1	B2036 Balcombe Road	Northbound	West Sussex	0.45	0.55	0.46
8858,1	A23 Brighton Road	Northbound	Mole Valley	1.38	1.45	1.38
8866,1	A217 Reigate Road	Northbound	Mole Valley	0.61	0.67	0.63
8816,1	A25 Buckland Road	Eastbound	Mole Valley	0.60	0.64	0.61
17611,1	B2032 Pebble Hill Road	Northbound	Mole Valley	0.71	0.74	0.73
17613,1	B2033 Headley Common Rd	Eastbound	Mole Valley	0.26	0.25	0.25
17791,2	B290 Tattenham Corner	Southboun	Epsom & Ewell	0.17	0.16	0.17
17789,2	B2221 Tattenham Crescent	Eastbound	Epsom & Ewell	0.45	0.47	0.46
11368,1	B284 Yew Tree Bottom Road	Eastbound	Epsom & Ewell	0.32	0.32	0.32
17619,1	B291 Fir Tree Road	Northbound	Epsom & Ewell	0.41	0.41	0.41
10200,2	A240 Reigate Road	Southboun	Epsom & Ewell	0.88	0.89	0.89

Table 4.12: Weekday average AM Peak Hour (0700 – 1000) traffic flow summary <u>entering</u> Reigate and Banstead borough for A principal and B roads which cross into neighbouring authorities

Link Ref.	Road	Direction of Travel	Local Authority Trips Travelling To	2031 Scenario A	2031 Scenario B	2031 Scenario C
Vehicle flows (vph)						
16258,2	A217 Belmont Rise	Southbound	Sutton	648	648	650
1915,1	B2230 Brighton Road	Southbound	Sutton	1037	1034	1036
8266,2	B2218 Sutton Lane	Southbound	Sutton	1078	1113	1099
8268,2	A2022 Croydon Lane	Westbound	Croydon	891	879	882
16109,1	B278 Carshalton Road	Southbound	Croydon	327	331	325
1948,1	B2032 Outwood Lane	Westbound	Croydon	520	534	531
1952,1	A23 Brighton Road	Southbound	Croydon	1348	1345	1343
17601,1	B2031 Dean Lane	Westbound	Tandridge	333	328	321
8927,1	A25 Nutfield Road	Westbound	Tandridge	357	403	387
15678,1	B2036 Balcombe Road	Northbound	West Sussex	534	585	537
8858,1	A23 Brighton Road	Northbound	Mole Valley	955	1000	973
8866,1	A217 Reigate Road	Northbound	Mole Valley	721	751	727
8816,1	A25 Buckland Road	Eastbound	Mole Valley	939	1005	997
17611,1	B2032 Pebble Hill Road	Northbound	Mole Valley	730	753	749
17613,1	B2033 Headley Common Rd	Eastbound	Mole Valley	225	216	211
17791,2	B290 Tattenham Corner Road	Southbound	Epsom & Ewell	469	470	469
17789,2	B2221 Tattenham Crescent	Eastbound	Epsom & Ewell	401	419	413
11368,1	B284 Yew Tree Bottom Road	Eastbound	Epsom & Ewell	220	228	226
17619,1	B291 Fir Tree Road	Northbound	Epsom & Ewell	458	458	457
10200,2	A240 Reigate Road	Southbound	Epsom & Ewell	727	750	748
Difference from Scenario A (vph) & Percentage change from Scenario A						
16258,2	A217 Belmont Rise	Southbound	Sutton	-	0 (0%)	2 (0%)
1915,1	B2230 Brighton Road	Southbound	Sutton	-	-2 (0%)	-1 (0%)
8266,2	B2218 Sutton Lane	Southbound	Sutton	-	35 (3%)	21 (2%)
8268,2	A2022 Croydon Lane	Westbound	Croydon	-	-12 (-1%)	-9 (-1%)
16109,1	B278 Carshalton Road	Southbound	Croydon	-	4 (1%)	-2 (-1%)
1948,1	B2032 Outwood Lane	Westbound	Croydon	-	13 (3%)	10 (2%)
1952,1	A23 Brighton Road	Southbound	Croydon	-	-3 (0%)	-5 (0%)
17601,1	B2031 Dean Lane	Westbound	Tandridge	-	-5 (-2%)	-12 (-4%)

Link Ref.	Road	Direction of Travel	Local Authority Trips Travelling To	2031 Scenario A	2031 Scenario B	2031 Scenario C
8927,1	A25 Nutfield Road	Westbound	Tandridge	-	46 (13%)	30 (8%)
15678,1	B2036 Balcombe Road	Northbound	West Sussex	-	52 (10%)	3 (1%)
8858,1	A23 Brighton Road	Northbound	Mole Valley	-	45 (5%)	18 (2%)
8866,1	A217 Reigate Road	Northbound	Mole Valley	-	30 (4%)	6 (1%)
8816,1	A25 Buckland Road	Eastbound	Mole Valley	-	66 (7%)	58 (6%)
17611,1	B2032 Pebble Hill Road	Northbound	Mole Valley	-	23 (3%)	19 (3%)
17613,1	B2033 Headley Common Rd	Eastbound	Mole Valley	-	-9 (-4%)	-14 (-6%)
17791,2	B290 Tattenham Corner Road	Southbound	Epsom & Ewell	-	1 (0%)	1 (0%)
17789,2	B2221 Tattenham Crescent	Eastbound	Epsom & Ewell	-	19 (5%)	12 (3%)
11368,1	B284 Yew Tree Bottom Road	Eastbound	Epsom & Ewell	-	8 (4%)	6 (3%)
17619,1	B291 Fir Tree Road	Northbound	Epsom & Ewell	-	0 (0%)	-1 (0%)
10200,2	A240 Reigate Road	Southbound	Epsom & Ewell	-	23 (3%)	21 (3%)
RFC (pcu)						
16258,2	A217 Belmont Rise	Southbound	Sutton	0.84	0.84	0.84
1915,1	B2230 Brighton Road	Southbound	Sutton	1.33	1.33	1.33
8266,2	B2218 Sutton Lane	Southbound	Sutton	0.94	0.97	0.96
8268,2	A2022 Croydon Lane	Westbound	Croydon	0.54	0.53	0.53
16109,1	B278 Carshalton Road	Southbound	Croydon	0.45	0.45	0.45
1948,1	B2032 Outwood Lane	Westbound	Croydon	0.68	0.70	0.70
1952,1	A23 Brighton Road	Southbound	Croydon	0.46	0.46	0.46
17601,1	B2031 Dean Lane	Westbound	Tandridge	0.28	0.28	0.27
8927,1	A25 Nutfield Road	Westbound	Tandridge	0.30	0.34	0.33
15678,1	B2036 Balcombe Road	Northbound	West Sussex	0.32	0.35	0.32
8858,1	A23 Brighton Road	Northbound	Mole Valley	1.25	1.30	1.27
8866,1	A217 Reigate Road	Northbound	Mole Valley	0.61	0.64	0.62
8816,1	A25 Buckland Road	Eastbound	Mole Valley	0.81	0.86	0.85
17611,1	B2032 Pebble Hill Road	Northbound	Mole Valley	0.61	0.63	0.63
17613,1	B2033 Headley Common Rd	Eastbound	Mole Valley	0.19	0.18	0.18
17791,2	B290 Tattenham Corner Road	Southbound	Epsom & Ewell	0.28	0.28	0.28
17789,2	B2221 Tattenham Crescent	Eastbound	Epsom & Ewell	0.51	0.53	0.52
11368,1	B284 Yew Tree Bottom Road	Eastbound	Epsom & Ewell	0.28	0.29	0.29
17619,1	B291 Fir Tree Road	Northbound	Epsom & Ewell	0.57	0.58	0.57
10200,2	A240 Reigate Road	Southbound	Epsom & Ewell	0.95	0.98	0.98

Table 4.13: Weekday average PM Peak Hour (1600 – 1900) traffic flow summary entering Reigate and Banstead borough for A principal and B roads which cross into neighbouring authorities

Link Ref.	Road	Direction of Travel	Local Authority Trips Travelling From	2031 Scenario A	2031 Scenario B	2031 Scenario C
Vehicle flows (vph)						
16258,1	A217 Belmont Rise	Northbound	Sutton	1108	1111	1110
1915,2	B2230 Brighton Road	Northbound	Sutton	1124	1131	1126
8266,1	B2218 Sutton Lane	Northbound	Sutton	974	994	986
8268,1	A2022 Croydon Lane	Eastbound	Croydon	805	807	806
16109,2	B278 Carshalton Road	Northbound	Croydon	196	198	197
1948,2	B2032 Outwood Lane	Eastbound	Croydon	549	559	554
1952,2	A23 Brighton Road	Northbound	Croydon	665	685	675
17601,2	B2031 Dean Lane	Eastbound	Tandridge	300	312	311

Link Ref.	Road	Direction of Travel	Local Authority Trips Travelling From	2031 Scenario A	2031 Scenario B	2031 Scenario C
8927,2	A25 Nutfield Road	Eastbound	Tandridge	399	420	410
15678,2	B2036 Balcombe Road	Southbound	West Sussex	499	580	493
8858,2	A23 Brighton Road	Southbound	Mole Valley	903	985	909
8866,2	A217 Reigate Road	Southbound	Mole Valley	781	811	782
8816,2	A25 Buckland Road	Westbound	Mole Valley	1170	1154	1182
17611,2	B2032 Pebble Hill Road	Southbound	Mole Valley	563	574	560
17613,2	B2033 Headley Common Rd	Westbound	Mole Valley	572	583	577
17791,1	B290 Tattenham Corner Road	Northbound	Epsom & Ewell	452	481	461
17789,1	B2221 Tattenham Crescent	Westbound	Epsom & Ewell	438	430	436
11368,2	B284 Yew Tree Bottom Road	Westbound	Epsom & Ewell	455	455	456
17619,2	B291 Fir Tree Road	Southbound	Epsom & Ewell	376	370	375
10200,1	A240 Reigate Road	Northbound	Epsom & Ewell	984	982	980
Difference from Scenario A (vph) & Percentage change from Scenario A						
16258,1	A217 Belmont Rise	Northbound	Sutton	-	3 (0%)	1 (0%)
1915,2	B2230 Brighton Road	Northbound	Sutton	-	7 (1%)	1 (0%)
8266,1	B2218 Sutton Lane	Northbound	Sutton	-	20 (2%)	12 (1%)
8268,1	A2022 Croydon Lane	Eastbound	Croydon	-	2 (0%)	2 (0%)
16109,2	B278 Carshalton Road	Northbound	Croydon	-	1 (1%)	1 (1%)
1948,2	B2032 Outwood Lane	Eastbound	Croydon	-	10 (2%)	5 (1%)
1952,2	A23 Brighton Road	Northbound	Croydon	-	20 (3%)	10 (2%)
17601,2	B2031 Dean Lane	Eastbound	Tandridge	-	12 (4%)	11 (4%)
8927,2	A25 Nutfield Road	Eastbound	Tandridge	-	21 (5%)	11 (3%)
15678,2	B2036 Balcombe Road	Southbound	West Sussex	-	81 (16%)	-7 (-1%)
8858,2	A23 Brighton Road	Southbound	Mole Valley	-	82 (9%)	6 (1%)
8866,2	A217 Reigate Road	Southbound	Mole Valley	-	30 (4%)	1 (0%)
8816,2	A25 Buckland Road	Westbound	Mole Valley	-	-15 (-1%)	12 (1%)
17611,2	B2032 Pebble Hill Road	Southbound	Mole Valley	-	11 (2%)	-3 (-1%)
17613,2	B2033 Headley Common Road	Westbound	Mole Valley	-	11 (2%)	5 (1%)
17791,1	B290 Tattenham Corner Road	Northbound	Epsom & Ewell	-	29 (6%)	9 (2%)
17789,1	B2221 Tattenham Crescent	Westbound	Epsom & Ewell	-	-9 (-2%)	-2 (0%)
11368,2	B284 Yew Tree Bottom Road	Westbound	Epsom & Ewell	-	0 (0%)	1 (0%)
17619,2	B291 Fir Tree Road	Southbound	Epsom & Ewell	-	-7 (-2%)	-2 (0%)
10200,1	A240 Reigate Road	Northbound	Epsom & Ewell	-	-3 (0%)	-5 (0%)
RFC (pcu)						
16258,1	A217 Belmont Rise	Northbound	Sutton	1.43	1.43	1.43
1915,2	B2230 Brighton Road	Northbound	Sutton	1.45	1.46	1.45
8266,1	B2218 Sutton Lane	Northbound	Sutton	0.86	0.88	0.87
8268,1	A2022 Croydon Lane	Eastbound	Croydon	0.49	0.49	0.49
16109,2	B278 Carshalton Road	Northbound	Croydon	0.26	0.26	0.26
1948,2	B2032 Outwood Lane	Eastbound	Croydon	0.73	0.74	0.73
1952,2	A23 Brighton Road	Northbound	Croydon	0.25	0.26	0.26
17601,2	B2031 Dean Lane	Eastbound	Tandridge	0.26	0.27	0.27
8927,2	A25 Nutfield Road	Eastbound	Tandridge	0.33	0.35	0.34
15678,2	B2036 Balcombe Road	Southbound	West Sussex	0.30	0.35	0.30
8858,2	A23 Brighton Road	Southbound	Mole Valley	1.17	1.27	1.17
8866,2	A217 Reigate Road	Southbound	Mole Valley	0.67	0.69	0.67
8816,2	A25 Buckland Road	Westbound	Mole Valley	1.03	1.01	1.03
17611,2	B2032 Pebble Hill Road	Southbound	Mole Valley	0.48	0.49	0.48
17613,2	B2033 Headley Common Rd	Westbound	Mole Valley	0.49	0.50	0.49
17791,1	B290 Tattenham Corner Road	Northbound	Epsom & Ewell	0.27	0.29	0.28

Link Ref.	Road	Direction of Travel	Local Authority Trips Travelling From	2031 Scenario A	2031 Scenario B	2031 Scenario C
17789,1	B2221 Tattenham Crescent	Westbound	Epsom & Ewell	0.56	0.55	0.55
11368,2	B284 Yew Tree Bottom Road	Westbound	Epsom & Ewell	0.58	0.58	0.58
17619,2	B291 Fir Tree Road	Southbound	Epsom & Ewell	0.48	0.47	0.48
10200,1	A240 Reigate Road	Northbound	Epsom & Ewell	1.27	1.26	1.26

Table 4.14: Weekday average AM Peak Hour (0700 – 1000) traffic flow summary exiting Reigate and Banstead borough for A principal and B roads which cross into neighbouring authorities

Link Ref.	Road	Direction of Travel	Local Authority Trips Travelling From	2031 Scenario A	2031 Scenario B	2031 Scenario C
Vehicle flows (vph)						
16258,1	A217 Belmont Rise	Northbound	Sutton	884	899	893
1915,2	B2230 Brighton Road	Northbound	Sutton	1100	1098	1098
8266,1	B2218 Sutton Lane	Northbound	Sutton	1052	1069	1069
8268,1	A2022 Croydon Lane	Eastbound	Croydon	1031	1016	1015
16109,2	B278 Carshalton Road	Northbound	Croydon	263	271	268
1948,2	B2032 Outwood Lane	Eastbound	Croydon	866	870	870
1952,2	A23 Brighton Road	Northbound	Croydon	1047	1072	1048
17601,2	B2031 Dean Lane	Eastbound	Tandridge	584	619	608
8927,2	A25 Nutfield Road	Eastbound	Tandridge	560	694	622
15678,2	B2036 Balcombe Road	Southbound	West Sussex	694	721	711
8858,2	A23 Brighton Road	Southbound	Mole Valley	851	899	830
8866,2	A217 Reigate Road	Southbound	Mole Valley	859	893	852
8816,2	A25 Buckland Road	Westbound	Mole Valley	1279	1284	1281
17611,2	B2032 Pebble Hill Road	Southbound	Mole Valley	786	806	797
17613,2	B2033 Headley Common Rd	Westbound	Mole Valley	279	282	280
17791,1	B290 Tattenham Corner Road	Northbound	Epsom & Ewell	230	241	221
17789,1	B2221 Tattenham Crescent	Westbound	Epsom & Ewell	440	447	446
11368,2	B284 Yew Tree Bottom Road	Westbound	Epsom & Ewell	320	311	312
17619,2	B291 Fir Tree Road	Southbound	Epsom & Ewell	425	435	430
10200,1	A240 Reigate Road	Northbound	Epsom & Ewell	663	663	672
Difference from Scenario A (vph) & Percentage change from Scenario A						
16258,1	A217 Belmont Rise	Northbound	Sutton	-	15 (2%)	9 (1%)
1915,2	B2230 Brighton Road	Northbound	Sutton	-	-2 (0%)	-2 (0%)
8266,1	B2218 Sutton Lane	Northbound	Sutton	-	17 (2%)	16 (2%)
8268,1	A2022 Croydon Lane	Eastbound	Croydon	-	-16 (-2%)	-16 (-2%)
16109,2	B278 Carshalton Road	Northbound	Croydon	-	7 (3%)	5 (2%)
1948,2	B2032 Outwood Lane	Eastbound	Croydon	-	3 (0%)	4 (0%)
1952,2	A23 Brighton Road	Northbound	Croydon	-	26 (2%)	2 (0%)
17601,2	B2031 Dean Lane	Eastbound	Tandridge	-	35 (6%)	24 (4%)
8927,2	A25 Nutfield Road	Eastbound	Tandridge	-	134 (24%)	62 (11%)
15678,2	B2036 Balcombe Road	Southbound	West Sussex	-	26 (4%)	16 (2%)
8858,2	A23 Brighton Road	Southbound	Mole Valley	-	48 (6%)	-21 (-2%)
8866,2	A217 Reigate Road	Southbound	Mole Valley	-	34 (4%)	-7 (-1%)
8816,2	A25 Buckland Road	Westbound	Mole Valley	-	5 (0%)	1 (0%)
17611,2	B2032 Pebble Hill Road	Southbound	Mole Valley	-	20 (3%)	11 (1%)
17613,2	B2033 Headley Common Rd	Westbound	Mole Valley	-	3 (1%)	1 (0%)
17791,1	B290 Tattenham Corner Road	Northbound	Epsom & Ewell	-	10 (4%)	-9 (-4%)
17789,1	B2221 Tattenham Crescent	Westbound	Epsom & Ewell	-	7 (2%)	7 (2%)

Link Ref.	Road	Direction of Travel	Local Authority Trips Travelling From	2031 Scenario A	2031 Scenario B	2031 Scenario C
11368,2	B284 Yew Tree Bottom Road	Westbound	Epsom & Ewell	-	-9 (-3%)	-8 (-2%)
17619,2	B291 Fir Tree Road	Southbound	Epsom & Ewell	-	11 (3%)	6 (1%)
10200,1	A240 Reigate Road	Northbound	Epsom & Ewell	-	1 (0%)	9 (1%)
RFC (pcu)						
16258,1	A217 Belmont Rise	Northbound	Sutton	1.13	1.15	1.14
1915,2	B2230 Brighton Road	Northbound	Sutton	1.43	1.43	1.43
8266,1	B2218 Sutton Lane	Northbound	Sutton	0.91	0.92	0.92
8268,1	A2022 Croydon Lane	Eastbound	Croydon	0.63	0.62	0.62
16109,2	B278 Carshalton Road	Northbound	Croydon	0.34	0.35	0.34
1948,2	B2032 Outwood Lane	Eastbound	Croydon	1.10	1.10	1.10
1952,2	A23 Brighton Road	Northbound	Croydon	0.37	0.38	0.37
17601,2	B2031 Dean Lane	Eastbound	Tandridge	0.50	0.53	0.52
8927,2	A25 Nutfield Road	Eastbound	Tandridge	0.47	0.58	0.52
15678,2	B2036 Balcombe Road	Southbound	West Sussex	0.42	0.45	0.43
8858,2	A23 Brighton Road	Southbound	Mole Valley	1.15	1.18	1.11
8866,2	A217 Reigate Road	Southbound	Mole Valley	0.74	0.76	0.73
8816,2	A25 Buckland Road	Westbound	Mole Valley	1.09	1.10	1.09
17611,2	B2032 Pebble Hill Road	Southbound	Mole Valley	0.66	0.68	0.67
17613,2	B2033 Headley Common Rd	Westbound	Mole Valley	0.23	0.24	0.23
17791,1	B290 Tattenham Corner Road	Northbound	Epsom & Ewell	0.14	0.15	0.13
17789,1	B2221 Tattenham Crescent	Westbound	Epsom & Ewell	0.56	0.57	0.57
11368,2	B284 Yew Tree Bottom Road	Westbound	Epsom & Ewell	0.41	0.40	0.40
17619,2	B291 Fir Tree Road	Southbound	Epsom & Ewell	0.56	0.57	0.57
10200,1	A240 Reigate Road	Northbound	Epsom & Ewell	0.84	0.84	0.85

Table 4.15: Weekday average PM Peak Hour (1600 – 1900) traffic flow summary exiting Reigate and Banstead borough for A principal and B roads which cross into neighbouring authorities

4.10 Network Hotspots and Mitigation

4.10.1 To summarise the traffic impacts identified in this study, **Table 4.16** lists the junction and sections of road which would experience large vehicle delay, termed 'hotspots'. The hotspots are shown geographically in **Figure 4.16**, and apply to all scenarios.

4.10.2 Hotspots are areas of stress where drivers are subject to considerable delay and are likely to require mitigation to facilitate any development in the local area. This could be 'hard' or 'soft' measures, or most likely a combination of both. Hard engineering measures could involve increasing the number of lanes of the carriageway or introducing a cycle lane for example, whilst soft measures could be the implementation of a travel plan to encourage travel by sustainable modes.

4.10.3 The hotspots provide a preparatory list of where potential mitigation should be focused, to inform the borough's Infrastructure Delivery Plan (IDP) and subsequent Community Infrastructure Levy (CIL).

Links	
Banstead	A217 Belmont Rise
	A2022 Fir Tree Road
	A2022 Winkworth Road
	A240 Reigate Road
	B2218 Sutton Lane
	B2219 Lower Park Road
	B2221 Tattenham Way / Great Tattenhams
	B2230 Brighton Road
Chipstead	B2032 Chipstead Valley Road
Tadworth	B2220 Tadworth Street
	B2220 Chequers Lane
	D1106 Shelvers Way
Merstham	A23 London Road North
Redhill	A23 Brighton Road
	A25 Nutfield Road
	A25 Redstone Hill
	A25 Station Road
	C224 Linkfield Lane
	D1263 Cormongers Lane
Reigate	A217 Reigate Hill
	A2044 Woodhatch Road
	A217 Bell Street / Cockshot Hill
	A217 Dovers Green Road
	A242 Croydon Road / Gatton Park Road
	A25 Buckland Road
	A25 West Street

Earlswood	A23 Horley Road
Horley	A23 Airport Way
	A23 Bonehurst Road
	A23 Brighton Road
	B2036 Balcombe Road
	C64 Massetts Road
	D336 Horley Row
Highways England	M25 mainline anticlockwise junction 8 to 7
	M25 clockwise off slip at junction 7 for the M23
	M25 mainline clockwise junctions 7 to 8
	M23 mainline southbound junction 9 to 10
	M23 northbound off slip at junction 8 for M25
	A23 Brighton Road between Church lane and Star Lane
Junctions	
Banstead	A2022 Winkworth Road / Croydon Lane roundabout junction with B2218 Sutton Lane and B2217 Sutton Lane
	A217 Belmont Rise roundabout junction with B2230 Brighton Road
	A217 Brighton Road signalled junction with A2022 Fir Tree Road and A2022 Winkworth Road, Banstead Crossroads
Tadworth	B290 Station Approach Road signalled junction with B2220 Tadworth Street
	A217 Brighton Road signalled northbound approach arm to Bonsor Drive roundabout
Hooley	A23 London Road signalled junction with Star Lane
	A23 Brighton Road priority junction with Dean Lane
Reigate Hill	A217 Reigate Hill priority junction with Gatton Bottom
	A217 Reigate Hill Interchange (M25 J8)
Woodhatch	A217 Cockshot Hill signalled junction with A2044 Woodhatch Road and Prices Lane
Horley	C64 Massetts Road signalled junction with Victoria Road

Table 4.16: Network hotspots

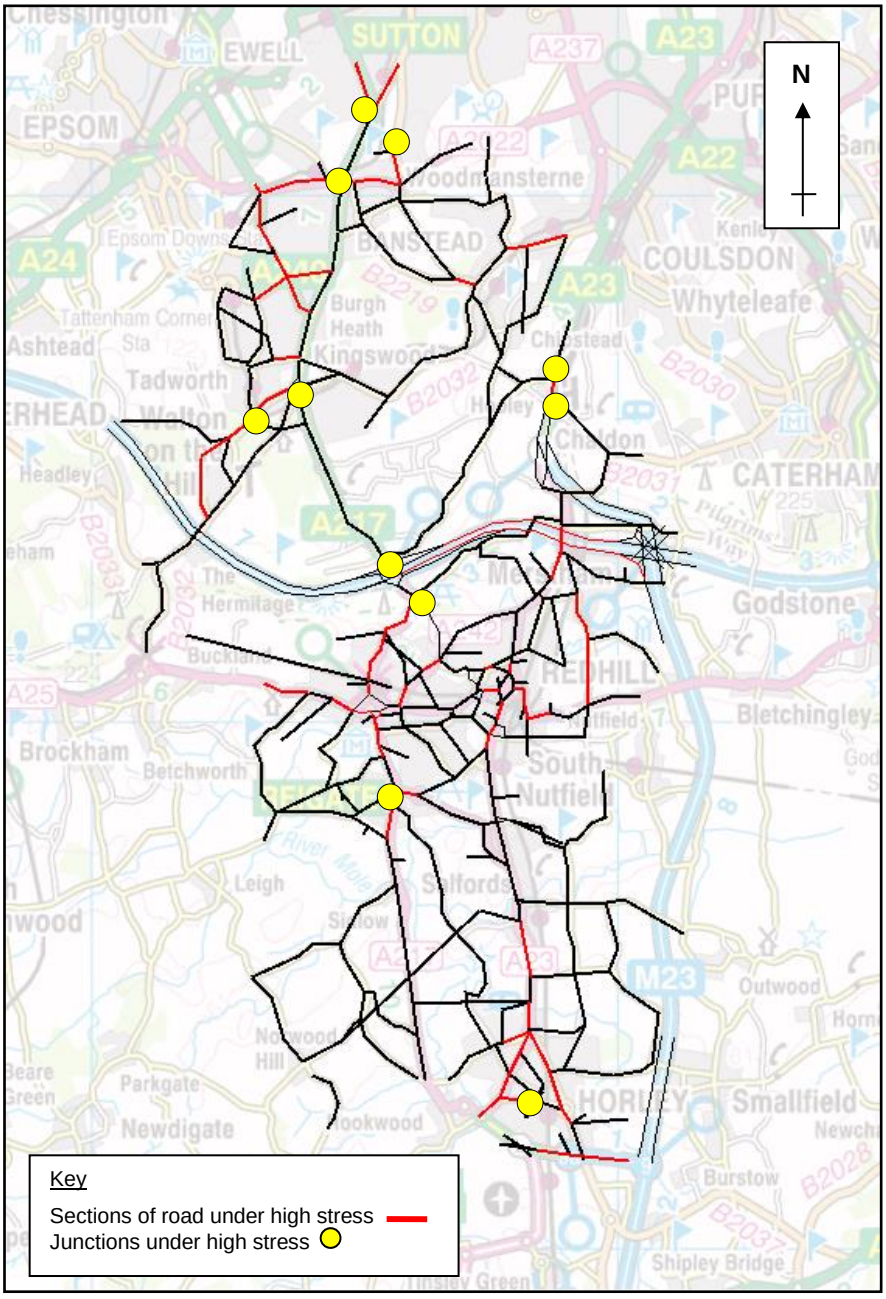


Figure 4.16: Network hotspots

5 OVERVIEW

5.1.1 The traffic impacts of potential development sites, identified as part of Reigate & Banstead Borough Council's submission draft Local Plan, have been assessed using Surrey County Council's strategic highway model for the forecast year 2031.

5.1.2 This study was undertaken at a strategic scale without the detail included in a planning application and consequently not all impacts of developments have been identified. Developments of and above certain quanta will require individual transport assessments to be commissioned allowing finer details regarding traffic impacts to be analysed at a more local level.

5.1.3 The strategic highway assessment represents a robust "worst case" in terms of transport demand and supply assumptions. This study is a highway only assessment and is based on observed vehicular trip rates obtained from other similar development sites. As such it does not take into account the opportunity for further mode shift should there be increased investment in sustainable modes.

5.1.4 Three model scenarios have been created as explained below**.** The scenarios assess potential development sites situated in varying locations across the borough.

5.1.5 Scenario A represents the baseline growth across the borough of 4,805 net residential units. Scenario A generates an estimated 1,628 vehicle trips during the weekday average AM peak hour (0700 – 1000) and an estimated 2,321 vehicle trips during the weekday average PM peak hour (1600 – 1900).

5.1.6 Scenario B comprises of the baseline growth plus potential development sites totalling 2,310 net residential units more than Scenario A. It has been estimated that this will give a net increase of 2,536 vehicle trips in the weekday average AM peak hour and 3,123 vehicle trips in the weekday average PM peak hour. The largest number of additional trips in Scenario B is in zone 573 which contains the Horley Commercial development.

5.1.7 Scenario C is very similar to Scenario B with baseline growth plus potential development sites, however it does not contain the Horley Strategic employment site. The amount of potential net residential units is the same as Scenario B at 2,335 units. It has been estimated that Scenario C will give a net increase of 815 vehicle trips in the weekday average AM peak hour and 1,161 vehicle trips in the weekday average PM peak hour.

5.1.8 Links and junctions within the borough which have been forecasted to be under stress, where drivers will be subject to increased delay, have been defined as 'hotspots'. The list of hotspots is intended to inform the development of the borough's Infrastructure Delivery Plan (IDP) and subsequent Community

Infrastructure Levy (CIL) as it is these locations which are likely to require mitigation to reduce the impact of any development in the local area.

5.1.9 Schemes currently undergoing design within the borough include the junction of the A23 Horley Road with Three Arch Road and Maple Road in White Bushes. Due to the complex nature of this junction it is coded within the SINTRAM model as multiple nodes. Consequently, the true delay experienced by drivers does not come out in the node based analysis within this report and therefore it is not highlighted as a hotspot. Nevertheless, this junction is known to suffer congestion issues. Four options are being assessed, looking at extending the length of flares, additional lanes or conversion to a roundabout. It is anticipated that the final scheme will improve capacity at the junction and enhance facilities for non-motorised users.

5.1.10 Overall it is suggested that Scenario B results in the largest traffic impacts within the borough, as a result of the Horley Strategic Employment Site, which generates over 1750 trips in both time periods. These impacts have the potential to be severe unless mitigation can be identified, either in the form of infrastructure improvements, significant reductions in vehicular trips, or both.

5.1.11 Ongoing Site specific assessment work is being undertaken for the Horley Strategic Employment Site by the promoter's transport consultant in liaison with SCC's Transport Development Team. A site-specific transport assessment will be required as part of any planning application.

5.1.12 Scenario C impacts are much reduced compared to Scenario B and spread across the borough as a whole. The cumulative impact of Scenario C is not substantial and therefore it is likely that any local impacts could be addresses through a combination of hard and soft measures identified through the planning application process.

5.1.13 Where roads or junctions have been shown to have limited or no available capacity, or a poor level of service, any additional increases in traffic flow albeit small, will result in vehicle delay and driver stress.

6 APPENDIX A: LINK FLOW VALIDATION

6.1 Average AM Peak Hour (0700 – 1000)

Count No.	Count Name	Observed Flow	Modelled Flow	Diff	% Diff	GEH	Met Flow Criteria	GEH <5.5	GEH > 10
7	Lonesome Lane	70	87	17	24%	1.87	✓	✓	×
8	Lonesome Lane	64	58	-6	-9%	0.76	✓	✓	×
22	A2044 Woodhatch Road	660	728	68	10%	2.59	✓	✓	×
23	A2044 Woodhatch Road	671	635	-36	-5%	1.41	✓	✓	×
72	A23 Brighton Road	744	675	-69	-9%	2.57	✓	✓	×
73	A23 Brighton Road	721	633	-88	-12%	3.38	✓	✓	×
144	A23 Brighton Road	569	519	-50	-9%	2.14	✓	✓	×
145	A23 Brighton Road	619	590	-29	-5%	1.18	✓	✓	×
154	A217 Brighton Road	1737	1725	-12	-1%	0.28	✓	✓	×
155	A217 Brighton Road	1537	1453	-84	-5%	2.16	✓	✓	×
238	A217 Reigate Road	582	569	-13	-2%	0.52	✓	✓	×
239	A217 Reigate Road	441	519	78	18%	3.56	✓	✓	×
277	A217 Brighton Road	1802	1760	-42	-2%	1.01	✓	✓	×
278	A217 Brighton Road	1377	1185	-192	-14%	5.36	✓	✓	×
375	B2034 Lesbourne Road	355	346	-9	-3%	0.49	✓	✓	×
376	B2034 Lesbourne Road	206	219	13	6%	0.90	✓	✓	×
383	A217 Cockshot Hill	820	778	-42	-5%	1.47	✓	✓	×
384	A217 Cockshot Hill	547	562	15	3%	0.65	✓	✓	×
387	A23 Brighton Road	803	803	0	0%	0.00	✓	✓	×
388	A23 Brighton Road	637	612	-25	-4%	1.00	✓	✓	×
509	A23 Horley Road	749	655	-94	-13%	3.55	✓	✓	×
510	A23 Horley Road	1073	1042	-31	-3%	0.94	✓	✓	×
533	A0023 London Road	718	681	-37	-5%	1.41	✓	✓	×
534	A0023 London Road	1121	1094	-27	-2%	0.81	✓	✓	×
553	B2032 Dorking Road	748	720	-28	-4%	1.04	✓	✓	×
554	B2032 Dorking Road	538	634	96	18%	3.96	✓	✓	×
555	B2032 Pebble Hill Road	730	720	-10	-1%	0.39	✓	✓	×
556	B2032 Pebble Hill Road	652	478	-174	-27%	7.30	×	×	×
557	B2033 Headley Common Road	408	446	38	9%	1.83	✓	✓	×
558	B2033 Headley Common Road	273	291	18	7%	1.06	✓	✓	×
561	A23 Brighton Road	753	781	28	4%	1.00	✓	✓	×
562	A23 Brighton Road	663	650	-13	-2%	0.50	✓	✓	×
563	A23 Brighton Road	1014	977	-37	-4%	1.17	✓	✓	×

Count No.	Count Name	Observed Flow	Modelled Flow	Diff	% Diff	GEH	Met Flow Criteria	GEH <5.5	GEH > 10
564	A23 Brighton Road	703	651	-52	-7%	2.00	✓	✓	×
603	A242 Croydon Road	409	440	31	8%	1.51	✓	✓	×
604	A242 Croydon Road	503	513	10	2%	0.46	✓	✓	×
657	Gatton Bottom	315	292	-23	-7%	1.31	✓	✓	×
658	Gatton Bottom	241	242	1	0%	0.05	✓	✓	×
659	Wray Lane	307	387	80	26%	4.31	✓	✓	×
663	A217 Reigate Hill	1247	1199	-48	-4%	1.38	✓	✓	×
664	A217 Reigate Hill	991	908	-83	-8%	2.69	✓	✓	×
667	M25 Anticlockwise J8 - 7	5084	4563	-521	-10%	7.50	✓	×	×
668	M25 Anticlockwise J9 - 8	4873	4405	-468	-10%	6.87	✓	×	×
735	M25 J8-9 westbound	5665	4980	-685	-12%	9.39	✓	×	×
801	M23 northbound J8 - 7	1043	811	-232	-22%	7.63	×	×	×
802	M23 southbound J7 - 8	1144	1064	-80	-7%	2.39	✓	✓	×
1212	A2022 Croydon Lane	749	757	8	1%	0.28	✓	✓	×
1213	A2022 Croydon Lane	809	802	-7	-1%	0.24	✓	✓	×
1227	B2032 Outwood Lane	241	247	6	3%	0.41	✓	✓	×
1228	B2032 Outwood Lane	368	350	-18	-5%	0.94	✓	✓	×
1233	B2218 Sutton Lane	300	269	-31	-10%	1.84	✓	✓	×
1234	B2218 Sutton Lane	421	418	-3	-1%	0.13	✓	✓	×
1331	B2221 Great Tattenhams	320	335	15	5%	0.84	✓	✓	×
1332	B2221 Great Tattenhams	317	322	5	2%	0.30	✓	✓	×
1333	B2036 Balcombe Road	646	634	-12	-2%	0.49	✓	✓	×
1334	B2036 Balcombe Road	507	513	6	1%	0.26	✓	✓	×
1337	A23 London Road	775	671	-104	-13%	3.87	✓	✓	×
1338	A23 London Road	881	951	70	8%	2.31	✓	✓	×
1339	B2034 Blackborough Road	263	270	7	3%	0.40	✓	✓	×
1340	B2034 Blackborough Road	139	178	39	28%	3.13	✓	✓	×
1341	C0064 Victoria Road	222	235	13	6%	0.89	✓	✓	×
1342	C0064 Victoria Road	185	4	-181	-98%	18.58	×	×	✓
1343	D0343 Russells Crescent	235	198	-37	-16%	2.54	✓	✓	×
1344	D0343 Russells Crescent	130	156	26	20%	2.18	✓	✓	×
1345	D1048 Consort Way East	141	0	-141	-100%	16.79	×	×	✓
1346	D1048 Consort Way East	77	0	-77	-100%	12.33	✓	×	✓
1347	B2032 Outwood Lane	125	124	-1	0%	0.05	✓	✓	×
1348	B2032 Outwood Lane	265	297	32	12%	1.90	✓	✓	×
1349	B2220 Chequers Lane	73	68	-5	-7%	0.60	✓	✓	×
1350	B2220 Chequers Lane	62	62	0	0%	0.03	✓	✓	×

Count No.	Count Name	Observed Flow	Modelled Flow	Diff	% Diff	GEH	Met Flow Criteria	GEH <5.5	GEH > 10
1351	B284 Yew Tree Bottom Road	241	245	4	2%	0.28	✓	✓	×
1352	B284 Yew Tree Bottom Road	306	319	13	4%	0.73	✓	✓	×
1353	C226 Pendleton Road	533	562	29	5%	1.23	✓	✓	×
1354	C226 Pendleton Road	226	249	23	10%	1.49	✓	✓	×
1355	A23 London Road	547	595	48	9%	2.01	✓	✓	×
1356	A23 London Road	582	601	19	3%	0.77	✓	✓	×
1357	A25 Redstone Hill	382	361	-21	-6%	1.10	✓	✓	×
1358	A25 Redstone Hill	587	608	21	4%	0.86	✓	✓	×
1359	A25 High Street	1466	1417	-49	-3%	1.29	✓	✓	×
1362	A217 Brighton Road	1362	1318	-44	-3%	1.21	✓	✓	×
1363	A217 Brighton Road	1134	1227	93	8%	2.70	✓	✓	×
1364	A240 Reigate Road	582	605	23	4%	0.94	✓	✓	×
1365	A240 Reigate Road	569	575	6	1%	0.24	✓	✓	×
1367	A23 Brighton Road	1247	1271	24	2%	0.66	✓	✓	×
1368	A23 Brighton Road	1487	1527	40	3%	1.02	✓	✓	×
1369	Dean Lane	52	40	-12	-24%	1.80	✓	✓	×
1370	Dean Lane	137	175	38	28%	3.05	✓	✓	×

6.2 Average PM Peak Hour (1600 – 1900)

Count No.	Count Name	Observed Flow	Modelled Flow	Diff	% Diff	GEH	Met Flow Criteria	GEH <5.5	GEH > 10
7	Lonesome Lane	93	92	-1	-2%	0.15	✓	✓	×
8	Lonesome Lane	120	110	-10	-9%	0.97	✓	✓	×
22	A2044 Woodhatch Road	634	627	-7	-1%	0.27	✓	✓	×
23	A2044 Woodhatch Road	755	697	-58	-8%	2.16	✓	✓	×
72	A23 Brighton Road	761	717	-44	-6%	1.61	✓	✓	×
73	A23 Brighton Road	983	891	-92	-9%	3.01	✓	✓	×
144	A23 Brighton Road	764	629	-135	-18%	5.11	×	✓	×
145	A23 Brighton Road	631	588	-43	-7%	1.74	✓	✓	×
154	A217 Brighton Road	1655	1699	44	3%	1.07	✓	✓	×
155	A217 Brighton Road	1720	1585	-135	-8%	3.31	✓	✓	×
238	A217 Reigate Road	461	446	-15	-3%	0.72	✓	✓	×
239	A217 Reigate Road	586	634	48	8%	1.94	✓	✓	×
277	A217 Brighton Road	1645	1354	-291	-18%	7.52	×	×	×
278	A217 Brighton Road	1713	1446	-267	-16%	6.72	×	×	×

Count No.	Count Name	Observed Flow	Modelled Flow	Diff	% Diff	GEH	Met Flow Criteria	GEH <5.5	GEH > 10
375	B2034 Lesbourne Road	375	402	27	7%	1.39	✓	✓	×
376	B2034 Lesbourne Road	217	364	147	68%	8.62	×	×	×
383	A217 Cockshot Hill	559	628	69	12%	2.82	✓	✓	×
384	A217 Cockshot Hill	802	892	90	11%	3.09	✓	✓	×
387	A23 Brighton Road	721	736	15	2%	0.56	✓	✓	×
388	A23 Brighton Road	833	781	-52	-6%	1.85	✓	✓	×
509	A23 Horley Road	637	728	91	14%	3.48	✓	✓	×
510	A23 Horley Road	589	763	174	29%	6.68	×	×	×
533	A0023 London Road	1067	1008	-59	-6%	1.83	✓	✓	×
534	A0023 London Road	775	870	95	12%	3.30	✓	✓	×
553	B2032 Dorking Road	473	467	-6	-1%	0.26	✓	✓	×
554	B2032 Dorking Road	634	632	-2	0%	0.07	✓	✓	×
555	B2032 Pebble Hill Road	567	511	-56	-10%	2.40	✓	✓	×
556	B2032 Pebble Hill Road	669	761	92	14%	3.44	✓	✓	×
557	B2033 Headley Common Road	281	282	1	0%	0.05	✓	✓	×
558	B2033 Headley Common Road	350	367	17	5%	0.87	✓	✓	×
561	A23 Brighton Road	886	858	-28	-3%	0.95	✓	✓	×
562	A23 Brighton Road	748	833	85	11%	3.04	✓	✓	×
563	A23 Brighton Road	966	946	-20	-2%	0.65	✓	✓	×
564	A23 Brighton Road	908	972	64	7%	2.09	✓	✓	×
603	A242 Croydon Road	504	614	110	22%	4.67	×	✓	×
604	A242 Croydon Road	352	428	76	21%	3.83	✓	✓	×
657	Gatton Bottom	335	321	-14	-4%	0.79	✓	✓	×
658	Gatton Bottom	213	144	-69	-32%	5.14	✓	✓	×
659	Wray Lane	366	390	24	7%	1.25	✓	✓	×
663	A217 Reigate Hill	1347	1339	-8	-1%	0.22	✓	✓	×
664	A217 Reigate Hill	1330	1178	-152	-11%	4.29	✓	✓	×
667	M25 Anticlockwise J8 - 7	6447	5778	-669	-10%	8.56	✓	×	×
668	M25 Anticlockwise J9 - 8	6103	5425	-678	-11%	8.93	✓	×	×
735	M25 J8-9 westbound	4569	4546	-23	0%	0.33	✓	✓	×
801	M23 northbound J8 - 7	1173	1138	-35	-3%	1.02	✓	✓	×
802	M23 southbound J7 - 8	1139	961	-178	-16%	5.50	×	×	×
1212	A2022 Croydon Lane	961	939	-22	-2%	0.71	✓	✓	×
1213	A2022 Croydon Lane	780	765	-15	-2%	0.53	✓	✓	×
1227	B2032 Outwood Lane	383	472	89	23%	4.31	✓	✓	×
1228	B2032 Outwood Lane	259	269	10	4%	0.59	✓	✓	×
1233	B2218 Sutton Lane	385	420	35	9%	1.75	✓	✓	×

Count No.	Count Name	Observed Flow	Modelled Flow	Diff	% Diff	GEH	Met Flow Criteria	GEH <5.5	GEH > 10
1234	B2218 Sutton Lane	252	269	17	7%	1.08	✓	✓	×
1331	B2221 Great Tattenhams	409	391	-18	-4%	0.91	✓	✓	×
1332	B2221 Great Tattenhams	317	328	11	4%	0.63	✓	✓	×
1333	B2036 Balcombe Road	584	573	-11	-2%	0.46	✓	✓	×
1334	B2036 Balcombe Road	670	663	-7	-1%	0.28	✓	✓	×
1337	A23 London Road	1064	975	-89	-8%	2.79	✓	✓	×
1338	A23 London Road	607	674	67	11%	2.65	✓	✓	×
1339	B2034 Blackborough Road	297	329	32	11%	1.79	✓	✓	×
1340	B2034 Blackborough Road	190	333	143	76%	8.87	×	×	×
1341	C0064 Victoria Road	376	391	15	4%	0.79	✓	✓	×
1342	C0064 Victoria Road	261	5	-256	-98%	22.20	×	×	✓
1343	D0343 Russells Crescent	210	221	11	5%	0.78	✓	✓	×
1344	D0343 Russells Crescent	229	184	-45	-20%	3.11	✓	✓	×
1345	D1048 Consort Way East	142	0	-142	-100%	16.85	×	×	✓
1346	D1048 Consort Way East	187	7	-180	-96%	18.29	×	×	✓
1347	B2032 Outwood Lane	294	327	33	11%	1.85	✓	✓	×
1348	B2032 Outwood Lane	135	170	35	26%	2.84	✓	✓	×
1349	B2220 Chequers Lane	70	79	9	14%	1.09	✓	✓	×
1350	B2220 Chequers Lane	78	117	39	50%	3.96	✓	✓	×
1351	B284 Yew Tree Bottom Road	307	249	-58	-19%	3.46	✓	✓	×
1352	B284 Yew Tree Bottom Road	243	232	-11	-4%	0.69	✓	✓	×
1353	C226 Pendleton Road	354	367	13	4%	0.70	✓	✓	×
1354	C226 Pendleton Road	529	474	-55	-10%	2.44	✓	✓	×
1355	A23 London Road	703	722	19	3%	0.70	✓	✓	×
1356	A23 London Road	498	509	11	2%	0.47	✓	✓	×
1357	A25 Redstone Hill	611	674	63	10%	2.49	✓	✓	×
1358	A25 Redstone Hill	416	484	68	16%	3.21	✓	✓	×
1359	A25 High Street	1514	1552	38	3%	0.97	✓	✓	×
1362	A217 Brighton Road	1384	1179	-205	-15%	5.73	✓	×	×
1363	A217 Brighton Road	1262	1313	51	4%	1.43	✓	✓	×
1364	A240 Reigate Road	575	484	-91	-16%	3.97	✓	✓	×
1365	A240 Reigate Road	700	744	44	6%	1.63	✓	✓	×
1367	A23 Brighton Road	1410	1534	124	9%	3.23	✓	✓	×
1368	A23 Brighton Road	1478	1625	147	10%	3.74	✓	✓	×
1369	Dean Lane	131	119	-12	-9%	1.10	✓	✓	×
1370	Dean Lane	51	64	13	26%	1.75	✓	✓	×