

**WOKING BOROUGH COUNCIL LOCAL  
DEVELOPMENT FRAMEWORK**

**Green Belt Boundary Review Sensitivity Test**

**Addendum Report to Strategic Transport  
Assessment**

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# CONTENTS

<b>1</b>	<b>INTRODUCTION</b>	<b>4</b>
1.1	Overview	4
1.2	Objectives	5
<b>2</b>	<b>STRATEGIC TRANSPORT MODEL</b>	<b>6</b>
2.1	Model and Scope	6
2.2	Time Period	6
2.3	Study Area and Zones	6
2.4	Assignment	8
<b>3</b>	<b>MODEL FORECASTING, TRIP GENERATION AND TRIP DISTRIBUTION</b>	<b>9</b>
3.1	Forecast Year	9
3.2	Forecast Scenarios	9
3.3	Green Belt Sites	10
3.4	Vehicle Trip Generation	10
3.5	Background Growth	11
3.6	Vehicle Trip Distribution	12
3.7	Forecast Network	12
<b>4</b>	<b>MODEL RESULTS AND ANALYSES</b>	<b>13</b>
4.1	Overview	13
4.2	Initial Assessment	13
4.3	Highway Network Statistics	14
4.4	Level Of Service (LOS)	17
4.5	Ratio of Flow to Capacity (RFC)	18
4.6	Increase in Flow	18
4.7	Increase in RFC	26
4.8	Increase in Junction Delay	28
4.9	Journey Times along Key Routes	35
4.10	Strategic Road Network (SRN)	39
4.11	Cross Boundary Impacts	41
4.12	Network Hotspots and Mitigation	44
<b>5</b>	<b>NEW DCLG GUIDANCE FOR PLAN MAKING IN RELATION TO TRANSPORT EVIDENCE</b>	<b>48</b>
<b>6</b>	<b>SUMMARY</b>	<b>49</b>
<b>7</b>	<b>APPENDICES</b>	<b>51</b>

## 1 INTRODUCTION

### 1.1 Overview

1.1.1 In 2010 Surrey County Council assisted Woking Borough Council by undertaking a strategic transport assessment to inform their Core Strategy. The strategic transport assessment was undertaken to support future development in the borough. In 2012 Woking Borough Council adopted their Core Strategy.

1.1.2 Since the Core Strategy has been adopted the borough council have been identifying specific locations for development. One aspect of this process focuses on the potential release of green belt land. To assist with decision making regarding recommendations from the borough's Green Belt Boundary Review, Surrey County Council undertook further strategic transport modelling in 2015, to specifically analyse potential green belt sites that are thought deliverable. Surrey County Council issued '**The Woking Borough Council Local Development Framework Green Belt Boundary Review Sensitivity Test, Strategic Transport Assessment (January 2015)**' to Woking Borough Council with the aim of assisting decision making surrounding the suitability of green belt release in the borough. The Green Belt Boundary Review Sensitivity Test Strategic Assessment investigated the impacts of the following development scenarios:

- 2026 Scenario B = committed and planned development in the borough of Woking within the timescales of the Core Strategy (as in the Surrey County Council 2010 Core Strategy strategic transport assessment), plus 500 residential dwellings on green belt land at Mayford;
- 2026 Scenario E = scenario B plus 573 residential dwellings on green belt land at Byfleet and Pyrford; and
- 2026 Scenario F = scenario B plus 592 residential dwellings on greenbelt land at West Byfleet.

1.1.3 Woking Borough Council have since requested that Surrey County Council investigate a further two green belt development scenarios, as a continuation of the Green Belt Boundary Review Sensitivity Test Strategic Transport Assessment that was conducted in 2015.

1.1.4 Consequently, this addendum report aims to evaluate the transport implications of the following two additional scenarios, both based on a green belt site accessed via Martyr's Lane:

- 2026 Scenario G = scenario F (as above) plus 900 residential dwellings on green belt land accessed via and located to the east of Martyr's Lane; and
- 2026 Scenario H = scenario F plus 3,000 residential dwellings on green belt land accessed via and located to the east of Martyr's Lane.

1.1.5 In summary, scenarios G and H are both assessing the same green belt site but with varying quantities of residential development.

1.1.6 It should be noted that this green belt sensitivity test makes use of some scenarios that were present in both the Surrey County Council 2010 Core Strategy Strategic Assessment and the 2015 Green Belt Boundary Review Sensitivity Test Strategic Transport Assessment. However, due to the modelling methodology varying between since these two reports were published in 2010 and 2015 respectively, it is not possible to compare the model outputs presented in this addendum report with the model outputs presented in either of the two former reports.

1.1.7 It is recommended that, if either of the development proposals represented in scenarios G and H are progressed further by Woking Borough Council as a green belt release, further independent transport assessments are undertaken to enhance the evidence base.

## **1.2 Objectives**

1.2.1 The purpose of this study was to evaluate the highway impacts of the potential green belt site accessed via Martyr's Lane, identified by Woking Borough Council and the Green Belt Boundary Review.

1.2.2 The main objectives of this study are to:

- Identify the quantum and location of additional residential development for the specified green belt scenarios;
- Calculate the quantum and distribution of vehicle trips resulting from the development;
- Forecast the highway impacts of the specified green belt scenarios;
- Act as a starting point for identifying the locations that may require further investigation regarding highway impacts; and
- Report the main highway impacts.

## 2 STRATEGIC TRANSPORT MODEL

### 2.1 Model and Scope

2.1.1 Surrey County Council's strategic transport model, SINTRAM version 3.3 (SINTRAM33\_Wok\_Greenfield\_020916), has been used for this addendum assessment of scenarios G and H. The SINTRAM model was used in conjunction with the OmniTRANS modelling program version 5.0.34.

2.1.2 For greater detail about the strategic transport model, as well as its capabilities and restrictions, please refer to **Section 2** of the following Surrey County Council report, '*The Woking Borough Council Local Development Framework Green Belt Boundary Review Sensitivity Test, Strategic Transport Assessment (January 2015)*'.

### 2.2 Time Period

2.2.1 The model represents the weekday AM peak hour of 0800 – 0900.

### 2.3 Study Area and Zones

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

2.3.2 The borough of Woking is split into 39 zones. The zones were reviewed to ensure they were representative for the proposed development sites for this addendum assessment. A new zone was added to reflect the proposed development site assessed in scenarios G and H, zone 538 Martyr's Lane Green Belt Site. Addition of this new zone ensures that the trip generation related to the potential green belt site on Martyr's Lane, can access the highway network at the relevant point, allowing any highway impacts to be captured accurately.

2.3.3 All zones in the borough of Woking are listed below and shown in **Figure 2.1**, with the new zone highlighted in blue.

-78: Mayford	-277: Old Woking
-92: Arthurs Bridge	-280: West Byfleet – Parvis Road
-93: Brookwood	-283: Pyrford
-96: Byfleet	-284: Pyrford Green
-117: Egley Road	-292: Kingsway
-132: Goldsworth (east)	-299: Sheerwater
-165: Hook Heath	-301: Six Crossroads
-167: Horsell	-311: Brewery Road
-168: Horsell Common	-469: Worplesdon Station & Sutton Green
-185: Kingfield	-474: Triggs Lane
-186: Knaphill / St. Johns	-514: Woking Hospital
-259: Parley Drive	-515: Woking Leisure Centre
-261: Maybury East	-516: Woking Station
-262: Maybury Road Area	-517: Heathside
-263: Maybury	-521: Goldsworth (east)
-267: Westfield	-522: Goldsworth (east)
-268: Hoebidge	-524: Carthouse Lane
-269: Mount Hermon	-525: Carthouse Lane
-274: West Byfleet Town Centre	-538: Martyr's Lane Green Belt Site
-275: Woking Town Centre	

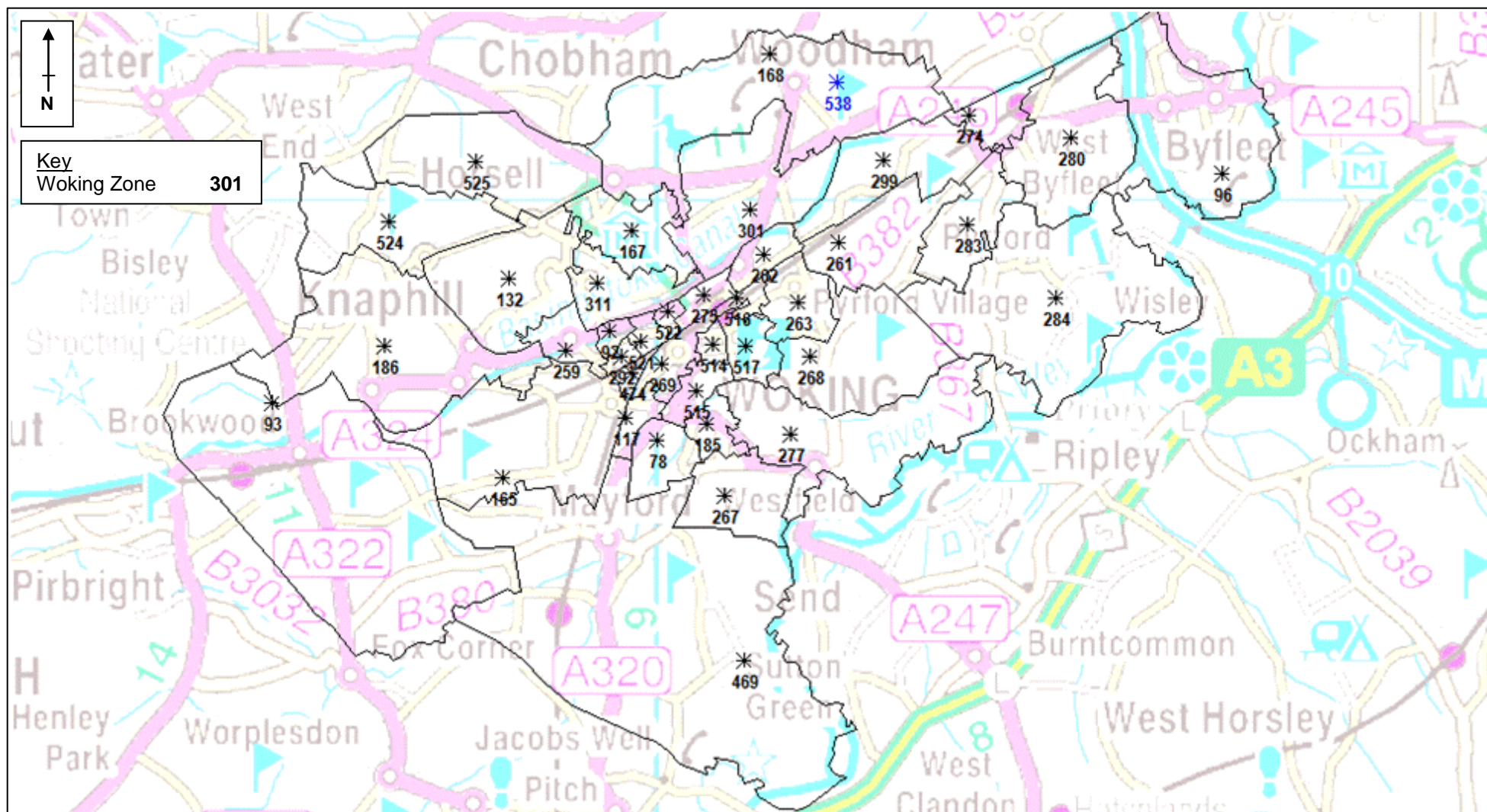


Figure 2.2: Zone Plan

## **2.4 Assignment**

- 2.4.1 All model matrices utilised in this strategic transport assessment of the potential green belt release accessed via Martyr's Lane, 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 with a spreadfactor of 2.
- 2.4.2 The assignment distributes given travel demand, (a set of trips with fixed origins and destinations), on the model highway network according to the most cost efficient route, utilising an iterative process. The resulting assigned traffic flow represents the conditions for the modelled weekday AM peak hour (0800 – 0900) only.



### 3 MODEL FORECASTING, TRIP GENERATION AND TRIP DISTRIBUTION

#### 3.1 Forecast Year

3.1.1 The model forecast year is 2026.

#### 3.2 Forecast Scenarios

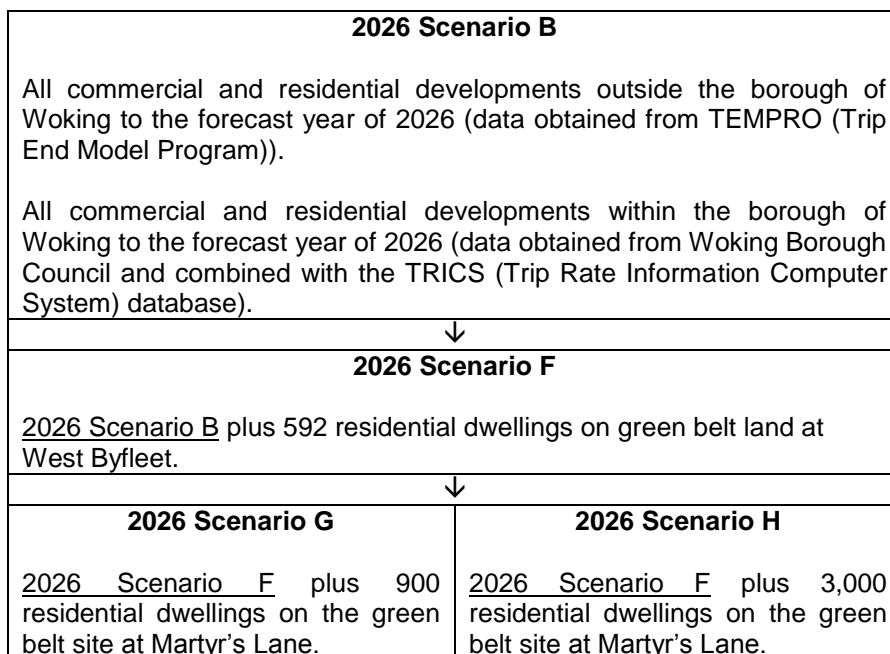
3.2.1 To identify the highway impacts of the varying quantities of residential units at the proposed Martyr's Lane green belt site, Woking Borough Council have requested that the following scenarios are modelled and investigated using comparative analysis:

- 2026 scenario B includes all commercial and residential development sites that are committed and planned in the borough of Woking, to the forecast year of 2026. The 2026 scenario B of this assessment contains the same development assumptions modelled for the 2026 scenario B in the 2015 Surrey County Council study issued to the borough council in the report '*The Woking Borough Council Local Development Framework Green Belt Boundary Review Sensitivity Test, Strategic Transport Assessment (January 2015)*';
- 2026 scenario F includes all of the development sites in scenario B with the addition of 592 residential dwellings on the green belt site at West Byfleet. 2026 scenario F of this assessment contains the same development assumptions modelled for 2026 scenario F in the 2015 Surrey County Council study issued to the borough council in the report '*The Woking Borough Council Local Development Framework Green Belt Boundary Review Sensitivity Test, Strategic Transport Assessment (January 2015)*';
- 2026 scenario G includes all of the development sites in scenario F with the addition of 900 residential dwellings on the green belt site at Martyr's Lane; and
- 2026 scenario H includes all of the development sites in scenario F with the addition of 3,000 residential dwellings on the green belt site at Martyr's Lane.

3.2.2 2026 scenario B acts as a reference case for all green belt forecast scenarios. This is because 2026 scenario B contains all development that has been committed or planned within the Core Strategy, whereas scenarios F, G and H contain differing locations and amounts of residential dwellings on varying green belt release sites.

3.2.3 2026 scenario F also acts as a reference case for scenarios G and H. Comparisons of the difference in model outputs between scenarios G and H, when referred to scenario F, will indicate the difference in highway impacts in the Martyr's Lane green belt site accommodating 900 or 3,000 residential units.

3.2.4 A diagrammatic view of the scenarios is shown in **Figure 3.1**.



**Figure 3.1: Outline of scenarios**

**3.3 Green Belt Sites**

- 3.3.1 Information regarding the composition of residential development to occur in each of the forecast green belt scenarios to be considered in this assessment was provided by Woking Borough Council via email correspondence (dated 19/07/16).
- 3.3.2 For the purposes of this assessment Woking Borough Council suggested that Surrey County Council should assume that all residential dwellings assessed in all the green belt scenarios are houses.
- 3.3.3 **Table 3.1** contains information for each green belt site assessed in this study.

Scenario	Model Zone	No. of Dwellings	Green Belt Location
2026 Scenario F	280	592	West Byfleet
2026 Scenario G	280 538	592 (in zone 280) 900 (in zone 538)	West Byfleet; and Martyr's Lane
2026 Scenario H	280 538	592 (in zone 280) 3,000 (in zone 538)	West Byfleet; and Martyr's Lane

**Table 3.1: Green belt site summary**

- 3.3.4 The three green belt scenarios under review in this study differ either in terms of their location in the borough as well as the number of residential dwellings contained within each site. Scenario F represents the West Byfleet green belt site only, whereas scenarios G and H represent the West Byfleet site as well as the Martyr's Lane site.
- 3.3.5 The number of dwellings in the identified green belt sites range from 592 to 3,592, with Scenario F containing the least and scenario H containing the most.

**3.4 Vehicle Trip Generation**

- 3.4.1 The methodology for calculating the vehicle trip generation for all developments included in this assessment is the same as that used in the former green belt assessment. For greater detail about the trip generation methodology please refer to **Section 3.4** of the following Surrey County Council report, '*The Woking Borough*

*Council Local Development Framework Green Belt Boundary Review Sensitivity Test, Strategic Transport Assessment (January 2015)*'.

3.4.2 **Tables 3.2 to 3.4** display the amount of additional trips generated from each of the deliverable green belt sites assessed in each scenario. A summary of trip generation for all scenarios has also been provided in **Table 3.5**.

3.4.3 It should be noted that the trip generation estimated for this assessment is purely for the purposes of this strategic transport modelling study, aimed at better informing decision making regarding green belt release in the borough of Woking. Under no circumstances should the trip generations estimated for use in this study be utilised for any other assessments, specifically related to these sites.

Zone No.	Zone Name	Vehicle Arrival Trips				Vehicle Departure Trips			
		Total	Car	LGV	HGV	Total	Car	LGV	HGV
280	West Byfleet – Parvis Road	92	84	6	1	312	287	22	3
	<b>Total</b>	<b>92</b>	<b>84</b>	<b>6</b>	<b>1</b>	<b>312</b>	<b>287</b>	<b>22</b>	<b>3</b>

**Table 3.2: 2026 scenario F trip generation for green belt release in West Byfleet, weekday AM peak hour (0800 – 0900)**

Zone No.	Zone Name	Vehicle Arrival Trips				Vehicle Departure Trips			
		Total	Car	LGV	HGV	Total	Car	LGV	HGV
280	West Byfleet – Parvis Road	92	84	6	1	312	287	22	3
538	Martyr's lane Green Belt Site	124	114	9	1	422	388	29	4
	<b>Total</b>	<b>216</b>	<b>198</b>	<b>15</b>	<b>2</b>	<b>744</b>	<b>675</b>	<b>51</b>	<b>7</b>

**Table 3.3: 2026 scenario G trip generation for green belt release in West Byfleet and Martyr's Lane, weekday AM peak hour (0800 – 0900)**

Zone No.	Zone Name	Vehicle Arrival Trips				Vehicle Departure Trips			
		Total	Car	LGV	HGV	Total	Car	LGV	HGV
280	West Byfleet – Parvis Road	92	84	6	1	312	287	22	3
538	Martyr's lane Green Belt Site	454	418	32	5	1,570	1,445	109	16
	<b>Total</b>	<b>546</b>	<b>502</b>	<b>38</b>	<b>6</b>	<b>1,882</b>	<b>1,732</b>	<b>131</b>	<b>19</b>

**Table 3.4: 2026 scenario H trip generation for green belt release in West Byfleet and Martyr's Lane, weekday AM peak hour (0800 – 0900)**

Scenario	Additional Vehicle Arrival Trips	Additional Vehicle Departure Trips	Additional Vehicle Total Trips
2026 Scenario F	92	312	404
2026 Scenario G	216	744	960
2026 Scenario H	546	1,882	2,428

**Table 3.5: Trip generation summary for all green belt release scenarios, weekday AM peak hour (0800 – 0900)**

### 3.5 Background Growth

3.5.1 Traffic growth forecasts have been based on the development trip generation estimated from TRICS set out above, and TEMPRO.

3.5.2 For greater detail about the background growth please refer to **Section 3.5** of the following Surrey County Council report, '*The Woking Borough Council Local Development Framework Green Belt Boundary Review Sensitivity Test, Strategic Transport Assessment (January 2015)*'.

### 3.6 Vehicle Trip Distribution

- 3.6.1 As scenarios B and F are continuations of the former Core Strategy and green belt sensitivity test assessments that Surrey County Council conducted in 2010 and 2015, the detail regarding the distribution of these forecast scenarios are contained in **Section 3.6** of the following report, '*The Woking Borough Council Local Development Framework Green Belt Boundary Review Sensitivity Test, Strategic Transport Assessment (January 2015)*'.
- 3.6.2 The origin and destinations of trips travelling to and from the proposed Martyr's Lane green belt release site represented in scenarios G and H, known as trip distribution, were derived from the 2011 Census Journey to Work dataset.
- 3.6.3 It was assumed that the potential green belt release site may have a similar trip distribution pattern to that of the residences in nearby Ottershaw. Therefore, the 2011 Census Journey to Work dataset for the Ottershaw residential Lower Super Output Area (LSOA) E01030678, was selected and applied to the trip generation for scenarios G and H. **Appendix A** contains plots of the 2011 Census Journey to Work Ottershaw LSOA E01030678 trip distribution that was utilised.
- 3.6.4 Since the majority of travel from home to work occurs in the AM peak, it is assumed that the home end of the trip is the origin, and the workplace the destination.

### 3.7 Forecast Network

- 3.7.1 The forecast highway network is an exact copy of the base but with the inclusion of the Sheerwater link road and associated junction improvements in the vicinity. The Sheerwater link road is a constructed highway scheme of strategic importance to Woking and the surrounding area.

## 4 MODEL RESULTS AND ANALYSES

### 4.1 Overview

4.1.1 All results presented within this report represent modelled highway impacts projected to occur in the borough of Woking only. Such modelled highway impacts are a result of additional trips generated from the borough's potential release of green belt land, represented by scenarios F, G and H, accommodating development to the forecast year of 2026.

4.1.2 Model outputs of all three green belt scenarios F, G and H, will be referred back to 2026 scenario B, which contains all of Woking's committed and planned development within the timescales of the Core Strategy. The outputs of scenarios G and H will also be referred back to scenario F so that the impact of the Martyr's Lane green belt release can be analysed in isolation to the potential green belt release at West Byfleet represented by scenario F.

### 4.2 Initial Assessment

4.2.1 An initial assessment of the potential impact of the proposed green belt site at Martyr's Lane has been undertaken by assigning the additional trips to an uncongested highway network, for the weekday AM peak hour. This initial assessment is based on the larger number of dwellings at the Martyr's Lane proposed development, represented by scenario H, as this would be a worst case scenario for the proposed green belt site.

4.2.2 By assigning the additional trips to an uncongested highway network, it allows the trips to travel between their origin and destination using the quickest routes in terms of both journey time and distance. This initial assessment therefore highlights the preferred routes of travel and indicates where impacts could arise as a result of the potential Martyr's Lane green belt release.

4.2.3 **Figure 4.1** shows the preferred routes of additional trips related to the green belt site at Martyr's Lane during the weekday AM peak hour. The green bandwidth shows the routes that trips would take, when travelling to and from the green belt site, if the highway network was uncongested. The width of the bandwidth is proportional to the amount of vehicles travelling on the network by direction.

4.2.4 This initial assessment immediately indicates that the majority of the trips travelling from the Martyr's Lane green belt site are to travel north of Woking via the A320 at Ottershaw to join the M25 at junction 11, during the weekday AM peak hour. This is primarily because the A320 facilitates the quickest and shortest travel to access the M25 from the northern side of the borough of Woking. Consequently, all junctions on this section of the A320, within and outside of the Woking borough boundary, are likely to be impacted by additional trips and existing traffic conditions potentially exacerbated.

4.2.5 This initial highway assessment also shows that trips travelling east utilise the A245 via West Byfleet and Byfleet to access the A3 at the Painshill junction. Trips travelling west of the site towards the M3 junction 3 are shown to route via the A3046 to Chobham and then the A319 and A322.

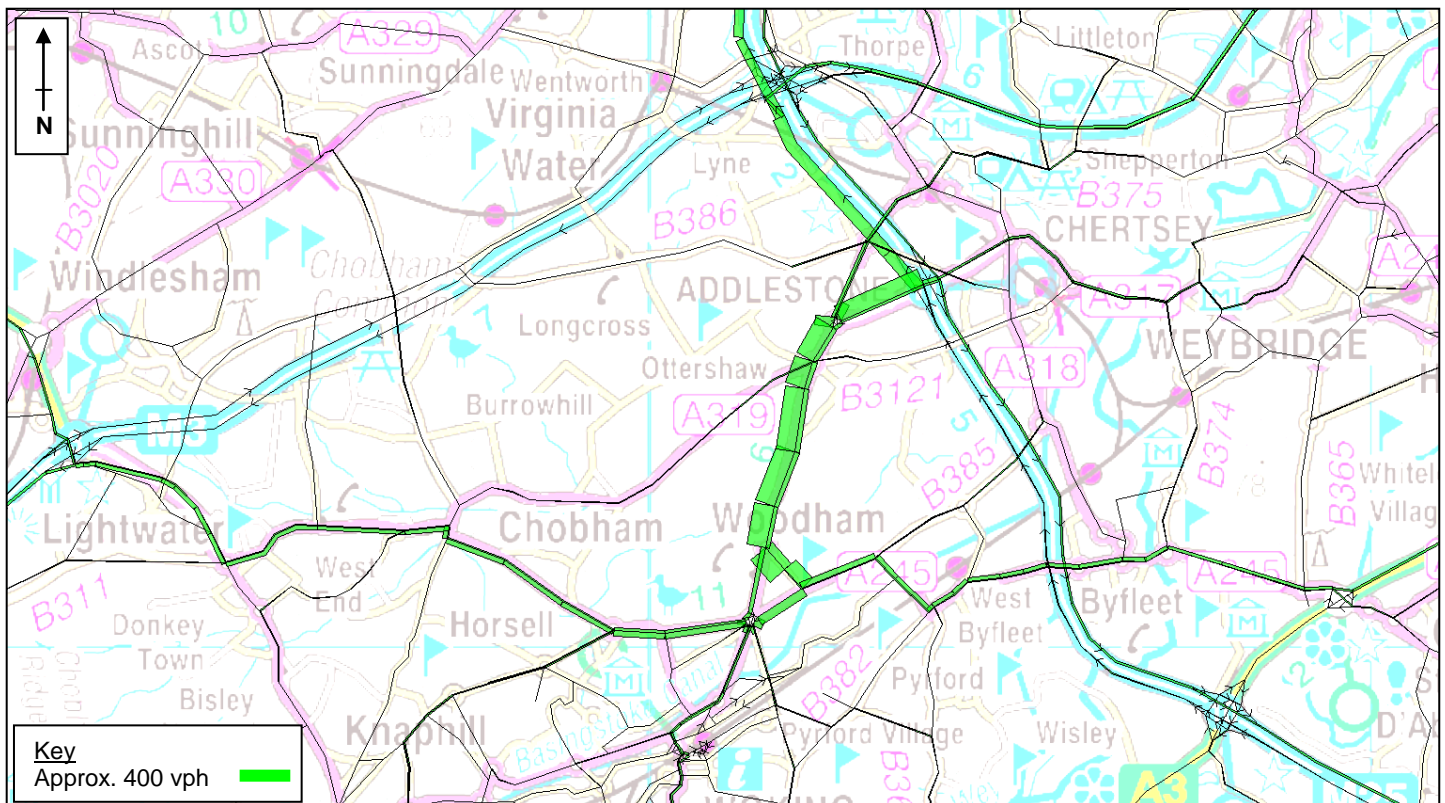
4.2.6 The junctions that are located in closest proximity to the potential Martyr's Lane greenbelt site are:

- A320 Guildford Road / Chertsey Road with Martyr's Lane;
- A245 Woodham Lane with Martyr's Lane; and

- Six Crossroads roundabout.

4.2.7 All such junctions are shown in **Figure 4.1** as being the junctions to potential facilitate the trips relating to the green belt release, travelling immediately to and from the potential green belt site accessed via Martyr's Lane.

4.2.8 It should be noted that this initial assessment assumes all drivers will follow the route with the lowest cost, in terms of journey time and distance, as perceived in uncongested conditions. Furthermore it assumes that there is no highway mitigation in place.



**Figure 4.1: Initial assessment of scenario H additional trips by assigning to an uncongested network to show preferred routes of travel, weekday AM peak hour**

### 4.3 Highway Network Statistics

4.3.1 **Tables 4.1** and **4.2** show the network summary statistics for the study area of Woking borough, for the weekday AM peak hour, broken down by road type for each green belt scenario.

4.3.2 **Table 4.1** compares the model network statistics for the green belt scenarios to the scenario B reference case, thus providing an indication of the varying impacts between each green belt scenario. However, **Table 4.2** compares the model network statistics of scenarios G and H to scenario F. This provides an indication of the differing traffic impacts between the varying quantities of residential units at the Martyr's Lane green belt site.

4.3.3 **Table 4.1** suggests that of the three green belt scenarios, scenario F, representing 592 dwellings on the green belt site at West Byfleet, is projected to generate the least changes to the highway network statistics. Vehicle kilometres and vehicle hours are only estimated to increase by 1% and average speed is expected to decrease by 0.2%, when compared to scenario B.

- 4.3.4 Scenario G is estimated to generate higher impacts than scenario F, but this is to be expected as it includes the 592 dwellings on green belt land in West Byfleet as well as 900 residential dwellings on green belt land at Martyr's Lane. Vehicle kilometres are projected to only increase by 1% but vehicle hours are to increase by 2% and average speed to decrease by 0.4%. These proportional increases in scenario G, when compared to scenario B, relate to an increase of 1,896 vehicle kilometres and 62 vehicle hours respectively, resulting in a reduction of average speed by 0.2 kph.
- 4.3.5 Scenario H is estimated to cause the greatest increase in network summary statistics when compared to scenario B. Scenario H also contains the largest number of residential dwellings on green belt land assessed in this sensitivity test, as it is the same as scenario G but has 3,000 residential dwellings at Martyr's Lane instead of 900. Consequently, the impact that scenario H is modelled as having on the network is greater than scenario G. Vehicle kilometres are estimated to increase by 4,622, (3%), when compared to scenario B and vehicle hours are to increase by 167, (4%), generating a reduction in average speed of 0.6 kph (1.4%).
- 4.3.6 **Table 4.1** indicates that vehicle kilometres are to increase most on the minor road type in scenario F when compared to scenario B. Whereas, in scenarios G and H, both the A principal roads and minor roads are to be impacted most by increases in vehicle kilometres and vehicle hours. This infers that the green belt release in West Byfleet, represented by scenario F, has greater impacts by increasing traffic flow and delay on the minor roads of the borough, whilst the green belt release at Martyr's Lane impacts both A principal and minor roads relatively equally.

Statistic	Road Type	2026 Scenario B	2026 Scenario F	2026 Scenario G	2026 Scenario H
Vehicle Kilometres (veh kms)	A Principal Road	70,858	71,143	71,687	72,815
	B Road	28,137	28,390	28,388	28,823
	Minor Road	62,411	62,838	63,227	64,390
<b>Total</b>		<b>161,406</b>	<b>162,372</b>	<b>163,302</b>	<b>166,028</b>
Vehicle Hours (veh hrs)	A Principal Road	1,684	1,693	1,710	1,750
	B Road	691	699	702	725
	Minor Road	1,515	1,528	1,540	1,582
<b>Total</b>		<b>3,890</b>	<b>3,921</b>	<b>3,952</b>	<b>4,057</b>
Average Speed (kph)	A Principal Road	42.1	42.0	41.9	41.6
	B Road	40.7	40.6	40.4	39.8
	Minor Road	41.2	41.1	41.1	40.7
<b>Average</b>		<b>41.5</b>	<b>41.4</b>	<b>41.3</b>	<b>40.9</b>
<b>Absolute difference from 2026 scenario B</b>					
Vehicle Kilometres (veh kms)	A Principal Road		285	829	1,957
	B Road		254	251	686
	Minor Road		427	816	1,978
<b>Total</b>			<b>966</b>	<b>1,896</b>	<b>4,622</b>
Vehicle Hours (veh hrs)	A Principal Road		10	26	67
	B Road		8	11	34
	Minor Road		13	25	66
<b>Total</b>			<b>31</b>	<b>62</b>	<b>167</b>
Average Speed (kph)	A Principal Road		-0.1	-0.2	-0.5
	B Road		-0.1	-0.3	-1.0
	Minor Road		-0.1	-0.1	-0.5
<b>Average</b>			<b>-0.1</b>	<b>-0.2</b>	<b>-0.6</b>
<b>Percentage difference from 2026 scenario B</b>					
Vehicle Kilometres (veh kms)	A Principal Road		0%	1%	3%
	B Road		1%	1%	2%
	Minor Road		1%	1%	3%
<b>Total</b>			<b>1%</b>	<b>1%</b>	<b>3%</b>
Vehicle Hours (veh hrs)	A Principal Road		1%	2%	4%
	B Road		1%	2%	5%
	Minor Road		1%	2%	4%
<b>Total</b>			<b>1%</b>	<b>2%</b>	<b>4%</b>
Average Speed (kph)	A Principal Road		-0.2%	-0.4%	-1.1%
	B Road		-0.3%	-0.6%	-2.4%
	Minor Road		-0.2%	-0.3%	-1.2%
<b>Average</b>			<b>-0.2%</b>	<b>-0.4%</b>	<b>-1.4%</b>

**Table 4.1: Network summary statistics for Woking borough, scenario B as reference, weekday AM peak hour (0800 – 0900)**

4.3.7 **Table 4.2** presents the difference in network statistics between scenarios G and H only, therefore showing the varying impact of either 900 or 3,000 dwellings at the Martyr's Lane green belt site. Scenario H has substantially greater traffic impacts than scenario G and this is because scenario H contains the greatest amount of residential developments.

4.3.8 **Table 4.2** indicates that scenario G is to increase both vehicle kilometres and vehicle hours by 1% and reduce the average speed by 0.2%, from 41.4 to 41.3 kph, when compared to scenario F. However, scenario H is to increase vehicle kilometres by 2%, vehicle hours by 3% and reduce the average speed from 41.3 to 40.9 kph, 1.2% reduction, when compared to scenario F.



Statistic	Road Type	2026 Scenario F	2026 Scenario G	2026 Scenario H
Vehicle Kilometres (veh kms)	A Principal Road	71,143	71,687	72,815
	B Road	28,390	28,388	28,823
	Minor Road	62,838	63,227	64,390
<b>Total</b>		<b>162,372</b>	<b>163,302</b>	<b>166,028</b>
Vehicle Hours (veh hrs)	A Principal Road	1,693	1,710	1,750
	B Road	699	702	725
	Minor Road	1,528	1,540	1,582
<b>Total</b>		<b>3,921</b>	<b>3,952</b>	<b>4,057</b>
Average Speed (kph)	A Principal Road	42.0	41.9	41.6
	B Road	40.6	40.4	39.8
	Minor Road	41.1	41.1	40.7
<b>Average</b>		<b>41.4</b>	<b>41.3</b>	<b>40.9</b>
<b>Absolute difference from 2026 scenario F</b>				
Vehicle Kilometres (veh kms)	A Principal Road		543	1,672
	B Road		-3	433
	Minor Road		389	1,552
<b>Total</b>			<b>930</b>	<b>3,656</b>
Vehicle Hours (veh hrs)	A Principal Road		17	57
	B Road		2	26
	Minor Road		12	53
<b>Total</b>			<b>31</b>	<b>136</b>
Average Speed (kph)	A Principal Road		-0.1	-0.4
	B Road		-0.1	-0.8
	Minor Road		-0.1	-0.4
<b>Average</b>			<b>-0.1</b>	<b>-0.5</b>
<b>Percentage difference from 2026 scenario F</b>				
Vehicle Kilometres (veh kms)	A Principal Road		1%	2%
	B Road		0%	2%
	Minor Road		1%	2%
<b>Total</b>			<b>1%</b>	<b>2%</b>
Vehicle Hours (veh hrs)	A Principal Road		1%	3%
	B Road		0%	4%
	Minor Road		1%	3%
<b>Total</b>			<b>1%</b>	<b>3%</b>
Average Speed (kph)	A Principal Road		-0.2%	-1.0%
	B Road		-0.3%	-2.1%
	Minor Road		-0.1%	-1.0%
<b>Average</b>			<b>-0.2%</b>	<b>-1.2%</b>

**Table 4.2: Network summary statistics for Woking borough, scenario F as reference, weekday AM peak hour (0800 – 0900)**

#### 4.4 Level Of Service (LOS)

4.4.1 Level of service (LOS) is a term used to qualitatively describe the operating conditions of a section of road or at a junction based on factors such as speed, travel and time 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.

4.4.2 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 traffic light colours: green; amber; and red in **Tables 4.4** to **4.9**.

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 useable 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 LOS categories**

#### 4.5 Ratio of Flow to Capacity (RFC)

- 4.5.1 Another tool for assessing the performance of a stretch of a road is the ratio of flow to capacity (RFC) measure.
- 4.5.2 An RFC value between 0.85 and 1 suggests the stretch of road is beginning to struggle with the amount of traffic, thus causing delay, queues and driver stress. However, a value greater than 1 infers that the stretch of road has a greater amount of traffic flow than its theoretical capacity, resulting in flow breakdown and extensive queuing.
- 4.5.3 An RFC below 0.85 is considered acceptable as there is still scope to accommodate future growth.
- 4.5.4 As with LOS, RFC has been applied to the analysis of link flow to aid the interpretations of the model outputs. All presented RFC values between 0.85 and 1 have been highlighted in orange text and values greater than 1 in red text.
- 4.5.5 **Appendix B** should be referred to for plots of the borough indicating links that are to incur RFC values equal to or greater than 0.85, for all modelled 2026 green belt release scenarios in the weekday AM peak hour. Such plots provide a borough overview of RFC information provided in **Tables 4.4 to 4.9**.

#### 4.6 Increase in Flow

- 4.6.1 **Tables 4.4 to 4.6** present the top ten links in each of the green belt scenarios which have the greatest increase in flow, in vehicles per hour (vph), when compared to either 2026 scenario B or 2026 scenario F in the weekday AM peak hour. RFC and LOS values have also been presented. Scenarios G and H have

been compared to both scenarios B and F so the impacts of the cumulative green belt scenarios i.e. West Byfleet green belt site as well as Martyr’s Lane green belt site can be understood by referring back to scenario B, as well as analysing the Martyr’s Lane site in isolation by comparing to scenario F.

4.6.2 It should be noted that if the RFC and LOS values differ between the two comparative scenarios, the reference scenario RFC and LOS values are displayed in brackets in **Tables 4.4 to 4.6**.

Rank	Name	Link Ref.	Difference in Flow (vph)	2031 Scenario F RFC*	2031 Scenario F LOS*
1	A318 Sopwith Drive northbound	15119 2	114	(0.34) 0.38	C
2	A318 Barnes Wallis Drive northbound	16534 1	79	(0.57) 0.62	D
3	A318 Sopwith Drive southbound	15119 1	75	(0.32) 0.34	C
4	B382 Woking Road southbound	15112 2	72	(1.64) 1.73	F
5	B382 Woking Road southbound	15111 1	72	(1.59) 1.68	F
6	A245 Parvis Road westbound	10336 1	64	(1.59) 1.64	F
7	A245 Parvis Road eastbound	16663 2	62	(0.96) 1.00	E
8	C130 Scotland Bridge Road northbound	9736 2	59	(1.24) 1.31	F
9	C130 Camphill Road northbound	9883 2	59	(0.83) 0.88	E
10	A318 Barnes Wallis Drive southbound	16534 2	58	(0.70) 0.73	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 4.4: Links with the largest increase in flow between 2026 scenario B and scenario F, weekday AM peak hour (0800 – 0900)**

Rank	Name	Link Ref.	Difference in Flow (vph)	2031 Scenario G RFC*	2031 Scenario G LOS*
<b>2026 Scenario G less scenario B</b>					
1	D3782 Martyr’s Lane northbound	16784 2	290	(0.37) 0.67	(C) E
2	A320 Guildford Road northbound	15363 2	240	(0.96) 1.16	(E) F
3	A320 Chertsey Road southbound	16755 1	136	(0.53) 0.65	(D) E
4	B382 Woking Road southbound	15112 2	132	(1.64) 1.81	F
5	B382 Woking Road southbound	15111 1	128	(1.59) 1.75	F
6	Six Crossroads roundabout circulatory	16760 2	118	(0.62) 0.65	(D) E
7	A318 Sopwith Drive northbound	15119 2	105	(0.34) 0.38	C
8	A318 Barnes Wallis Drive southbound	16534 2	80	(0.70) 0.75	E
9	A245 Parvis Road Eastbound	16663 2	80	(0.96) 1.01	(E) F
10	A320 Guildford Road southbound	15363 1	77	(0.70) 0.76	E
<b>2026 Scenario G less scenario F</b>					
1	D3872 Martyr’s Lane northbound	16784 2	264	(0.39) 0.67	(C) E
2	A320 Guildford Road northbound	15363 2	199	(0.99) 1.16	(E) F
3	A320 Chertsey Road southbound	16755 1	102	(0.56) 0.65	(D) E
4	Six Crossroads roundabout circulatory	16760 2	95	(0.63) 0.65	(D) E
5	B385 Woodham Lane eastbound	10322 2	73	(0.89) 0.94	E
6	A245 Woodham Lane eastbound	16706 2	72	(0.86) 0.90	E
7	D3872 Martyr’s Lane southbound	16785 2	63	(0.32) 0.38	C
8	B382 Woking Road southbound	15112 2	60	(1.73) 1.81	F
9	D3709 Pembroke Road eastbound	14377 1	59	(0.59) 0.67	(D) E
10	B382 Woking Road southbound	15111 1	56	(1.68) 1.75	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 4.5: Links with the largest increase in flow between 2026 scenario B and/or F and scenario G, weekday AM peak hour (0800 – 0900)**

Rank	Name	Link Ref.	Difference in Flow (vph)	2031 Scenario H RFC*	2031 Scenario H LOS*
<b>2026 Scenario H less scenario B</b>					
1	D3782 Martyr's Lane northbound	16784 2	1,009	(0.37) 1.40	(C) F
2	A320 Guildford Road northbound	15363 2	718	(0.96) 1.56	(E) F
3	A320 Chertsey Road southbound	16755 1	352	(0.53) 0.83	(D) E
4	Six Crossroads roundabout circulatory	16760 2	332	(0.62) 0.72	(D) E
5	D3782 Martyr's Lane southbound	16785 2	259	(0.31) 0.57	(C) D
6	B385 Woodham Lane eastbound	10322 2	247	(0.89) 1.04	(E) F
7	A245 Woodham Lane eastbound	16706 2	206	(0.86) 0.98	E
8	B382 Woking Road southbound	15112 2	205	(1.64) 1.90	F
9	B382 Woking Road southbound	15111 1	196	(1.59) 1.84	F
10	C144 Monument Road southbound	15396 1	182	(0.70) 0.93	E
<b>2026 Scenario H less scenario F</b>					
1	D3782 Martyr's Lane northbound	16784 2	983	(0.39) 1.40	(C) F
2	A320 Guildford Road northbound	15363 2	677	(0.99) 1.56	(E) F
3	A320 Chertsey Road southbound	16755 1	318	(0.56) 0.83	(D) E
4	Six Crossroads roundabout circulatory	16760 2	309	(0.63) 0.72	(D) E
5	D3872 Martyr's Lane southbound	16785 2	255	(0.32) 0.57	(C) D
6	B385 Woodham Lane eastbound	10322 2	243	(0.89) 1.04	(E) F
7	A245 Woodham Lane eastbound	16706 2	218	(0.86) 0.98	E
8	C144 Monument Road southbound	15396 1	208	(0.66) 0.93	E
9	C144 Maybury Hill southbound	15395 2	176	(1.20) 1.43	F
10	C144 Monument Road southbound	16746 1	158	(0.18) 0.39	(B) 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 4.6: Links with the largest increase in flow between 2026 scenario B and/or F and scenario H, weekday AM peak hour (0800 – 0900)**

#### Scenario F

4.6.3 Comparisons between 2026 scenarios F and B provides an indication of the forecast highway impacts estimated to occur as a result of the proposed 592 dwellings on the green belt site at West Byfleet. All of the links presented in **Table 4.4** are located in the east of the borough and in proximity to the proposed green belt site.

4.6.4 The ten largest forecast increases in flow generated from scenario F range between approx 60 and 115 vph in the weekday AM peak hour. **Table 4.4** indicates that the links with the greatest increases in flow, as a result of proposed housing on green belt land at West Byfleet, form three routes:

- A318 Sopwith Drive / Barnes Wallis Drive in a northbound and southbound direction of travel;
- A245 Parvis Road and C130 Camphill Road / Scotland Bridge Road in a north-west direction of travel; and
- B382 Woking Road southbound.

4.6.5 **Table 4.4** also indicates that the roads to incur the greatest increases in flow in scenario F are also to have greater RFC values when compared to scenario B. Increases in RFC values is a direct result of increased flow. A number of the roads listed in **Table 4.4** have RFC values that are approaching the roads theoretical capacity, therefore having a RFC value between 0.85 and 1, or are greater than the roads theoretical capacity of 1. However, it should be noted that the links with such RFC values, marked in either orange or red text, are not thought to be new areas of congestion as the listed roads already have high RFC values in 2026 scenario B, which represents the borough's Core Strategy. Consequently there are only very small differences in the RFC values between scenarios B and F for the listed roads in **Table 4.4**.

4.6.6 The increases in the RFC values are small and the LOS values remain constant for the listed roads in scenario F, when compared to scenario B. The increase in traffic flow generated from the proposed 592 dwellings on the West Byfleet green belt site are not thought to be generating new areas of congestion on the roads. Instead such additional trips are exacerbating existing areas of congestion.

#### Scenario G

4.6.7 Comparisons between scenarios G and B portray the forecast highway impacts related to the cumulative green belt sites of 592 dwellings on green belt land at West Byfleet, (also represented in scenario F in isolation), as well as 900 dwellings on green belt land at Martyr's Lane.

4.6.8 Whereas, comparisons between scenarios G and F provides an indication of the forecast highway impacts solely generated from the proposed 900 dwellings at the potential Martyr's Lane green belt site.

4.6.9 The largest increases in flow in scenario G are forecast to occur in close proximity to both green belt sites represented in the scenario; West Byfleet and Martyr's Lane.

4.6.10 Comparisons between scenario G and B indicate that the largest increases in flow generated from the culmination of green belt release in West Byfleet and Martyr's Lane are between approximately 80 and 290 vph. The main routes to incur the greatest amount of additional traffic flow in scenario G, when compared to scenario B are:

- Martyr's Lane with A320 Guildford / Chertsey Road southbound;
- B382 Woking Road southbound; and
- Sections of the A318 and A245 in the east of the borough.

4.6.11 **Table 4.5** indicates that when making comparisons between scenarios G and B, similar links are to incur the greatest increase in flow as scenario F. This is to be expected as both scenarios F and G contain the proposed green belt release for 592 dwellings at West Byfleet. For example, the B382 Woking Road southbound corridor and sections of the A318 in the east of the borough are again displayed in **Table 4.5** but with slightly higher increases in flow, when compared to **Table 4.4**.

4.6.12 **Table 4.5** also shows the links to incur the largest increases in flow when comparing scenarios G and F, therefore highlighting the impacts of the 900 proposed dwellings at Martyr's Lane in isolation. These comparisons show similar trends as to when scenarios G and B are compared but with the greatest increases in flow being on roads in proximity to Martyr's Lane. Increases in flow are primarily forecast to be on the following routes:

- Martyr's Lane southbound with A245 Woodham Lane eastbound;
- Martyr's Lane northbound with A320 north and southbound; and
- B382 Woking Road southbound.

4.6.13 These areas of the highway, specifically Martyr's Lane, A245 Woodham Lane and the A320, correlate with the routes favoured by the additional trips related to the Martyr's Lane green belt site, as previously shown in **Figure 4.1**, in the initial assessment.

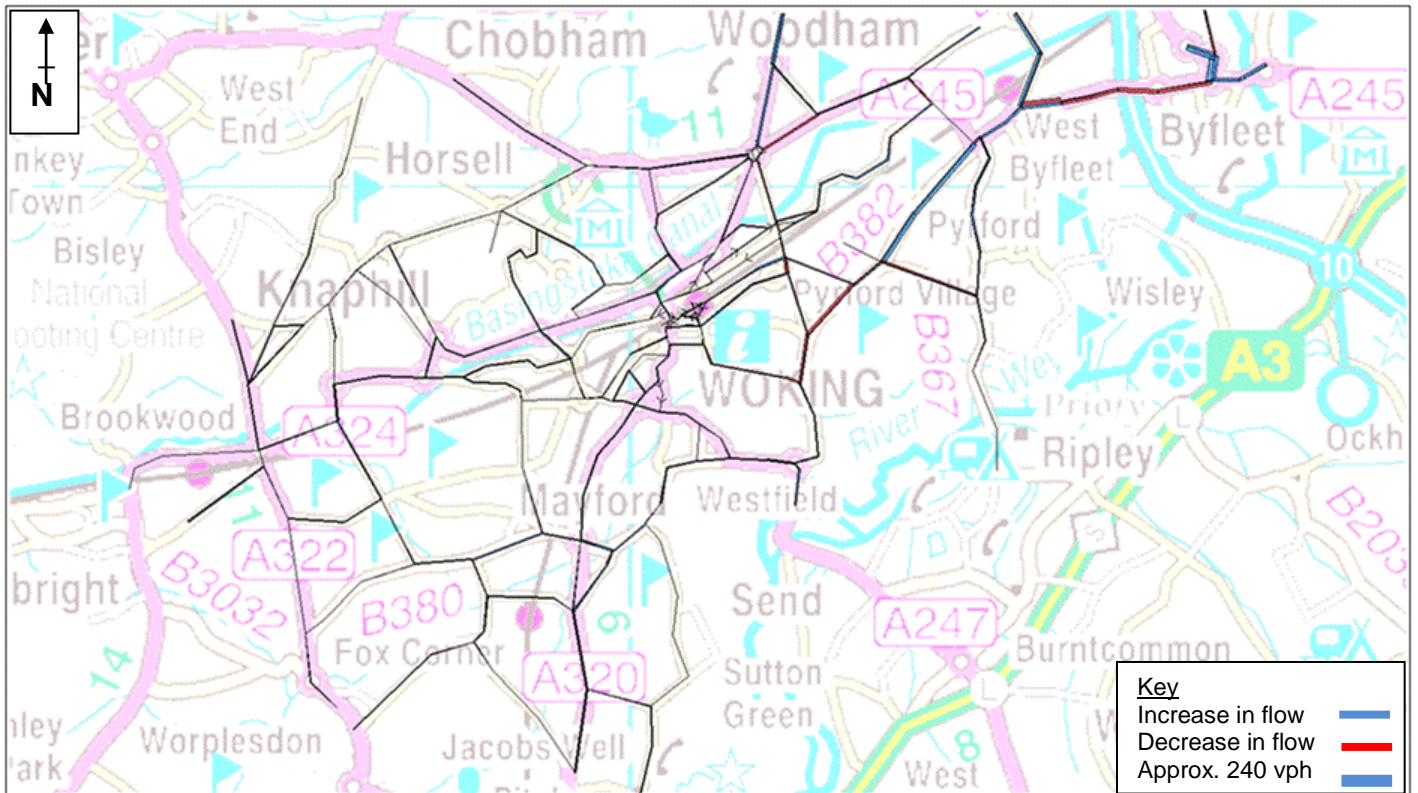
4.6.14 Similar to the trends shown in **Table 4.4** representing scenario F, the proposed culmination of green belt release at Martyr's Lane and West Byfleet is anticipated to exacerbate existing highway issues, instead of creating new areas of

congestion. This is because the roads with the highest RFC values and worst LOS values already had RFC values inferring that the road was approaching its theoretical capacity, (0.85 to 1), or over it, (greater than 1), in the reference case of scenario B and/or F. For example, the B382 Woking Road southbound, reference 15112, 2, had an RFC value of 1.64 in scenario B, this increased to 1.73 in scenario F and increased further in scenario G to 1.81, but the LOS value remains at F for all three scenarios. This section of the B382 was already above its theoretical capacity in scenario B, as a result of the Core Strategy, and then higher levels of congestion are forecast as a result of increased flow generated from the green belt releases. This is the case for many of the sections of road stated in **Table 4.5**.

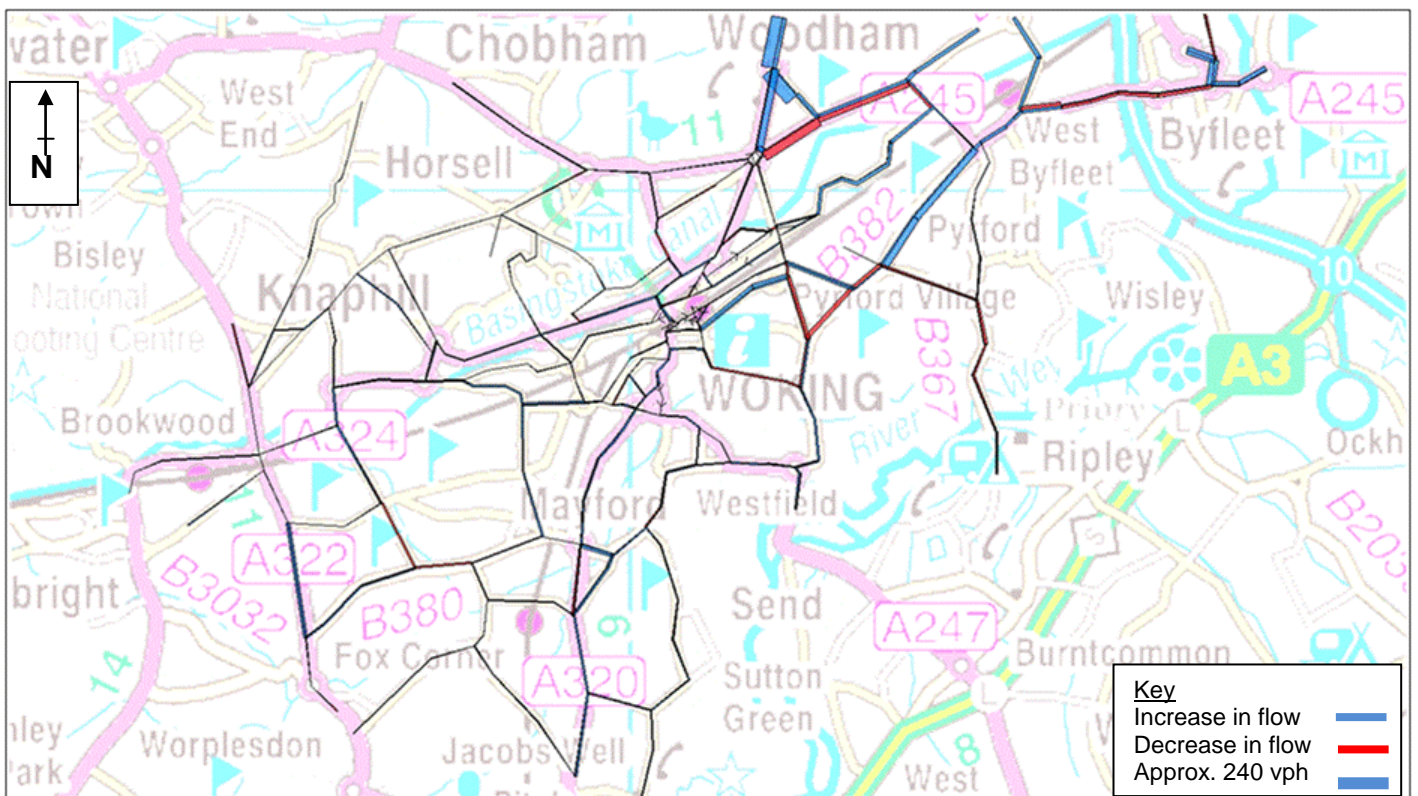
#### Scenario H

- 4.6.15 Comparisons between scenarios H and B portray the forecast highway impacts related to the cumulative impact of 592 dwellings on the potential green belt site at West Byfleet, (also represented in scenario F in isolation), as well as 3,000 dwellings on the green belt site at Martyr's Lane.
- 4.6.16 Whereas, comparisons between scenarios H and F provide an indication of the forecast highway impacts solely generated from the proposed 3,000 dwellings at the potential Martyr's Lane green belt site. Therefore, comparisons between the model outputs of scenarios G and F as well as H and F illustrates the varying impact forecast between the differing amount of dwellings on green belt land at Martyr's Lane.
- 4.6.17 **Table 4.6** lists similar sections of roads as those shown in **Table 4.5** but the increases in flow generated from scenario H, when compared to either scenario F or B, are much larger. When comparing scenario H with scenario B, the largest increases in traffic flow are forecast to range between approximately 180 and 1,010 vph in the weekday AM peak hour.
- 4.6.18 When comparing scenario H with scenario B, the corridors of the road network to incur the largest increases in traffic flow are similar to scenario G, with the A320, B382, Martyr's Lane and A245 corridors also being stated in **Table 4.6**. However, when comparing scenario H to scenario F, thus just investigating the impact of the proposed 3,000 dwellings at the Martyr's Lane site in isolation, it is forecast that the Monument Road / Maybury Hill southbound corridor is to experience some of the largest increases in flow. The RFC values on the Monument Road / Maybury Hill corridor are also set to increase and approach theoretical capacity, but the LOS values remain constant.
- 4.6.19 Furthermore the increases in flow projected to occur on the Monument Road / Maybury Hill southbound corridor are indications of trips utilising routes to avoid areas of congestion. The initial assessment of assigning the additional trips from scenario H to an uncongested network showed that the majority of trips favoured routes utilising the A245 Woodham Lane and A320 Guildford Road, as shown in **Figure 4.1**. However, due to existing traffic flows increasing as a result of the additional trips from the potential green belt sites, vehicles have to re-route to travel between their origin and destination in the most cost efficient way, and instead using routes such as Monument Road and Maybury Hill southbound.
- 4.6.20 **Figures 4.2 to 4.6** present the changes in flow between the green belt scenarios and their respective reference cases for the entire study area of Woking borough, during the weekday AM peak hour. Therefore **Figures 4.2 to 4.6** are graphical representations of **Tables 4.4 to 4.6**, but for all model links in the borough of Woking.

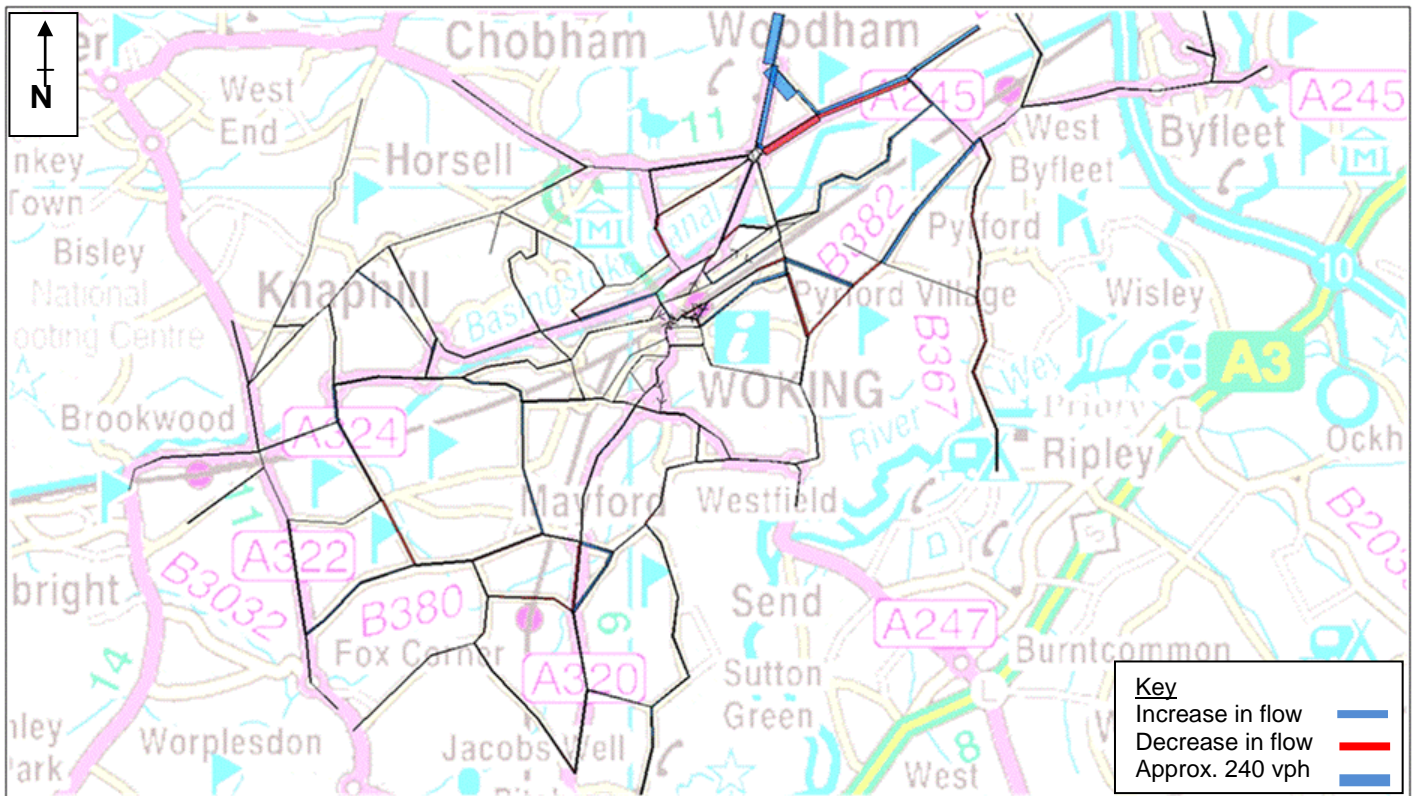
4.6.21 Bandwidths coloured blue show an increase in flow, whereas those coloured red present a decrease in flow, with size being proportional to the increase or decrease.



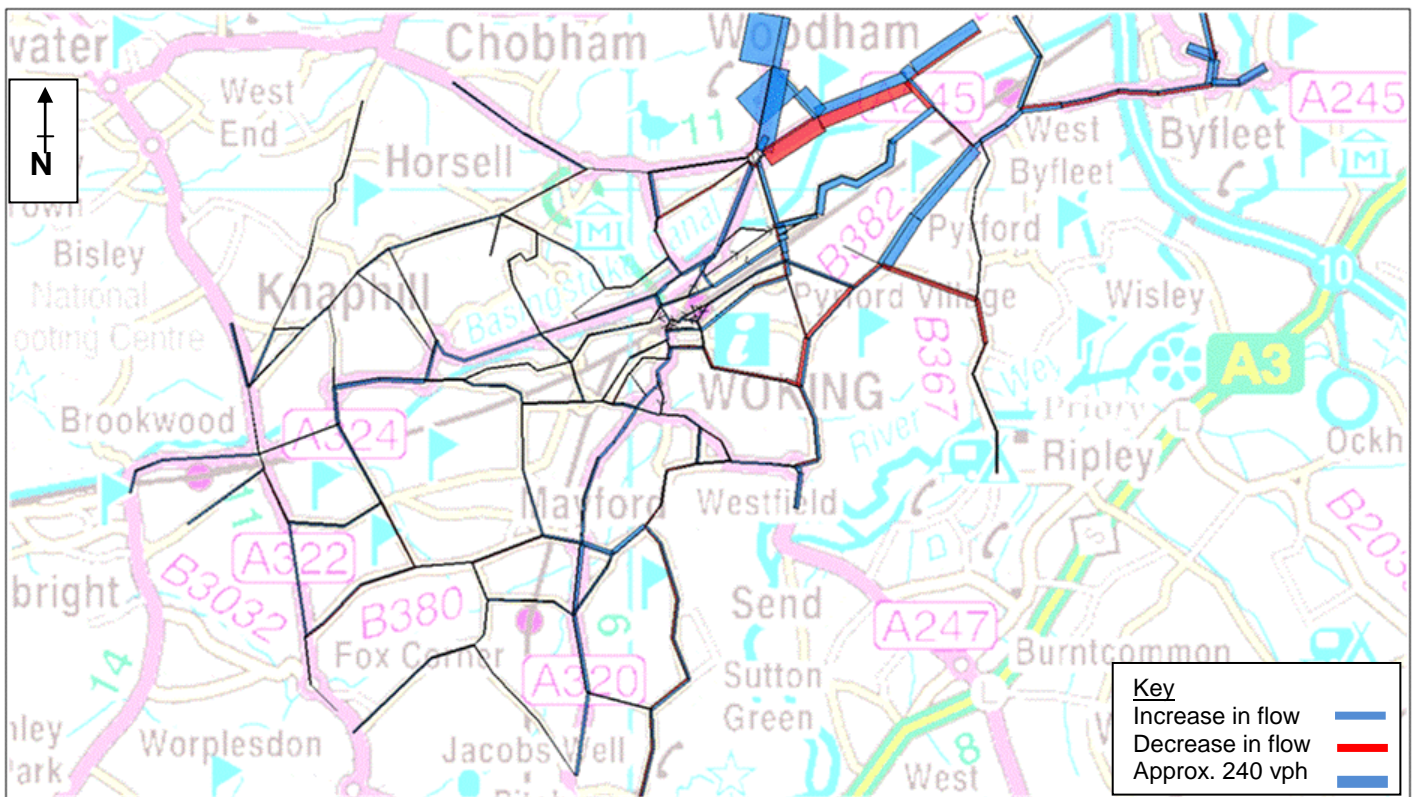
**Figure 4.2: Flow difference plot between scenario B and scenario F, weekday AM peak hour (0800 – 0900)**



**Figure 4.3: Flow difference plot between scenario B and scenario G, weekday AM peak hour (0800 – 0900)**

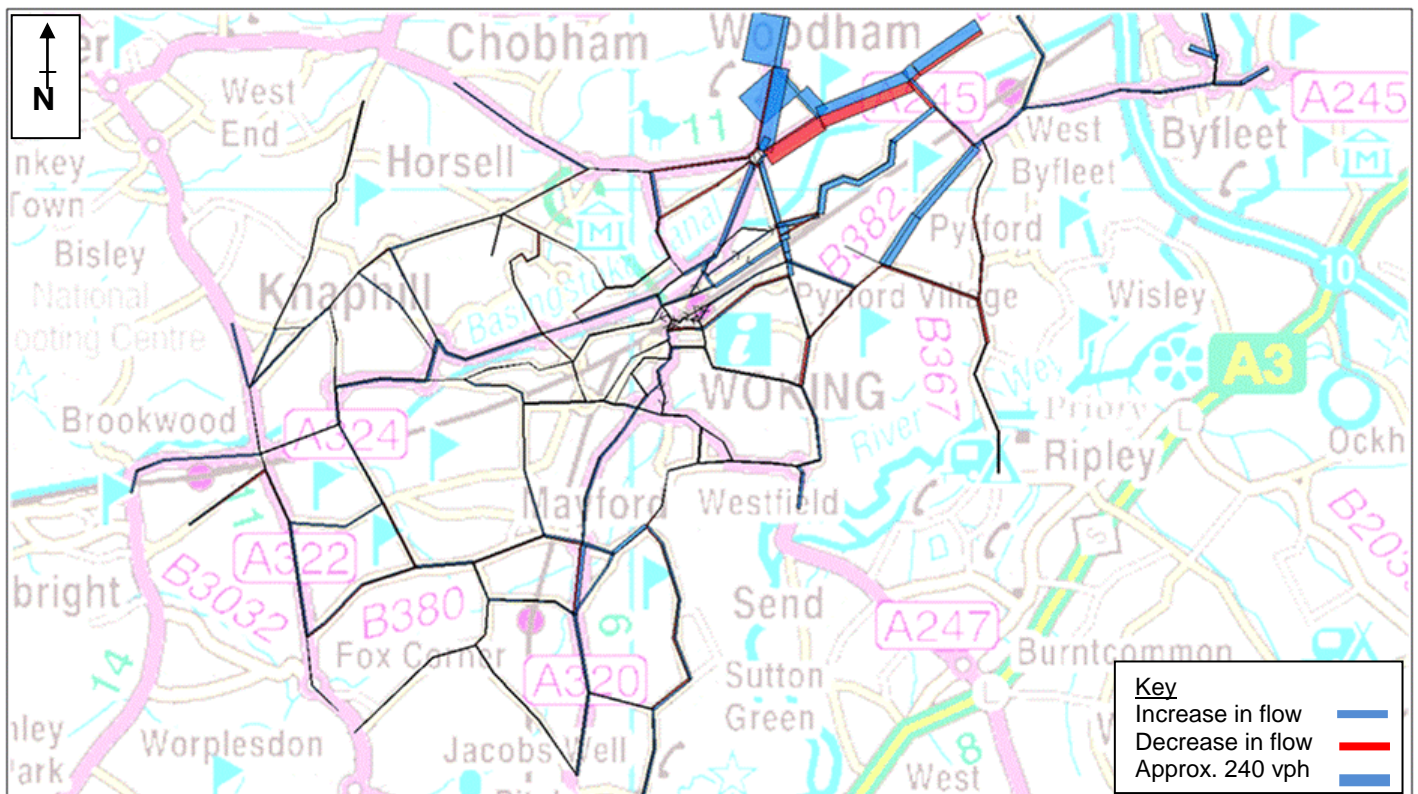


**Figure 4.4: Flow difference plot between scenario F and scenario G, weekday AM peak hour (0800 – 0900)**



**Figure 4.5: Flow difference plot between scenario B and scenario H, weekday AM peak hour (0800 – 0900)**





**Figure 4.6: Flow difference plot between scenario F and scenario H, weekday AM peak hour (0800 – 0900)**

4.6.22 **Figure 4.2** indicates that the proposed 592 dwellings at the West Byfleet green belt site are to generate increases in flow on roads in the east of the borough, predominantly the A318 and A245 corridor as well as the southbound B382 Woking Road corridor, between West Byfleet and Pymford.

4.6.23 **Figures 4.3** and **4.4** graphically present the difference in flows forecast to occur in scenario G in comparison to scenarios B and F. Both **Figures 4.3** and **4.4** appear relatively similar with only small differences being shown to the east of the borough, surrounding the West Byfleet site. These differences are that when comparisons are made between scenarios G and B there are increases in flow on the A245 and A318, but this is not the case when comparing scenarios G and F. Such differences are purely due to comparing scenario G to different reference cases to highlight the impacts of the Martyr's Lane site in isolation. **Figure 4.4** and **Table 4.5** indicate that the largest increases in flow are forecast on the A320 north and southbound as well as Martyr's Lane northbound.

4.6.24 **Figures 4.5** and **4.6** graphically present the difference in flows forecast to occur in scenario H in comparison to scenarios B and F. Similar to scenario G, **Figures 4.5** and **4.6** are relatively similar but with **Figure 4.5** showing greater impacts. This is to be expected as this comparison is analysing the cumulative impacts of both the West Byfleet and Martyr's Lane green belt site with the higher quantity of housing at Martyr's Lane. **Figures 4.5** and **4.6** indicate that the areas to incur the largest increases in flow are similar to scenario H, namely the A320 northbound and southbound, A245 eastbound, and B382 Woking Road southbound. However, **Figures 4.5** and **4.6** highlight that Albert Drive, through Sheerwater, is also forecast to incur a relative increase in flow. It is acknowledged that Albert Drive is not listed in **Table 4.6** but it is important to note that only the ten roads with the largest increases in flow are listed.

4.6.25 **Figures 4.5** and **4.6** indicate a decrease in traffic flow on the A245 Woodham Lane westbound but an increase in traffic flow on Albert Drive westbound and B382 Woking Road southbound. The additional traffic flow generated from the potential green belt site at Martyr's Lane of 3,000 dwellings, is thus causing additional congestion and delay in the vicinity of the development, namely on the A245 Woodham Lane. Furthermore it is projected to cause vehicles to utilise alternative routes to their preferred routes, as shown in **Figure 4.1**, and thus potentially cause traffic impacts on the highway network in Sheerwater and Maybury.

#### 4.7 Increase in RFC

4.7.1 **Tables 4.7** to **4.9** present the ten links in each of the green belt scenarios that have the largest RFC values of all links in the borough of Woking. The flows and LOS values are also presented for each scenario in question, as well as the difference in flow from their respective reference cases.

4.7.2 As in **Tables 4.4** to **4.6**, if the RFC and LOS values differ between the two comparative scenarios, the reference scenario RFC and LOS values are displayed in brackets.

4.7.3 **Tables 4.7** to **4.9** all list the same sections of road in the borough, but with slight variations in the order of ranking. Therefore all assessed green belt scenarios are forecast as having the same areas of congested roads. The RFC values of the listed sections of road show minor variations between the scenarios as well as their respective reference cases.

4.7.4 By the ten greatest RFC values being reported on the same links in all green belt scenarios it could be assumed that no new areas of extreme congestion are apparent. Instead existing areas of highest congestion are worsening and thus congestion on the sections of road is being exacerbated by additional trips from the proposed green belt sites.

4.7.5 Not all roads listed in **Tables 4.7** to **4.9** are forecast to incur the largest increases in flow as a result of the proposed green belt release sites. A number of roads listed are to incur a minor increase in flow or even a decrease, but are still to have one of the highest RFC values in the borough. This implies that the roads are already congested as a result of either existing congestion forecast in the borough from the borough's Core Strategy or background growth to the forecast year of 2026. For example **Tables 4.7** to **4.9** rank the C144 Monument Road as having the highest RFC value, ranging between 1.98 and 2.07 in all scenarios, but the traffic flow on this part of the highway network remains constant or reduces in scenarios F, G and H.

4.7.6 There are four main corridors being reported as having the highest RFC values in scenarios F, G and H, these being:

- C143 Walton Road eastbound with C144 Monument Road northbound;
- A245 Old Woking Road / Parvis Road with B382 Woking Road north and southbound; and
- A247 High Street eastbound.

4.7.7 Some of these corridors are to incur some of the largest increases in flow from the additional trips generated from the potential green belt sites, specifically the B382 Woking Road, as stated in **Tables 4.4** to **4.6**. However, such corridors are all shown to already have high RFC values in the respective reference case, represented by figures in brackets.

4.7.8 All sections of road listed in **Tables 4.7 to 4.9** have an RFC value greater than 1.5, inferring that the forecast modelled traffic flow far outweighs the roads theoretical capacity in the weekday AM peak hour. Consequently the LOS value for all listed sections of road is F, suggesting flow break down conditions.

Rank	Name	Link Ref.	Difference in Flow (vph)	2031 Scenario F RFC*	2031 Scenario F LOS*
1	C144 Monument Road northbound	16746 2	1	2.07	F
2	A247 High Street eastbound	15164 1	-7	(1.80) 1.79	F
3	A245 Old Woking Road eastbound	10685 2	-8	1.79	F
4	B382 Woking Road southbound	15112 2	72	(1.64) 1.73	F
5	A245 Old Woking Road westbound	10685 1	52	(1.66) 1.70	F
6	B382 Woking Road southbound	15111 1	72	(1.59) 1.68	F
7	B382 Woking Road northbound	15112 1	16	(1.64) 1.66	F
8	A245 Parvis Road westbound	10336 1	64	(1.59) 1.64	F
9	C143 Walton Road eastbound	14411 2	-10	(1.65) 1.63	F
10	B382 Woking Road northbound	15111 2	12	(1.62) 1.63	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 4.7: Links with the highest RFC values in scenario F, weekday AM peak hour (0800 – 0900)**

Rank	Name	Link Ref.	Difference in Flow (vph)	2031 Scenario G RFC*	2031 Scenario G LOS*
<b>2026 Scenario G less scenario B</b>					
1	C144 Monument Road northbound	16746 2	-2	2.07	F
2	B382 Woking Road southbound	15112 2	132	(1.64) 1.81	F
3	A247 High Street eastbound	15164 1	-2	1.80	F
4	A245 Old Woking Road eastbound	10685 2	0	1.79	F
5	B382 Woking Road southbound	15111 1	128	(1.59) 1.75	F
6	A245 Old Woking Road westbound	10685 1	59	(1.66) 1.71	F
7	B382 Woking Road northbound	15112 1	37	(1.64) 1.69	F
8	B382 Woking Road northbound	15111 2	28	(1.62) 1.65	F
9	A245 Parvis Road westbound	10336 1	68	(1.59) 1.64	F
10	C143 Walton Road eastbound	14411 2	-32	(1.65) 1.60	F
<b>2026 Scenario G less scenario F</b>					
1	C144 Monument Road northbound	16746 2	-3	2.07	F
2	B382 Woking Road southbound	15112 2	60	(1.73) 1.81	F
3	A247 High Street eastbound	15164 1	6	(1.79) 1.80	F
4	A245 Old Woking Road eastbound	10685 2	7	1.79	F
5	B382 Woking Road southbound	15111 1	56	(1.68) 1.75	F
6	A245 Old Woking Road westbound	10685 1	7	(1.70) 1.71	F
7	B382 Woking Road northbound	15112 1	21	(1.66) 1.69	F
8	B382 Woking Road northbound	15111 2	16	(1.63) 1.65	F
9	A245 Parvis Road westbound	10336 1	4	1.64	F
10	C143 Walton Road eastbound	14411 2	-22	(1.63) 1.60	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 4.8: Links with the highest RFC values in scenario G, weekday AM peak hour (0800 - 0900)**

Rank	Name	Link Ref.	Difference in Flow (vph)	2031 Scenario H RFC*	2031 Scenario H LOS*
<b>2026 Scenario H less scenario B</b>					
1	C144 Monument Road northbound	16746 2	-70	(2.07) 1.98	F
2	B382 Woking Road southbound	15112 2	205	(1.64) 1.90	F
3	B382 Woking Road southbound	15111 1	196	(1.59) 1.84	F
4	A247 High Street eastbound	15164 1	10	(1.80) 1.82	F
5	A245 Old Woking Road westbound	10685 2	23	(1.79) 1.81	F
6	B382 Woking Road northbound	15112 1	100	(1.64) 1.77	F
7	A245 Old Woking Road westbound	10685 1	74	(1.66) 1.72	F
8	B382 Woking Road northbound	15111 2	81	(1.62) 1.72	F
9	C143 Walton Road eastbound	14411 2	10	(1.65) 1.66	F
10	A245 Parvis Road westbound	10336 1	74	(1.59) 1.65	F
<b>2026 Scenario H less scenario F</b>					
1	C144 Monument Road northbound	16746 2	-71	(2.07) 1.98	F
2	B382 Woking Road southbound	15112 2	133	(1.73) 1.90	F
3	B382 Woking Road southbound	15111 1	124	(1.68) 1.84	F
4	A247 High Street eastbound	15164 1	17	(1.79) 1.82	F
5	A245 Old Woking Road eastbound	10685 2	31	(1.79) 1.81	F
6	B382 Woking Road northbound	15112 1	84	(1.66) 1.77	F
7	A245 Old Woking Road westbound	10685 1	22	(1.70) 1.72	F
8	B382 Woking Road northbound	15111 2	69	(1.63) 1.72	F
9	C143 Walton Road eastbound	14411 2	20	(1.63) 1.66	F
10	A245 Parvis Road westbound	10336 1	10	(1.64) 1.65	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: Links with the highest RFC values in scenario H, weekday AM peak hour (0800 – 0900)**

#### 4.8 Increase in Junction Delay

4.8.1 **Tables 4.10 to 4.12** present the largest increases in average junction delay per vehicle as well as the projected LOS value for each stated junction. Average junction delay has been presented for entire junctions instead of individual turning movements of junctions.

4.8.2 The greatest increases in average delay have been presented for each of the green belt scenarios when compared to either 2026 scenario B or 2026 scenario F, in the weekday AM peak hour. Scenarios G and H have been compared to both scenarios B and F so the impacts of the cumulative green belt scenarios i.e. West Byfleet green belt site as well as Martyr's Lane green belt site can be understood by referring back to scenario B, as well as analysing the Martyr's Lane site in isolation by comparing to scenario F.

4.8.3 Only junctions with an increase in average junction delay per vehicle greater than 5 seconds have been reported in **Tables 4.10 to 4.12**.

Rank	Node Ref	Junction	Junction Type	Difference in Average Junction Delay per Vehicle (secs)	Scenario F RFC	Scenario F LOS
1	98853	Heathside Road, White Rose Lane,	Priority	12	(0.28) 0.29	(C) D
2	99146	A245 Parvis Road, A318 Sopwith Drive	Roundabout	11	(1.01) 1.03	F
3	98992	B382 Old Woking Road, Pyrford Common Road, Norfolk Farm Road	Priority	11	(0.62) 0.64	(C) D
4	42740	A245 Parvis Road/Woking Road, Camphill Road	Signal	9	0.93	E
5	99727-32	Six Crossroads Roundabout	Roundabout	8	(0.80) 0.82	F
6	42739	A245 Sheerwater Road / Old Woking Road, B382 Old Woking Road	Roundabout	6	(0.89) 0.91	(D) E
7	99722	A3046 Chobham Road / Kettlewell Hill, A245 Shores Road	Priority	5	(0.37) 0.38	D

**Table 4.10: Junctions with the largest increase in average junction delay per vehicle between 2026 scenario B and scenario F, weekday AM peak hour (0800 – 0900)**

Rank	Node Ref	Junction	Junction Type	Difference in Average Junction Delay per Vehicle (secs)	Scenario G RFC	Scenario G LOS
<b>2026 Scenario G less scenario B</b>						
1	99727-32	Six Crossroads Roundabout	Roundabout	23	(0.80) 0.90	F
2	98992	B382 Old Woking Road, Pyrford Common Road, Norfolk Farm Road	Priority	21	(0.62) 0.64	(C) E
3	98853	Heathside Road, White Rose Lane,	Priority	20	(0.28) 0.31	(C) E
4	42739	A245 Sheerwater Road / Old Woking Road, B382 Old Woking Road	Roundabout	18	(0.89) 0.93	(D) E
5	99146	A245 Parvis Road, A318 Sopwith Drive	Roundabout	15	(1.01) 1.03	F
6	99058	B380 Smarts Heath Road, Smarts Heath Lane	Priority	11	0.36	(C) D
7	42740	A245 Parvis Road/Woking Road, Camphill Road	Signal	11	0.93	E
8	99716	A245 Woodham Lane, Martyr's Lane	Priority	9	0.53	E
9	99713	A247 High Street / Broadmead Road, B382 High Street	Roundabout	6	(0.86) 0.88	F
<b>2026 Scenario G less scenario F</b>						
1	99727-32	Six Crossroads Roundabout	Roundabout	15	(0.82) 0.90	F
2	42739	A245 Sheerwater Road / Old Woking Road, B382 Old Woking Road	Roundabout	12	(0.91) 0.93	E
3	98992	B382 Old Woking Road, Pyrford Common Road, Norfolk Farm Road	Priority	11	0.64	(D) E
4	99058	B380 Smarts Heath Road, Smarts Heath Lane	Priority	8	0.36	(C) D
5	98853	Heathside Road, White Rose Lane,	Priority	8	(0.29) 0.31	(D) E
6	99716	A245 Woodham Lane, Martyr's Lane	Priority	8	0.53	E
7	99713	A247 High Street / Broadmead Road, B382 High Street	Roundabout	6	(0.87) 0.88	F

**Table 4.11: Junctions with the largest increase in average junction delay per vehicle between 2026 scenario B and/or F and scenario G, weekday AM peak hour (0800 – 0900)**

Rank	Node Ref	Junction	Junction Type	Difference in Average Junction Delay per Vehicle (secs)	Scenario H RFC	Scenario H LOS
<b>2026 Scenario H less scenario B</b>						
1	42739	A245 Sheerwater Road / Old Woking Road, B382 Old Woking Road	Roundabout	46	(0.89) 0.96	(D) F
2	98992	B382 Old Woking Road, Pyrford Common Road, Norfolk Farm Road	Priority	35	(0.62) 0.66	(C) F
3	99727-32	Six Crossroads Roundabout	Roundabout	33	(0.80) 1.12	F
4	99716	A245 Woodham Lane, Martyr's Lane	Priority	32	(0.53) 0.61	(E) F
5	99146	A245 Parvis Road, A318 Sopwith Drive	Roundabout	20	(1.01) 1.03	F
6	99216	A320 Chertsey Road/Guildford Road, Martyr's Lane (McLaren's)	Roundabout	17	(0.37) 0.80	(B) D
7	42740	A245 Parvis Road/Woking Road, Camphill Road	Signal	15	(0.93) 0.94	(E) F
8	41617	A245 Sheerwater Road, Albert Drive	Signal	10	(0.85) 0.86	(E) F
9	98853	Heathside Road, White Rose Lane,	Priority	9	(0.28) 0.29	C
10	99713	A247 High Street / Broadmead Road, B382 High Street	Roundabout	9	(0.86) 0.89	F
<b>2026 Scenario H less scenario F</b>						
1	42739	A245 Sheerwater Road / Old Woking Road, B382 Old Woking Road	Roundabout	39	(0.91) 0.96	(E) F
2	99716	A245 Woodham Lane, Martyr's Lane	Priority	31	(0.53) 0.61	(E) F
3	99727-32	Six Crossroads Roundabout	Roundabout	25	(0.82) 1.12	F
4	98992	B382 Old Woking Road, Pyrford Common Road, Norfolk Farm Road	Priority	24	(0.64) 0.66	(D) F
5	99216	A320 Chertsey Road/Guildford Road, Martyr's Lane (McLaren's)	Roundabout	17	(0.39) 0.80	(B) D
6	98998	B382 Old Woking Road, White Rose Lane	Priority	11	0.35	(C) D
7	41617	A245 Sheerwater Road, Albert Drive	Signal	10	(0.85) 0.86	(E) F
8	99146	A245 Parvis Road, A318 Sopwith Drive	Roundabout	9	1.03	F
9	99713	A247 High Street / Broadmead Road, B382 High Street	Roundabout	9	(0.87) 0.89	F
10	1	Monument Road, New Sheerwater Link Road	Signal	7	(0.82) 0.84	D

**Table 4.12: Junctions with the largest increase in average junction delay per vehicle between 2026 scenario B and/or F and scenario H, weekday AM peak hour (0800 – 0900)**

### Scenario F

- 4.8.4 **Table 4.10** presents the junctions which are forecast to incur the greatest increase in average junction delay per vehicle in scenario F, when compared to scenario B.
- 4.8.5 The largest increases in average junction delay in scenario F are estimated to occur at junctions in the east of the borough. Specifically junctions at the ends of the routes that are to incur some of the largest increases in flow as result of the additional trips generated from the potential green belt release at West Byfleet. Therefore the junctions listed in **Table 4.10** correlate with the sections of roads shown in **Table 4.4** and highlighted in **Figure 4.2**.
- 4.8.6 The changes in average junction delay per vehicle between scenarios B and F show small increases, as the largest amounts as shown in **Table 4.10** range between 5 and 12 seconds per vehicle.
- 4.8.7 Three of the junctions to incur the greatest increases in average junction delay in scenario F are approaching or above the junction's theoretical capacity, as the RFC value for the junction is between 0.85 and 1 or greater than 1. These three junctions in scenario F are all on the A245 corridor in the east of the borough. However, the RFC values for these A245 junctions have not increased greatly when compared to scenario B, and are also approaching or above the junction's theoretical capacity in scenario B. This implies that the stated A245 junctions were already congested as a result of the borough's Core Strategy and/or background growth to 2026. Furthermore the additional trips related to the green belt site at West Byfleet are exacerbating the junctions existing congestion and poor level of service further.

### Scenario G

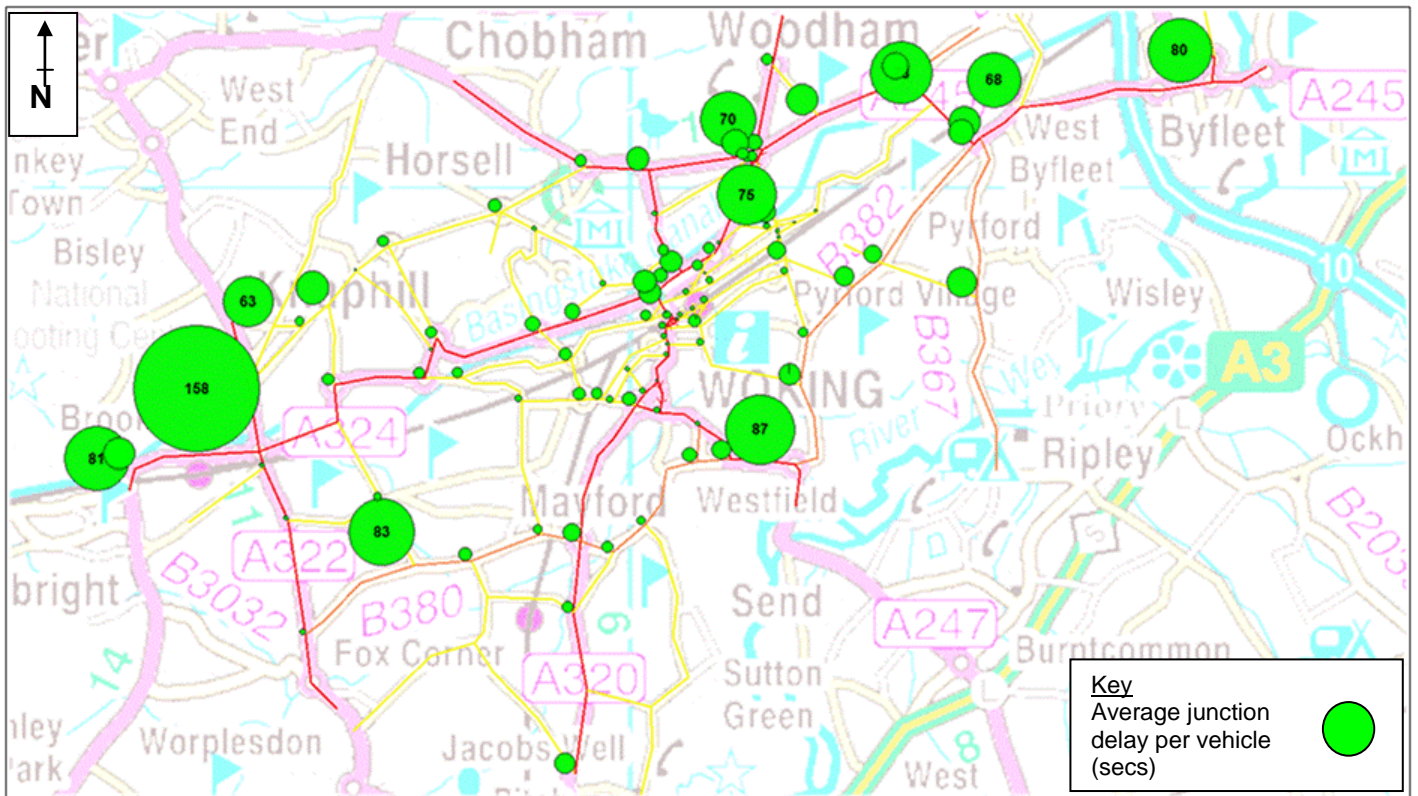
- 4.8.8 **Table 4.11** presents the junctions which are forecast to experience the greatest increases in average junction delay per vehicle in scenario G. Comparisons have been made to scenario B so that the cumulative impacts of both the 592 dwellings at the West Byfleet site and 900 dwellings at the Martyr's Lane site can be understood. However, comparisons to scenario F have also been made to allow the traffic impacts of the 900 dwellings at Martyr's Lane to be analysed in isolation.
- 4.8.9 Comparisons from scenario G to both scenarios B and F result in the same junctions being listed as incurring the largest delay, with exception to junctions on the A245 and A318 corridors in the east of the borough not being present when comparing scenario G to scenario F, but this is expected.
- 4.8.10 The greatest increases in average junction delay in scenario G range between 6 and 23 seconds per vehicle.
- 4.8.11 The majority of junctions to incur the greatest increases in average junction delay as a result of development contained in scenario G, are again located on the corridors of road that have been highlighted as incurring the greatest amount of additional flow in **Table 4.5** and **Figures 4.3** and **4.4**. Specifically the A245, A320 and B382 corridors located in the east of the borough.
- 4.8.12 Similar to the trends previously identified, it is thought that the additional traffic flow generated in scenario G is causing junctions with existing congestion issues to be exacerbated further. This is because the increases in RFC values shown in **Table 4.11** between scenario G and the two reference scenarios of B and F are small and are not causing any junctions to have a significantly higher RFC.
- 4.8.13 The Six Crossroads roundabout is anticipated to incur the greatest increase in average junction delay per vehicle in scenario G, with a 23 second increase being

generated from the culmination of the release of 592 dwellings on the West Byfleet site and 900 dwellings on the Martyr's Lane site. 15 seconds of this increase is generated by the Martyr's Lane site. The RFC value for this junction in scenario B, F and G is forecast to be 0.80, 0.82 and 0.90 respectively, with a level of service F in all three aforementioned scenarios. Therefore this junction was approaching its theoretical capacity of 1 in scenario B, but the additional trips in scenario G have increased the traffic flow traversing this junction and therefore caused the junctions RFC value to deteriorate and be even closer to 1.

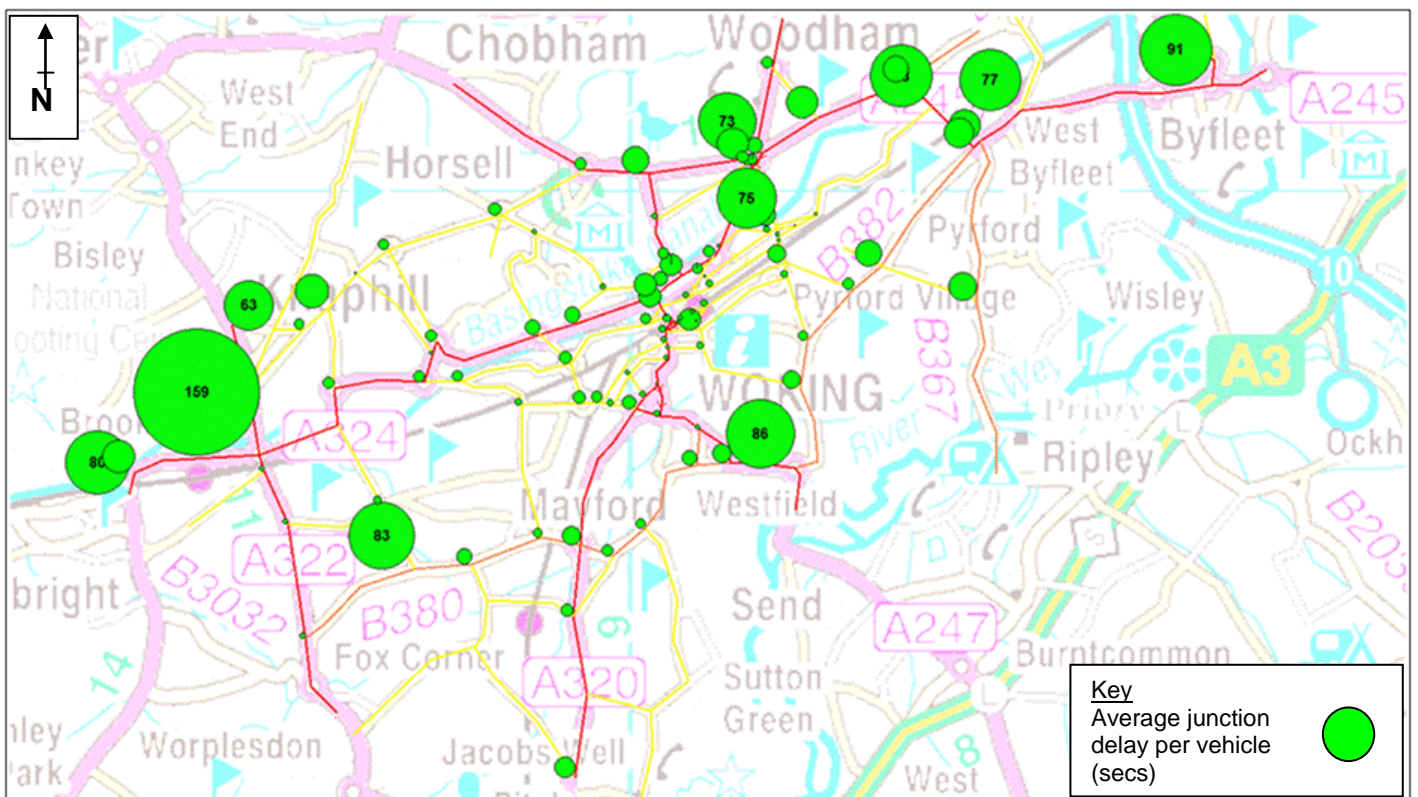
#### Scenario H

- 4.8.14 **Table 4.12** presents the junctions which are forecast to experience the greatest increases in average junction delay per vehicle in scenario H. Comparisons have been made to scenario B so that the cumulative impacts of both the 592 dwellings at the West Byfleet site and 3,000 dwellings at the Martyr's Lane site can be understood. However, comparisons to scenario F have also been made to allow the traffic impacts of the 3,000 dwellings at Martyr's Lane to be analysed in isolation.
- 4.8.15 The junctions to incur the largest increases in average junction delay in scenario H are very similar to scenario G. However, the absolute increases in average junction delay are much larger in scenario H as a direct result of a much larger amount of housing being represented in the scenario at the Martyr's Lane potential green belt site. Consequently the largest increase in average junction delay in scenario H ranges between 7 and 46 seconds per vehicle.
- 4.8.16 **Table 4.12** is listing very similar junctions to those listed in **Table 4.11**, representing scenario G. However, in scenario H the junction of A320 Woking Road / Guildford Road with Martyr's Lane (McLaren's roundabout) is being noted as experiencing one the greatest increases in average junction delay as well as the two junctions at each end of Albert Drive, specifically the junction of A245 Sheerwater Road with Albert Drive and Monument Road with the new highway infrastructure of the Sheerwater link road. These additional junctions highlighted in scenario H when compared to scenario G, correlate with the sections of the highway that have been forecast to incur the largest increases in traffic flow, as shown in **Table 4.6** and **Figure 4.5** and **4.6**.
- 4.8.17 In summary the junctions forecast to experience the largest increases in average junction delay in the green belt scenarios F, G and H all correlate to being on, or at the end, of the corridors of the highway network that are forecast to incur the greatest increases in traffic flow. It is also noted that increases in junction delay are exacerbating existing congestion at junctions and causing existing poor RFC values to deteriorate further, instead of creating new areas of congestion and junction delay.
- 4.8.18 **Figures 4.7** to **4.10** present graphical representations of the average junction delay per vehicle for all modelled junctions in the borough of Woking for 2026 scenario B and all green belt scenarios during the weekday AM peak hour. Therefore, **Figures 4.7** to **4.10** present information shown in **Tables 4.10** to **4.12** but for all junctions in the borough.
- 4.8.19 The sizes of the circles are proportional to the average junction delay per vehicle forecast at each model junction, thus allowing proportional comparisons to be made between the plots.

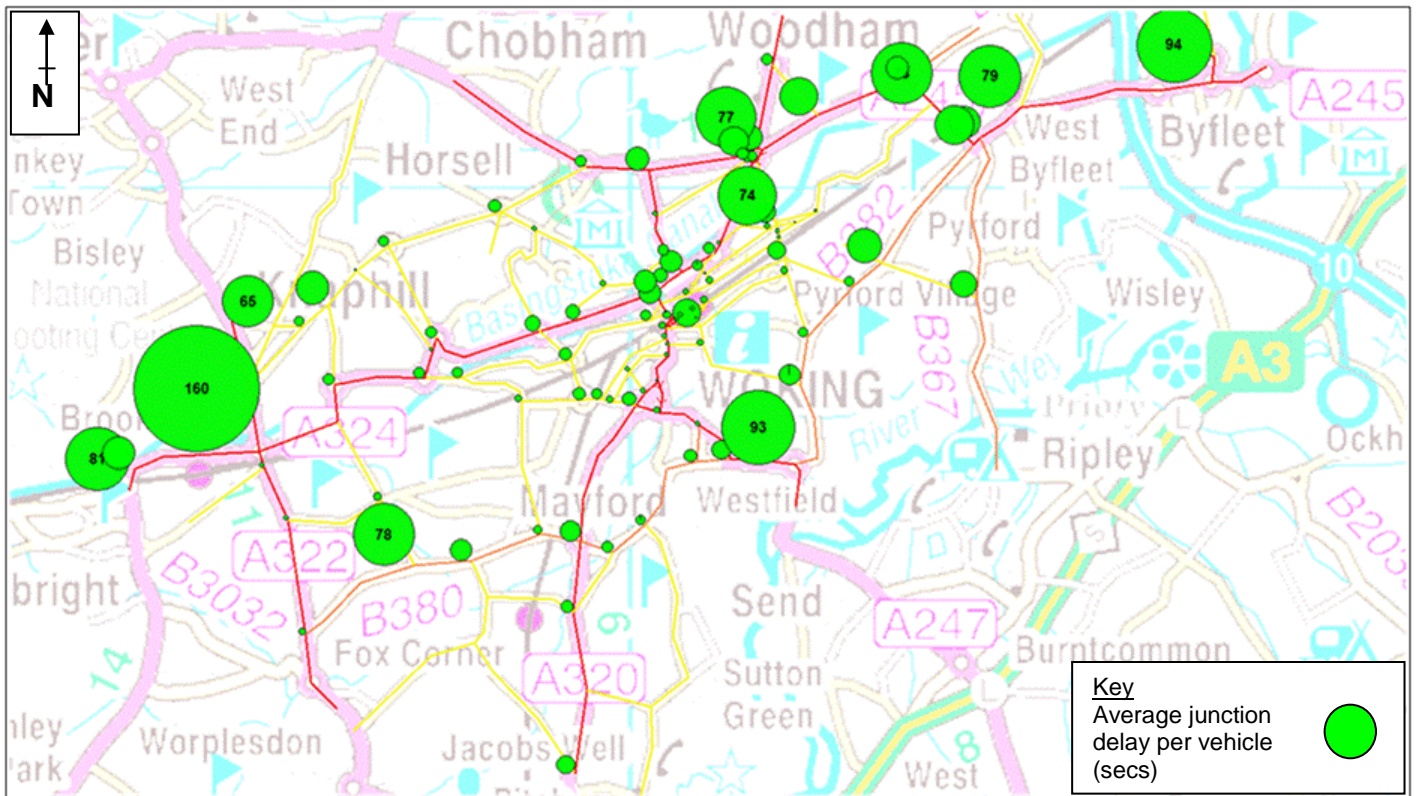




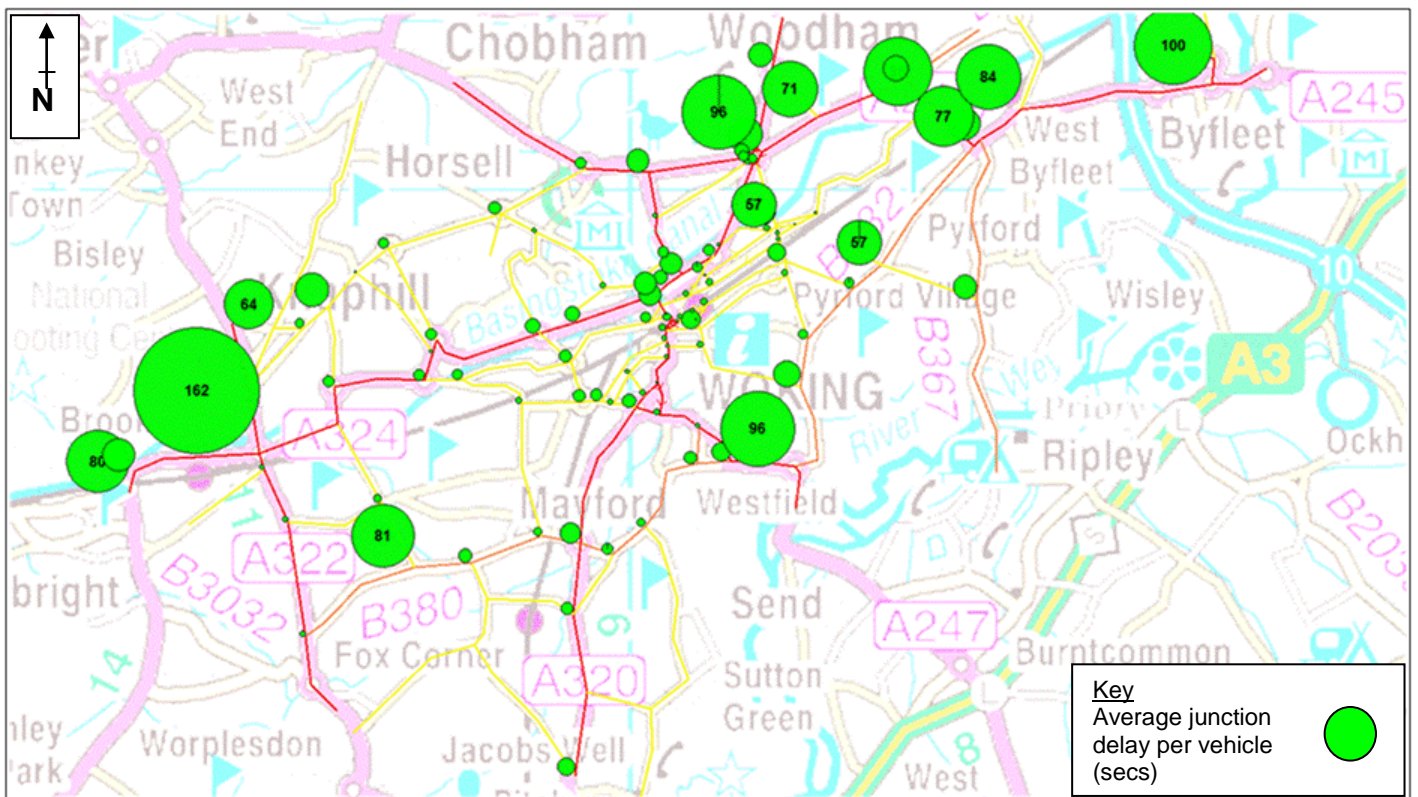
**Figure 4.7: 2026 scenario B average junction delay, weekday AM peak hour (0800 – 0900)**



**Figure 4.8: 2026 scenario F average junction delay, weekday AM peak hour (0800 – 0900)**



**Figure 4.9: 2026 scenario G average junction delay, weekday AM peak hour (0800 – 0900)**



**Figure 4.10: 2026 scenario H average junction delay, weekday AM peak hour (0800 – 0900)**

## 4.9 Journey Times along Key Routes

- 4.9.1 Changes in journey times for the key routes within the borough of Woking are presented for all modelled scenarios in **Table 4.13**. Comparisons have been made back to scenario B for all scenarios as well as comparing scenario G and H to scenario F. Increases to journey times between 30 seconds and a minute are highlighted by orange text, whereas increases greater than a minute are highlighted in red text.
- 4.9.2 The routes that have been analysed are: the A320; A247; A245; and A324. Only these routes have been analysed as they are thought to be the key routes traversing the borough.
- 4.9.3 **Table 4.13** indicates the general trend that scenario F has the least impact on journey times and scenario H has the greatest impact by increasing journey times on the specified routes. This is to be expected and correlates with the amount of additional development on green belt sites in each forecast scenario.
- 4.9.4 The green belt release of 592 dwellings on land at West Byfleet, represented by scenario F, is forecast to have the largest impacts on the A245 journey times in both an east and westbound direction of travel. Journey times are estimated to increase on these routes by approximately 30 seconds, relating to a 3% increase, in the weekday AM peak hour. The increase in journey time on the A245 correlates with being the corridor in closest proximity to the proposed green belt site in West Byfleet.
- 4.9.5 The culmination of 592 dwellings on the potential green belt site at West Byfleet and 900 dwellings on the potential green belt site at Martyr's Lane, represented by scenario G, is forecast to have even greater impacts on journey times on the A245 east and westbound routes with increases of 1 minute 19 seconds (6%), 1 minute 2 seconds (5%) when compared to scenario B. The journey time on the A320 southbound between Martyr's Lane and Burdenshott Road is also to be impacted in scenario G, with an increase of 29 seconds (3%). This is again due to these corridors being located in closest proximity to the proposed green belt sites. Of the routes analysed the A245 and A320 corridors are impacted most as they incur some of the largest increases in traffic flow generated from the potential sites, thus causing journey times to be less efficient.
- 4.9.6 Scenario H is to generate the greatest increase in journey times as it contains the largest quantities of proposed dwellings at the potential green belt sites. Similar to scenarios F and G, the A320 southbound as well as the A245 east and westbound are forecast to incur the greatest increases in journey times, when compared to scenario B, of 1 minute 10 seconds (7%), 3 minutes 6 seconds (15%) and 2 minutes 9 seconds (11%) respectively.
- 4.9.7 **Figures 4.11 to 4.13** show journey time graphs for the routes that are forecast to experience increases greater than a minute in scenario H when compared to scenario B, namely the A320 southbound, A245 eastbound and A245 westbound. The graphs compare journey times for all of the green belt scenarios assessed. These graphs indicate the same trend as **Table 4.13**, that scenario H is to generate the greatest increases in journey times.
- 4.9.8 **Figure 4.11** indicates that the journey time on the A320 southbound is greater in scenario H for the entire route. The graph shows that Scenario H is to have a higher journey time from point 1 shown on the graph, which represents the Six Crossroads roundabout. This therefore implies that the delay at the Six Crossroads roundabout is greater as a result of the potential green belt release at

Martyr's Lane of 3,000 dwellings scenario H and causes the total journey time on the A320 southbound to be longer than scenario F and G.

- 4.9.9 **Figure 4.12** highlights three key points on the A245 eastbound route through the borough with points relating to the following junctions: point 1 is Six Crossroads roundabout; point 2 is junction with B385 Woodham Lane; and point 3 is junction with Scotland Bridge Road. **Figure 4.12** indicates that the journey time on the A245 eastbound increases, in comparison to the other greenbelt scenarios, between the junctions of Six Crossroads roundabout and B385 Woodham Lane. The time to travel the rest of the route thus takes longer and a greater delay is incurred at the junction with Scotland Bridge Road when compared to scenarios F and H.
- 4.9.10 Comparative journey times for the A245 westbound route through the borough are shown in **Figure 4.13**. Point 1 relates to the junction with A318 Sopwith Drive; point 2 is the junction with B382 Old Woking Road; and point 3 is the Six Crossroads roundabout. The A245 westbound journey time increases in scenario H, compared to scenarios F and G, at the junction with B382 Old Woking Road due to increased delay at this junction generated from additional flow from the proposed green belt site at Martyr's Lane.

Route	From	To	Length (km)	Difference from 2026 Scenario B (mins:secs)			Percentage Change from 2026 Scenario B			Difference from 2026 Scenario F (mins:secs)		Percentage Change from 2026 Scenario F	
				2026 Scen F	2026 Scen G	2026 Scen H	2026 Scen F	2026 Scen G	2026 Scen H	2026 Scen G	2026 Scen H	2026 Scen G	2026 Scen H
A320 NB	Burdenshott Road	Martyr's Lane	9.5	00:12	00:18	00:36	1%	2%	3%	00:07	00:24	1%	2%
A320 SB	Martyr's Lane	Burdenshott Road	9.6	00:09	00:29	01:10	1%	3%	7%	00:21	01:02	2%	6%
A247 EB	B382 Old Woking Road	A320 Guildford Road	2.2	00:00	00:07	00:10	0%	2%	3%	00:08	00:11	2%	3%
A247 WB	A320 Guildford Road	B382 Old Woking Road	2.2	00:02	00:02	00:04	1%	1%	1%	00:00	00:02	0%	1%
A245 EB	A3046 Chobham Road	B374 Brooklands	8.2	00:37	01:19	03:06	3%	6%	15%	00:42	02:29	3%	12%
A245 WB	B374 Brooklands	A3046 Chobham Road	8.3	00:31	01:02	02:09	3%	5%	11%	00:31	01:38	3%	8%
A324 EB	B3012 Gole Road	A320 Victoria Way	7.7	00:02	00:05	00:10	0%	1%	1%	00:03	00:08	0%	1%
A324 WB	A320 Victoria Way	B3012 Gole Road	7.7	00:02	00:04	00:13	0%	0%	1%	00:02	00:11	0%	1%

**Table 4.13: Journey time comparison on key routes, weekday AM peak hour (0800 – 0900)**

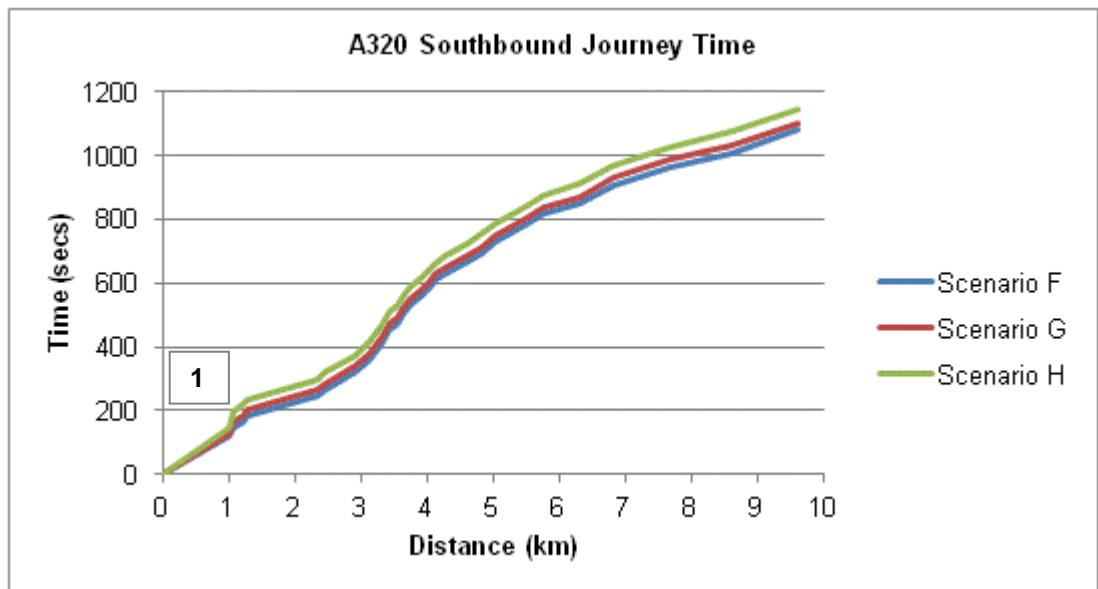


Figure 4.11: A320 southbound journey time graph, weekday AM peak hour (0800 – 0900)

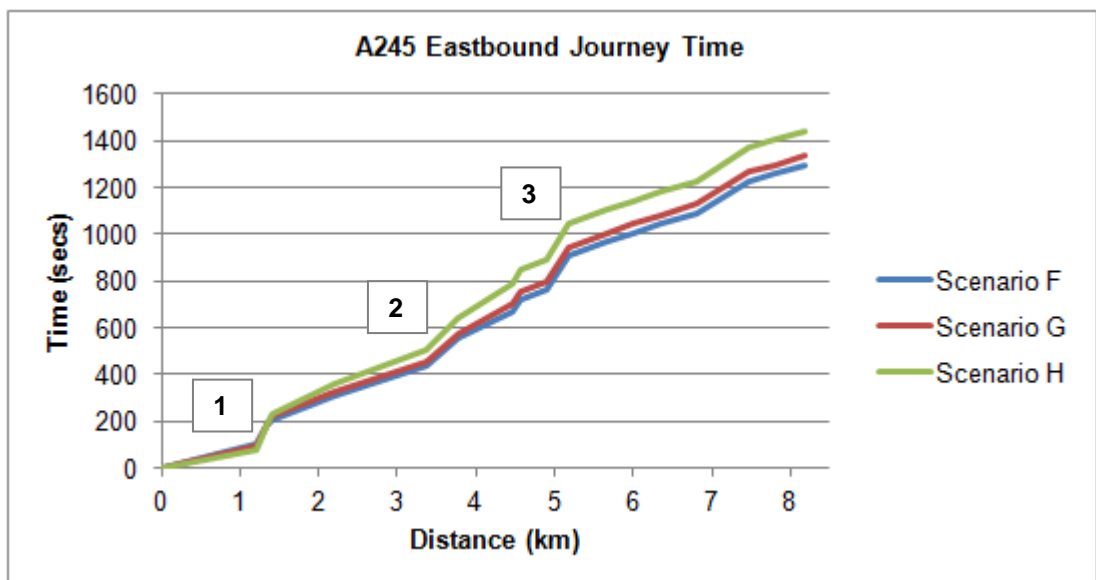


Figure 4.12: A245 eastbound journey time graph, weekday AM peak hour (0800 – 0900)

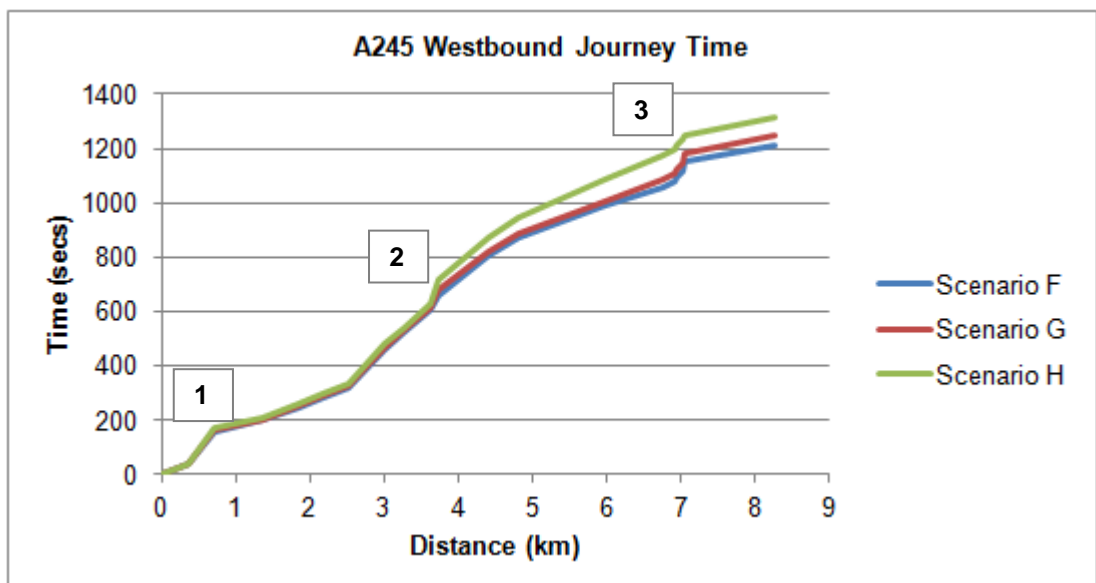


Figure 4.13: A245 westbound journey time graph, weekday AM peak hour (0800 – 0900)

## 4.10 Strategic Road Network (SRN)

- 4.10.1 The borough of Woking does not contain any sections of the Strategic Road Network (SRN). However, it is located in relative proximity to junctions of the A3 and M25, with the A3 traversing south of the borough through the neighbouring local authority of Guildford Borough Council. The M25 is located to the east of Woking, which is also contained in Guildford borough as well as the borough of Runnymede.
- 4.10.2 The junctions of the A3 that are located close to the southern boundary of Woking borough are: Burntcommon (A3 with B2215 London Road and A247 Clandon Road); and Ockham Interchange (A3 with B2215 Portsmouth Road and B2039 Ockham Road).
- 4.10.3 The junctions of the M25 that are located to the east of Woking borough are: M25 junction 10 Wisley Interchange (M25 with A3); and M25 junction 11 (M25 with A320 St. Peter's Way).
- 4.10.4 **Table 4.14** presents the changes in flow between the forecast scenarios and their respective reference cases, as well as the RFC and LOS values.
- 4.10.5 Scenario F is forecast to have relatively minimal impact on the specified slip roads of the strategic road network as all increases in flow are below 40 vph in the weekday AM peak hour, with exception to the A3 Burntcommon off slip northbound. It is forecast that the additional 592 dwellings at the green belt release in West Byfleet could cause an additional approximate 80 vph to leave the A3 via the Burntcommon northbound off slip.
- 4.10.6 Scenario G presents very similar changes in traffic flows on the SRN slip roads in question to scenario F. This is with the exception of the M25 junction 11 on slip clockwise which is projected to incur an additional 70 vph as a result of the additional 900 dwellings at the potential green belt site at Martyr's Lane.
- 4.10.7 In scenario H the A3 Burntcommon off slip is not projected to incur an increase in flow, when compared to scenario B, but the M25 junction 11 on slip clockwise is to incur a larger increase of approximately 200 vph. This additional 200 vph is an impact generated by the culmination of the proposed 592 dwellings at the West Byfleet green field site as well as the 3,000 dwellings at the potential Martyr's Lane green field site.
- 4.10.8 The slip road that is forecast as having the largest RFC value in scenarios F, G and H is the M25 junction 10 on slip clockwise, with a RFC value of 0.81 in all three forecast scenarios. However, this slip road is not forecast to incur any additional flow in scenarios F and G but a small increase of approximately 15 vph in scenario H.
- 4.10.9 Therefore, only the M25 junction 10 on slip clockwise, M25 junction 11 on slip clockwise and the Burntcommon off slip northbound are forecast as incurring the greatest amounts of additional flow on the SRN. It is therefore recommended that these slip roads adjoining the SRN are investigated in greater detail if any of the related green belt scenarios are progressed further.

Link Ref	Name	Difference in Flow from 2026 Scenario B (vph)			Difference in Flow from 2026 Scenario F (vph)		RFC			LOS		
		2026 Scen F	2026 Scen G	2026 Scen H	2026 Scen G	2026 Scen H	2026 Scen F	2026 Scen G	2026 Scen H	2026 Scen F	2026 Scen G	2026 Scen H
12275 2	M25 Junction 10 on slip clockwise	1	0	16	-1	16	0.81	0.81	0.81	D	D	D
11929 1	M25 Junction 10 off slip clockwise	-3	-5	11	-2	14	0.52	0.52	0.53	C	C	C
9452 1	M25 Junction 10 on slip anti-clockwise	-9	14	38	23	47	0.36	0.37	0.37	B	B	B
10437 1	M25 Junction 10 off slip anti-clockwise	6	6	6	0	0	0.56	0.56	0.56	C	C	C
12281 2	M25 Junction 11 on slip clockwise	7	70	196	63	189	0.25	0.26	0.30	A	A	A
10707 1	M25 Junction 11 off slip clockwise	-14	-10	-5	4	10	0.49	0.49	0.49	B	B	B
16474 2	M25 Junction 11 on slip anti-clockwise	10	22	21	13	11	0.30	0.30	0.30	A	A	A
16473 1	M25 Junction 11 off slip anti-clockwise	32	27	39	-5	7	0.31	0.30	0.31	A	A	A
15577 2	A3 Ockham on slip northbound	40	55	34	15	-6	0.33	0.34	0.33	B	B	B
15576 1	A3 Ockham off slip southbound	4	8	38	4	34	0.21	0.21	0.22	A	A	A
9504 1	A3 Burntcommon off slip northbound	77	81	4	4	-74	0.26	0.26	0.23	A	A	A
15493 2	A3 Burntcommon on slip southbound	-9	-9	6	0	15	0.54	0.54	0.55	C	C	C

**Table 4.14: Changes in flow on the strategic slip roads in the vicinity of Woking borough, weekday AM peak hour (0800 – 0900)**

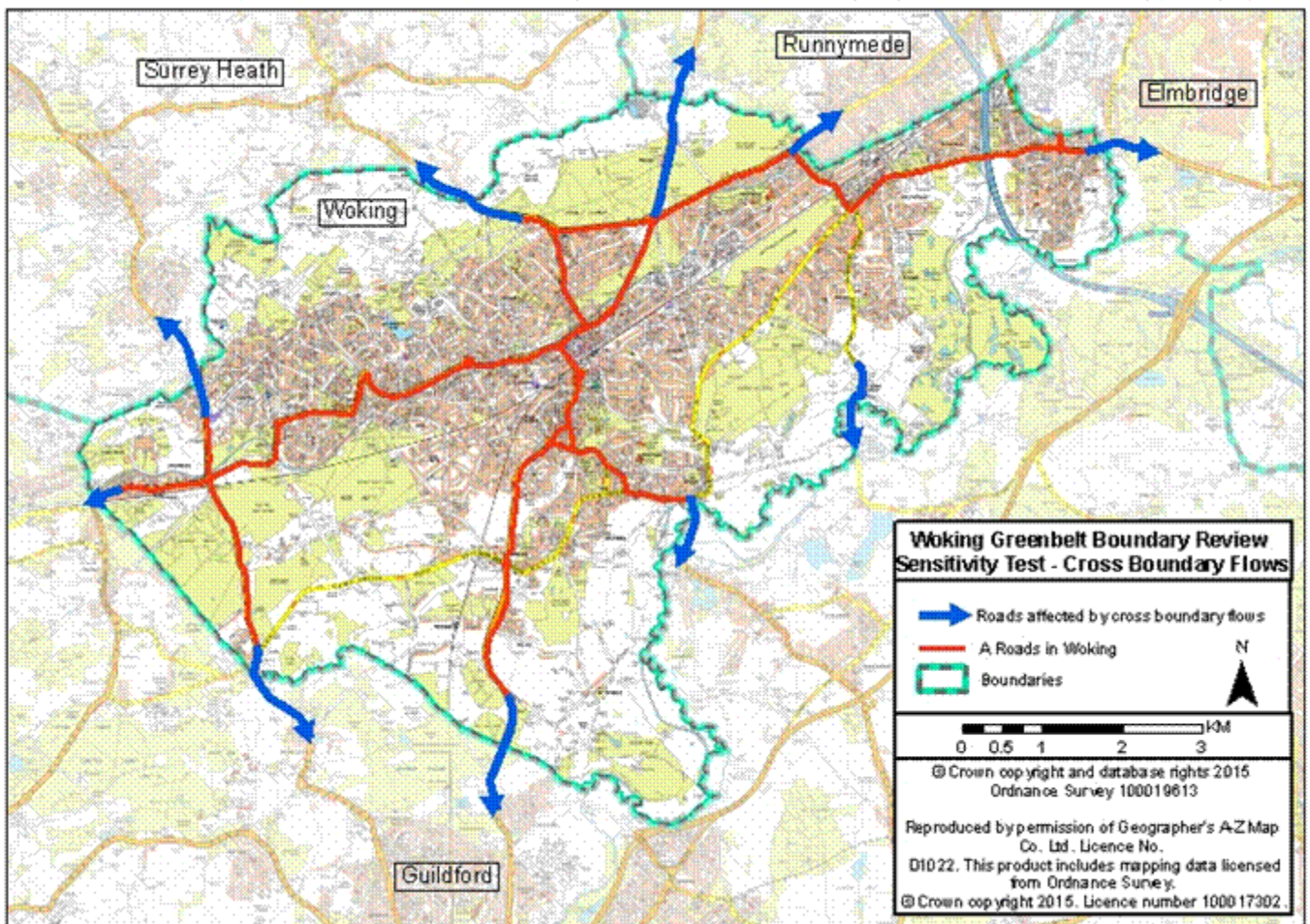


## 4.11 Cross Boundary Impacts

4.11.1 As well as considering the potential traffic impacts generated from the borough's potential green belt sites, it is important to consider such impacts on the highway network within neighbouring local authorities.

4.11.2 Forecast increases in flow on key roads crossing Woking's boundary have been assessed in comparison to scenarios B and F.

4.11.3 **Table 4.15** displays the forecast cross boundary traffic flows on key roads that facilitate vehicles travelling from Woking into, and through, neighbouring authorities. **Figure 4.14** illustrates the locations of cross boundary roads presented in **Table 4.15**.



**Figure 4.14: Location of key cross boundary roads from Woking to neighbouring local authorities**

Link Ref	Name	Local Authority Trips Travelling to	Difference in Flow from 2026 Scenario B (vph)			Difference in Flow from 2026 Scenario F (vph)		RFC			LOS		
			2026 Scen F	2026 Scen G	2026 Scen H	2026 Scen G	2026 Scen H	2026 Scen F	2026 Scen G	2026 Scen H	2026 Scen F	2026 Scen G	2026 Scen H
15363 2	A320 Guildford Road northbound	Runnymede	41	240	718	199	677	0.99	1.16	1.56	E	F	F
10322 2	B385 Woodham Lane northbound	Runnymede	4	76	247	73	243	0.89	0.94	1.04	E	E	F
16663 2	A245 Byfleet Road eastbound	Elmbridge	62	80	132	18	70	1.00	1.01	1.04	E	F	F
16705 2	B367 Newark Lane southbound	Guildford	-7	-41	-48	-34	-41	0.61	0.59	0.59	D	D	D
16698 2	A247 Broadmead Road southbound	Guildford	9	24	68	15	59	0.50	0.51	0.54	D	D	D
15896 2	A320 Guildford Road southbound	Guildford	14	39	59	26	45	0.77	0.79	0.80	E	E	E
9870 1	A322 Worplesdon Road southbound	Guildford	-7	-14	-1	-7	6	1.02	1.01	1.02	F	F	F
11101 2	A324 Connaught Road westbound	Guildford	0	-1	34	-1	34	1.05	1.05	1.08	F	F	F
14524 2	A322 Guildford Road northbound	Surrey Heath	2	-9	41	-11	39	0.79	0.78	0.82	E	E	E
14719 2	A3046 Chobham Road northbound	Surrey Heath	-1	7	29	8	30	0.90	0.91	0.93	E	E	E

**Table 4.15: Cross boundary impacts generated from potential green belt sites, weekday AM peak hour (0800 – 0900)**

- 4.11.4 **Table 4.15** indicates that the scale of the cross boundary impacts in each forecast green belt scenario correlates with the number of proposed residential dwellings that is represented in each scenario. For example, scenario F contains the smallest amount of residential dwellings on green belt land (592 dwellings) and has the smallest cross boundary flows of all three scenarios. However, scenario H contains the largest number of residential dwellings on green belt land (3,592) and thus is forecast to have the greatest cross boundary flows from Woking.
- 4.11.5 In all of the green belt scenarios, the greatest increases in traffic flow travelling from Woking borough and into a neighbouring local authority are forecast to occur in the north east of the borough, specifically the A320 Guildford Road and B385 Woodham Lane into Runnymede, as well as the A245 Byfleet Road into Elmbridge. Of all the cross boundary roads, the roads in the north east of Woking borough are incurring the greatest increases in flow as the potential green belt sites in West Byfleet and Martyr's Lane are also located in this area of the borough.
- 4.11.6 In scenarios G and H the A320 Guildford Road northbound is forecast as being the cross boundary road to incur the greatest increases in flow in the weekday AM peak hour. In scenario G the A320 Guildford Road northbound is to accommodate an additional 240 vph to travel from Woking to Runnymede, when compared to scenario B, whereas in scenario H the traffic flow is to increase by approximately 720 vph. The difference in forecast traffic flow on this road between scenario G and H purely relates to the varying quantity of proposed residential dwellings varying on the potential Martyr's Lane green belt site. Consequently the RFC value for the A320 Guildford Road northbound is forecast to be much greater than 1 in both scenarios G and H, with an associated LOS value of F, thus inferring that the traffic flow on the road exceeds its theoretical capacity.
- 4.11.7 An increase in flow on the A320 northbound in scenarios G and H is related to additional trips generated from the Martyr's Lane green belt site are travelling via the A320, in both Woking and neighbouring Runnymede, to access the SRN via the M25 junction 11. Consequently, **Table 4.14** shows M25 junction 11 to be the part of the SRN that is to incur the greatest increases traffic flow in scenarios G and H. The route of the A320 northbound to access the M25 junction 11 was also shown in **Figure 4.1** as the preferred route for trips travelling from the Martyr's Lane green belt site, if trips were to travel in an uncongested highway network, during the weekday AM peak hour.
- 4.11.8 A number of other cross boundary roads stated in **Table 4.15** are forecast to have RFC values approaching or greater than 1 in the weekday AM peak hour. However, all RFC values are projected to remain relatively constant between the three green belt scenarios, with exception to the aforementioned A320 Guildford Road and B385 Woodham Lane northbound. The B385 Woodham Lane northbound is estimated to incur a much larger increase in flow in scenario H, approx 250 vph, than scenarios F and G, approximately 5 and 75 vph respectively. The RFC value of B365 Woodham Lane is estimated to be greater than 0.85 but less than 1 in scenarios F and G but is to increase in scenario H to produce an RFC value greater than 1 in scenario H, (1.04).
- 4.11.9 It is not thought that the increases in flow generated from the potential green belt scenarios is to result in new areas of congestion on cross boundary links, but instead exacerbate existing areas of congestion. **Table 4.15** indicates that the A322 Worplesdon Road and A324 Connaught Road are not forecast to incur any additional flow from the proposed green belt sites but do have RFC values greater than 1 in all green belt scenarios, thus inferring that these cross boundary roads

have existing congestion issues relating to the borough's Core Strategy or background growth to the forecast year of 2026.

4.11.10 As some increases cross boundary flows from Woking borough are forecast to occur as a result of the varying green belt development, it is important to note that such increases in flow could also impact on junctions outside of the borough. This assessment only analyses traffic impacts generated on the highway network in Woking, although it is feasible that junctions outside of the borough could potentially be impacted by cross boundary flows. For example, the cross boundary flows projected on the A245 Byfleet Road eastbound could potentially impact on the operation of the junction of A245 Byfleet Road with B365 Seven Hills Road. Similarly the cross boundary flows projected on the A320 Guildford Road northbound could impact on the roundabouts further downstream at Ottershaw and Chertsey, as well as the M25 junction 11, where some slips have been highlighted as incurring additional flow in **Table 4.14**. Therefore it is advised that cross boundary flows and potential impacts on junctions external to Woking, are analysed in greater detail when identifying a preferred option of green belt development.

4.11.11 It should be noted that the forecasting utilised for areas external to Woking borough was obtained from national forecasts as stated in **Section 3.5**. Traffic growth in neighbouring local authorities was therefore taken into account but not in the same amount of detail. Hence, proposed developments that may occur within neighbouring authorities Local Plans, such as the Wisley Airfield development in Guildford, have not been explicitly considered in this assessment. As such the analysis of cross boundary flows travelling into or through the borough of Woking, generated from proposed large developments in neighbouring local authorities, has not been assessed in relation to Woking's potential green belt sites.

## 4.12 Network Hotspots and Mitigation

4.12.1 To summarise the highway impacts identified in this study, **Table 4.16** lists the junctions and sections of roads that are forecast to experience the greatest increases in flow and vehicle delay in all green belt scenarios, when compared to the reference case of scenario B only during the weekday AM peak hour. Such areas where flow and delay is forecast to increase the most have been termed 'hotspots'. The majority of 'hotspots' are existing problem areas that are further exacerbated by the potential green belt scenarios.

4.12.2 Hotspots are areas of stress where drivers are subject to considerable delay and likely to require mitigation to facilitate any new development in the 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, whilst soft measures could be the implementation of a travel plan to encourage travel by sustainable modes.

4.12.3 All such methods of mitigation should be considered when examining the feasibility of the potential greenbelt sites in Woking, in conjunction with the scale and nature of the highway impacts presented by this study.

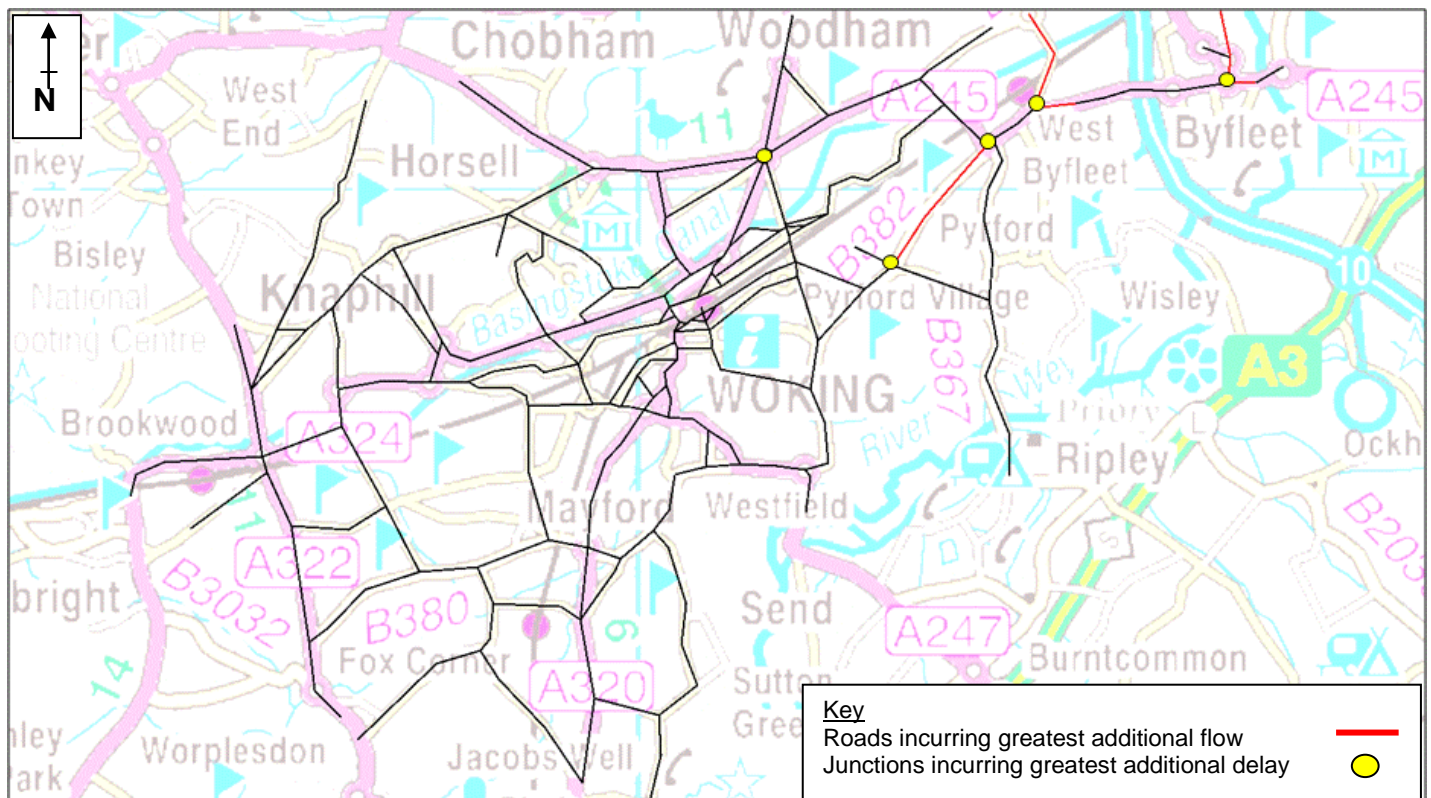
4.12.4 **Figures 4.15** to **4.17** are graphical representations of **Table 4.16** and therefore map the sections of road and junctions forecast to incur the greatest increases in flow in each of the green belt scenarios.

4.12.5 Please note that only the 'hotspots' have been listed. Therefore other sections of the highway network and junctions in Woking may also be impacted. Only the

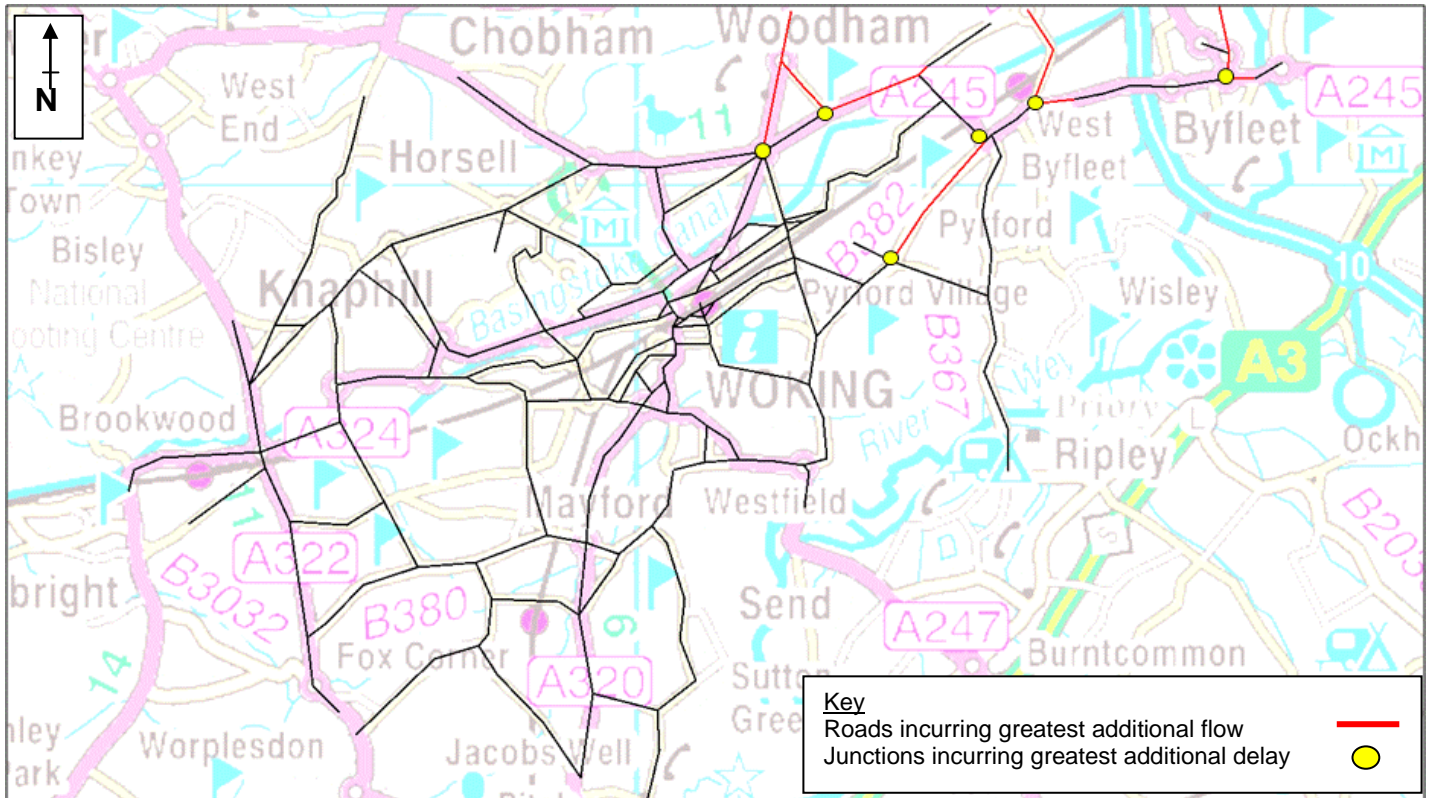
areas of the network most impacted by additional flow and delay have been reported as 'hotspots'.

Location	Scenario		
	F	G	H
<b>Sections of Road</b>			
B382 Woking Road southbound	✓	✓	✓
A318 Sopwith Drive north and southbound	✓	✓	x
A245 Parvis Road eastbound	✓	✓	x
C130 Camphill Road / Scotland Bridge Road northbound	✓	x	x
A320 Guildford Road / Chertsey Road north and southbound	x	✓	✓
D3872 Martyr's Lane north and southbound	x	✓	✓
A245 / B385 Woodham Lane eastbound	x	✓	✓
<b>Junctions</b>			
Six Crossroads roundabout	✓	✓	✓
B382 Old Woking Road, Pyrford Common Road, Norfolk Farm Road	✓	✓	✓
A245 Parvis Road, A318 Sopwith Drive	✓	✓	✓
A245 Parvis Road / Woking Road, Camphill Road	✓	✓	✓
A245 Sheerwater Road / Old Woking Road, B382 Old Woking Road	✓	✓	✓
A245 Woodham Lane, Martyr's Lane	x	✓	✓
A320 Chertsey Road / Guildford Road, Martyr's Lane	x	x	✓

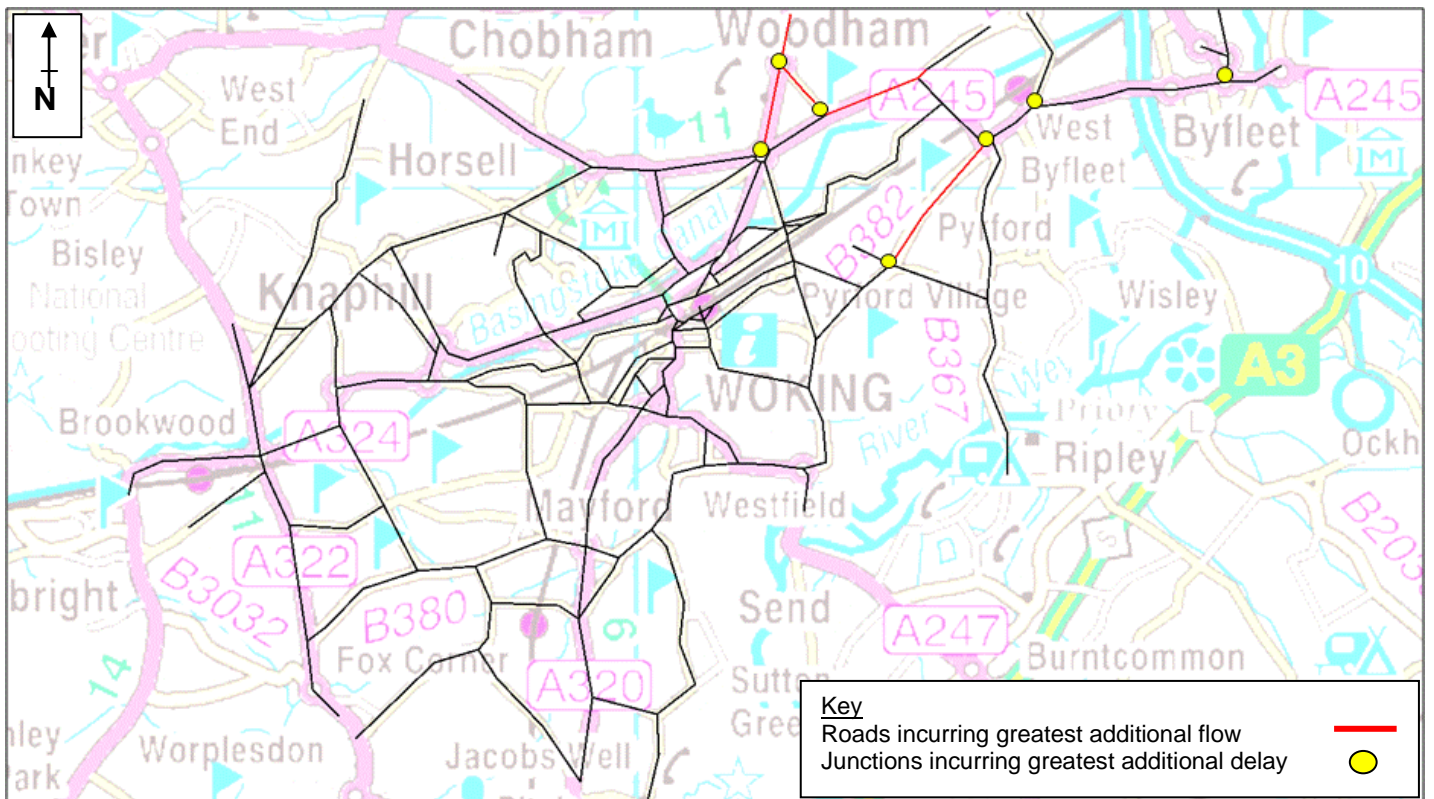
**Table 4.16: 2026 green belt scenario highway network 'hotspots', weekday AM peak hour (0800 – 0900)**



**Figure 4.15: 2026 Scenario F highway network hotspots, weekday AM peak hour (0800 – 0900)**



**Figure 4.16: 2026 Scenario G highway network hotspots, weekday AM peak hour (0800 – 0900)**



**Table 4.17: 2026 Scenario H highway network hotspots, weekday AM peak hour (0800 – 0900)**

4.12.6 **Table 4.16** and **Figures 4.15 to 4.17** highlight that the three green belt scenarios all have 'hotspots' in similar locations of the highway network. All 'hotspots' are located in the north east of the borough correlating with the locations of the two green belt sites being analysed in this assessment: West Byfleet and Martyr's Lane.

4.12.7 The information shown in **Table 4.16** and **Figures 4.15 to 4.17** are summaries of the information provided by all previous analysis in **Section 4** of this report.

## **5 NEW DCLG GUIDANCE FOR PLAN MAKING IN RELATION TO TRANSPORT EVIDENCE**

5.1.1 The Department for Communities and Local Government (DCLG) released new Planning Practice Guidance in October 2014 entitled 'Transport Evidence Bases in Plan Making.'<sup>1</sup>

5.1.2 The guidance emphasises the importance of local authorities undertaking robust transport assessments to understand and assess the potential implications of varying forecast development scenarios within Local Plans.

5.1.3 The October 2014 guidance states that to support decision making surrounding developments contained in local authorities Local Plans, it is important to consider the following key transport impacts:

- Proposed impacts on the highway network;
- Improvements to sustainable transport as well as shift to these modes where appropriate;
- Accessibility; and
- Opportunities to reduce the need to travel where appropriate.

5.1.4 This strategic assessment focuses on the highway impacts of the potential green belt sites in Woking's Local Plan only. Therefore it does not interrogate the potential effects on sustainable travel and accessibility. Consequently it is recommended that further analysis is undertaken, focusing on sustainable travel and accessibility. This further analysis will support this highway assessment and aid decision making, with regards to transport, to be fully informed whilst following latest government guidance.

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<sup>1</sup> <http://planningguidance.communities.gov.uk/blog/guidance/transport-evidence-bases-in-plan-making/>



## 6 SUMMARY

- 6.1.1 The highway impacts of deliverable green belt release sites in the borough of Woking have been assessed using Surrey County Council's strategic highway transport model for the forecast year of 2026.
- 6.1.2 Only the weekday AM peak hour is considered in this study.
- 6.1.3 This addendum report aims to evaluate the transport implications of two green belt scenarios, both based on a site accessed via Martyr's Lane. Comparisons were made between these two additional scenarios and former scenarios that Surrey County Council assessed in 2010 and 2015, which relate to the borough's Core Strategy and a green belt site at West Byfleet. This addendum report analysed the highway impacts of the following green belt scenarios:
- 2026 Scenario F = scenario B (as in the Surrey County Council 2010 Core Strategy Transport assessment) plus 592 residential dwellings on greenbelt land at West Byfleet;
  - 2026 Scenario G = scenario F (as above) plus 900 residential dwellings on green belt site accessed via Martyr's Lane; and
  - 2026 Scenario H = scenario F plus 3,000 residential dwellings on green belt land accessed via Martyr's Lane.
- 6.1.4 In summary both scenarios G and H are assessing the same green belt sites but with varying quantities of residential development contained in the Martyr's Lane site.
- 6.1.5 Scenario H contains the greatest number of proposed residential dwellings and therefore also generates the largest amount of forecast additional trips.
- 6.1.6 The scale of the forecast highway impacts vary in each green belt scenario assessed. This is a direct result of the number of additional trips generated from each scenario varying, according to the number of proposed residential dwellings to occur in each green belt scenario. In comparison to the Core Strategy reference scenario (scenario B), scenario F contains the lowest number of additional dwellings and therefore has the least highway impacts of the assessed green belt sites. Whereas, scenario H contains the highest number of additional dwellings and is consequently forecast as having the greatest impact on the highway network in Woking.
- 6.1.7 Multiple forms of analysis have been used to identify the locations and magnitude of the main highway impacts generated from the potential green belt scenarios. The strategic transport assessment has quantified the potential changes in traffic flow, junction delay and journey times at a borough scale. All such analysis helps to identify the key locations where congestion could arise, or worsen, as a result of the additional traffic generated from the varying green belt scenarios investigated in this study.
- 6.1.8 A number of links and junctions within the borough have been defined as 'hotspots' where drivers would be expected to incur additional delay and as such mitigation may be required to reduce the impact of the preferred green belt site and preferred quantity of residential dwellings. The location of such 'hotspots' are all in the north east of the borough, in all of the green belt scenarios. The majority of highway impacts are projected to occur on sections of road and junctions in close proximity to the green belt sites. The key sections of highway in the borough that have been identified as incurring the largest amounts of additional traffic flow, delay and congestion generated from the green belt sites are:

- A245 Woodham Lane / Sheerwater Road / Parvis Road;
- A320 Chertsey Road / Guildford Road; and
- B382 Old Woking Road.

6.1.9 Therefore, the junctions on or adjoining these sections of road are also likely to incur the greatest increases in delay, namely:

- Six Crossroads roundabout;
- A320 Chertsey Road / Guildford Road, Martyr's Lane; and
- Junctions on the A245 between the areas of Sheerwater and West Byfleet.

6.1.10 The strategic assessment has identified that the majority of forecast increases in traffic flow, generated from the potential greenbelt sites, are likely to exacerbate existing levels of congestion, instead of creating new areas. It is also likely that if the green belt site at Martyr's Lane is to progress the additional trips generated from the site are to cause trips to re-route and thus generate additional pressure on areas such as Maybury, Pyrford and Sheerwater.

6.1.11 Hard and soft measures of mitigation are recommended to be explored when assessing the feasibility and sustainability of each green belt option in the borough of Woking. It is also suggested that mitigation for junctions and sections of roads are not investigated in isolation. Instead a holistic approach is thought preferable to ensure impacts on the local highway network are kept to a minimum. Partnership working with neighbouring local authorities is also likely to be required for specific 'hotspots', to allow any cross boundary impacts to be reduced.

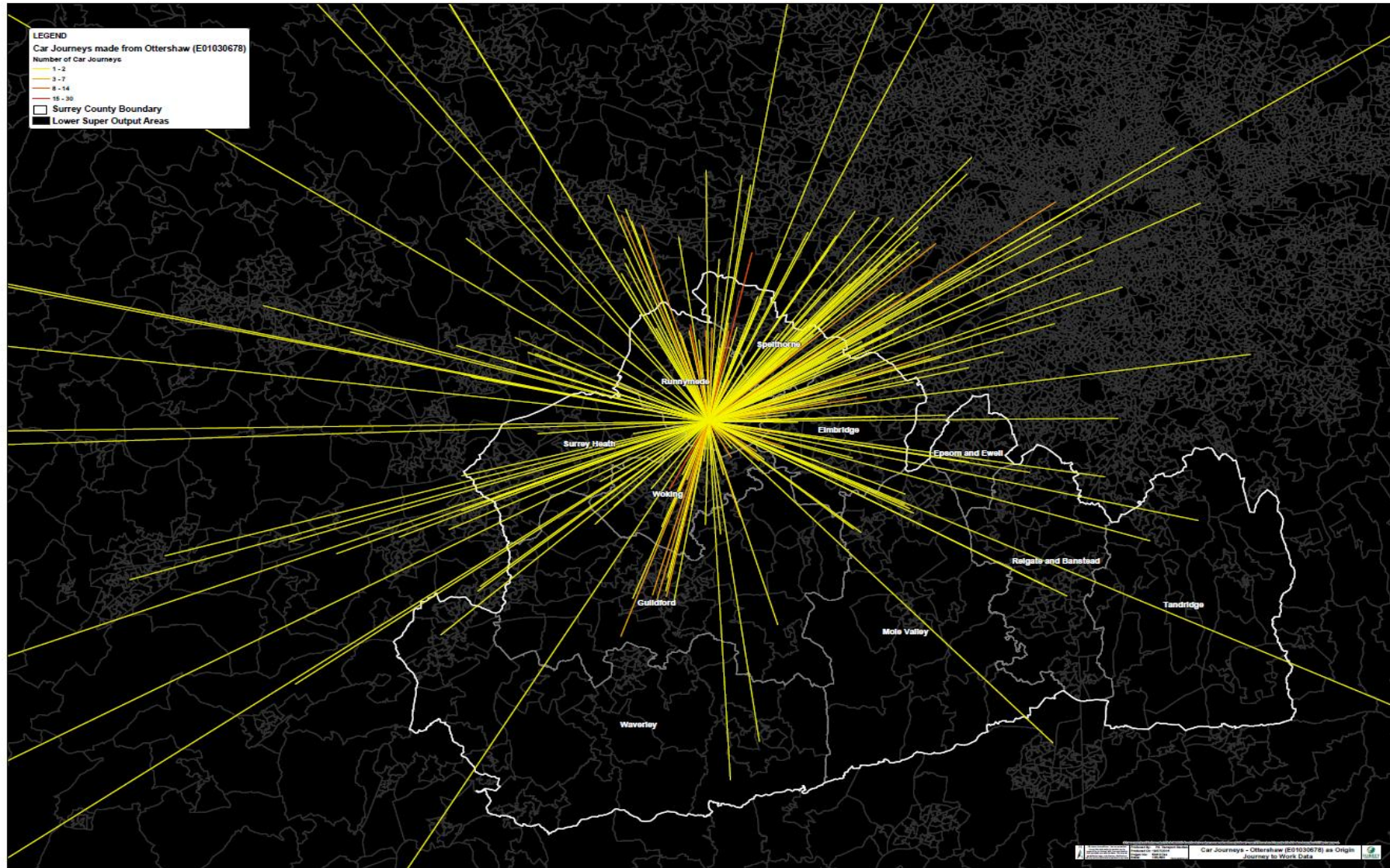
6.1.12 This study was undertaken at a strategic scale and consequently not all highway impacts of the green belt sites have been identified. However, it is likely that each green belt site will require an individual transport assessment to be commissioned, allowing greater detail relating to highway impacts to be analysed at a refined spatial scale.

6.1.13 As this strategic sensitivity study is solely based on the highway network, it is highly recommended that further analysis is undertaken to interrogate the potential impacts each green belt option has in relation to sustainable travel and accessibility. This will ensure that the evidence base is robust and conforms to latest government guidance.<sup>2</sup>

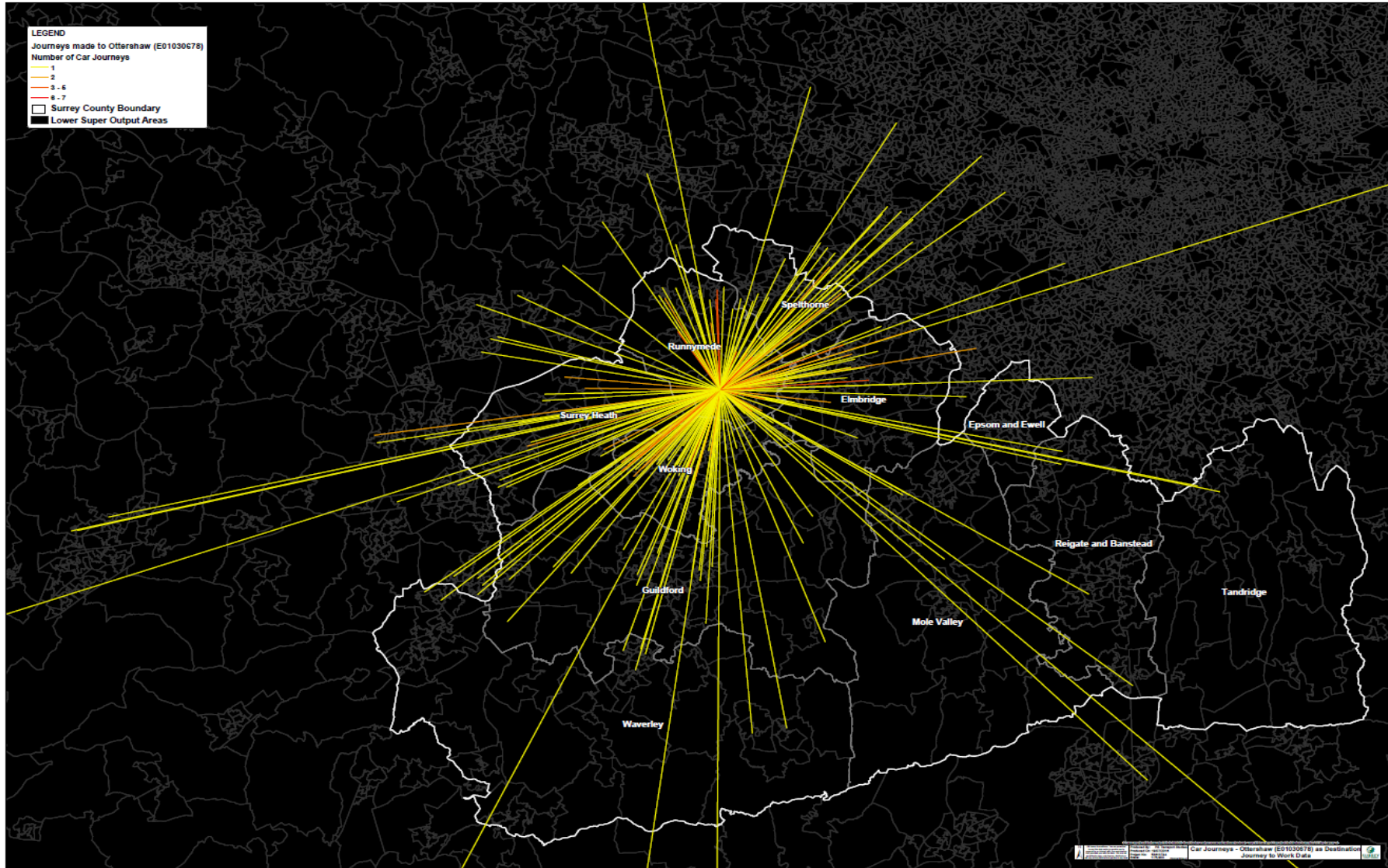
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<sup>2</sup> <http://planningguidance.communities.gov.uk/blog/guidance/transport-evidence-bases-in-plan-making/>

7 APPENDICES  
**Appendix A: 2011 Census Journey to Work – Ottershaw LSOA E01030678**  
Ottershaw Origin Trips

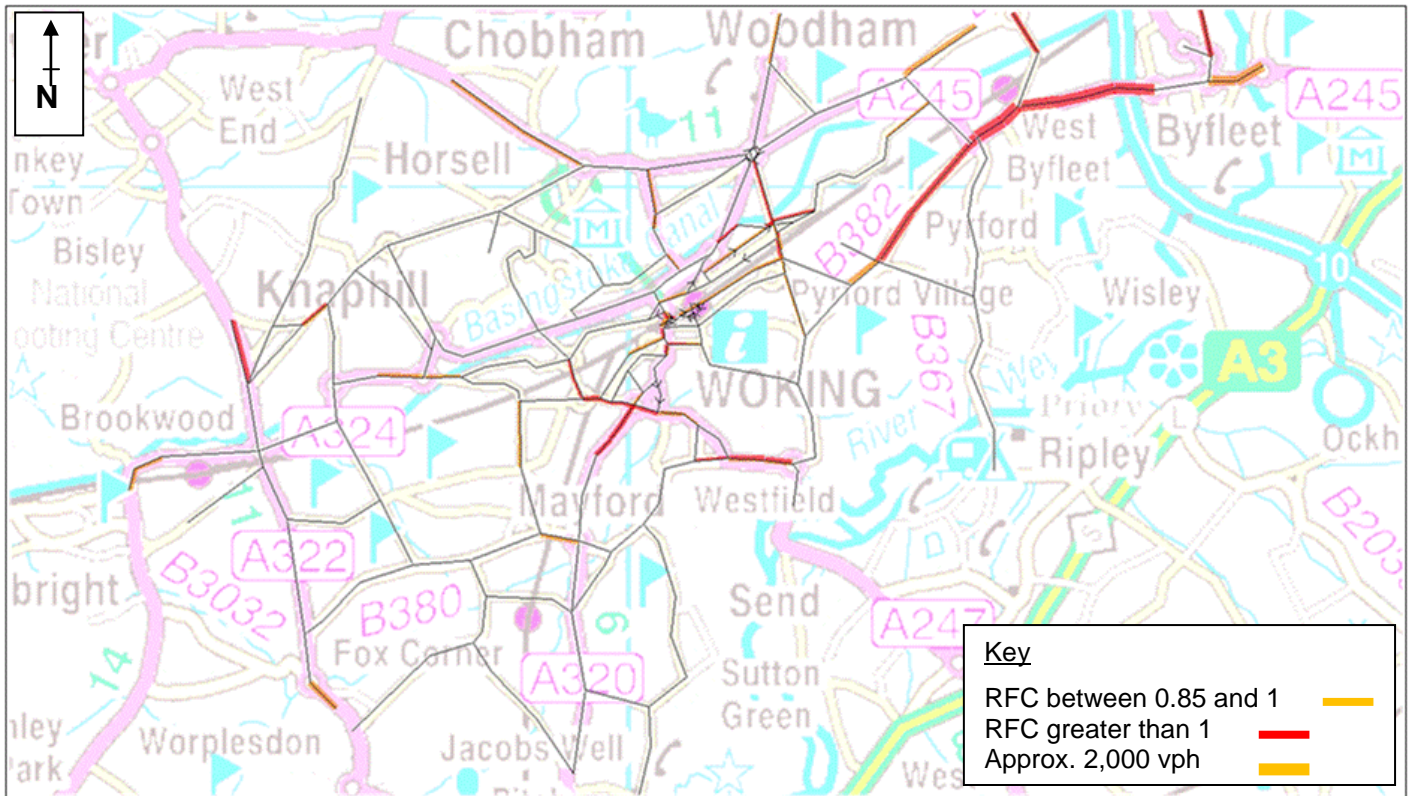


### Ottershaw Destination Trips

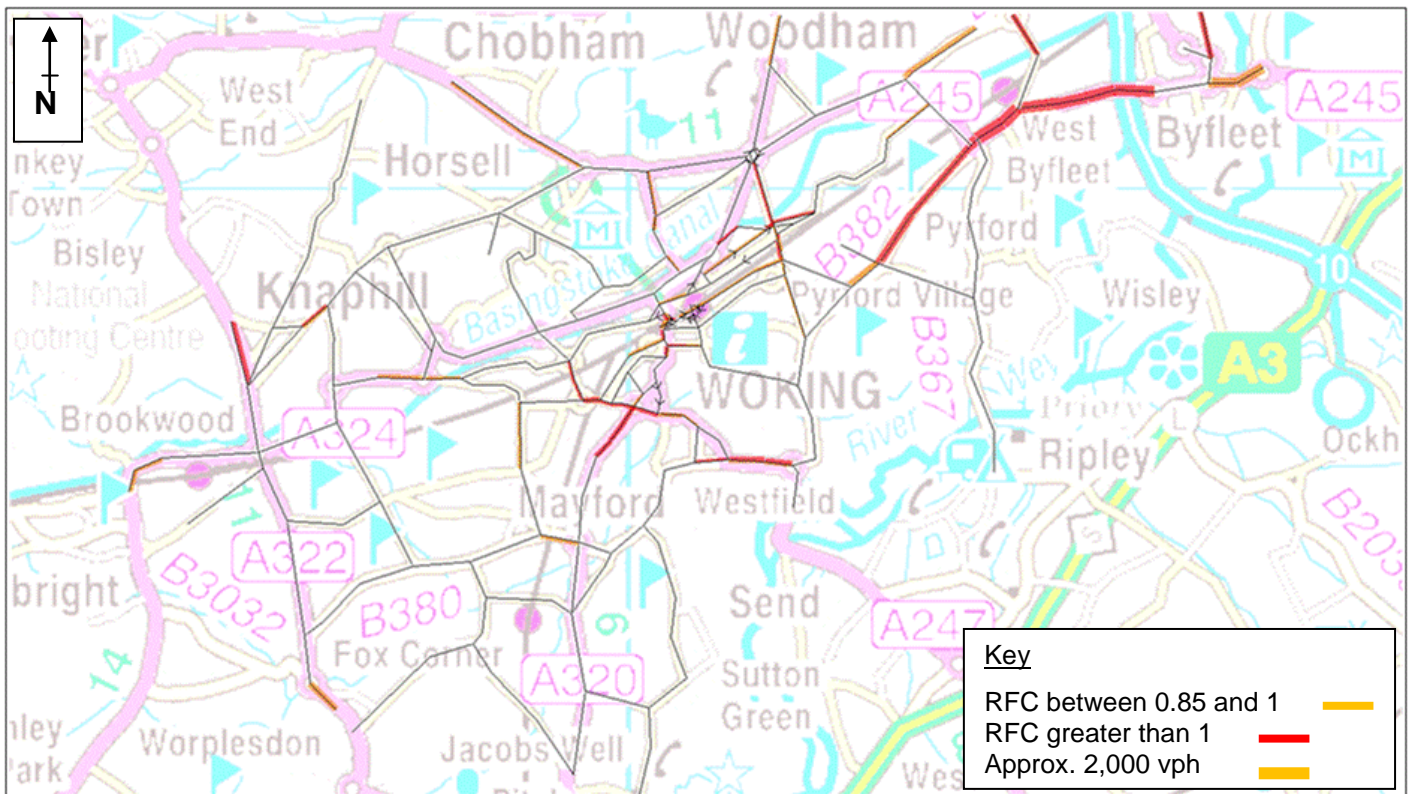


**Appendix B: Borough RFC Plots**

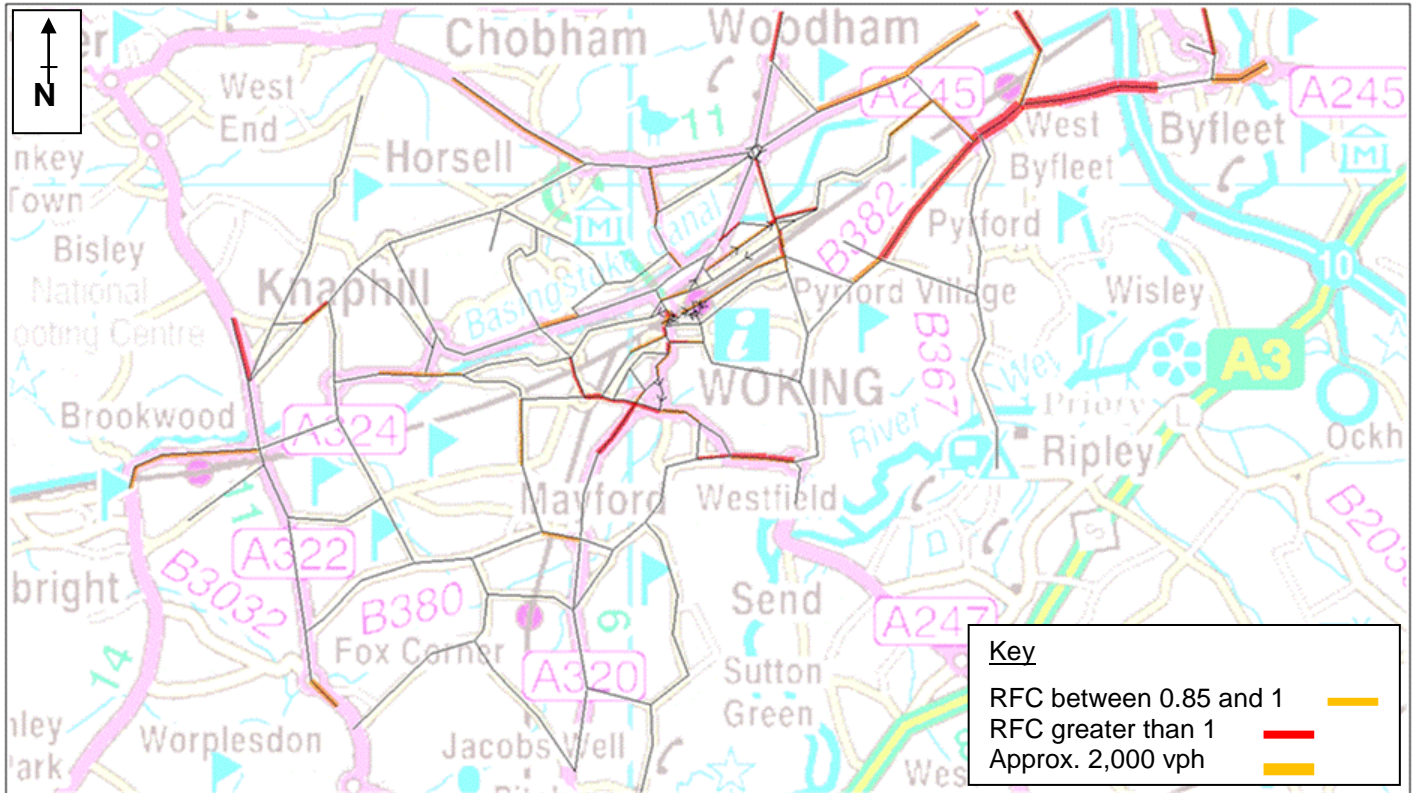
2026 Scenario B RFC values greater than 0.85, weekday AM peak hour (0800 – 0900)



2026 Scenario F RFC values greater than 0.85, weekday AM peak hour (0800 – 0900)



2026 Scenario G RFC values greater than 0.85, weekday AM peak hour (0800 – 0900)



2026 Scenario H RFC values greater than 0.85, weekday AM peak hour (0800 – 0900)

