

Alderholt Paramics Model 2019

Forecasting Report

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**DORSET COUNCIL,
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1.0 INTRODUCTION

Background

- 1.1 Dorset Council's (DC's) Transportation Modelling team, was requested to undertake traffic modelling of Alderholt and the surrounding area to test the impact of proposed developments in and around Alderholt. To undertake this task a calibrated and validated traffic model of the area was created using Paramics Discovery software. Details of the base model are reported in the document 'Alderholt Paramics Model 2019 – Modelling Report, December 2019'.
- 1.2 This report details the development of the traffic forecasting model and the development testing scenarios. The overall modelled study area is shown in **Figure 1.1**.

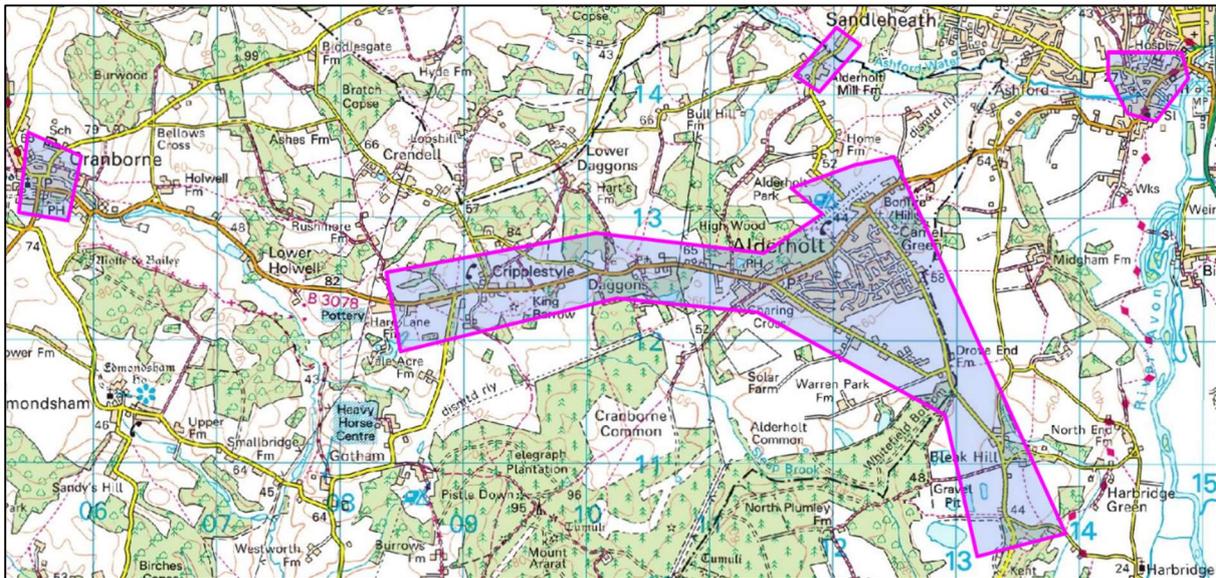


Figure 1.1 – Study Area

Software

- 1.3 Paramics Discovery version 22.0.4 was used for the model.
- 1.4 Traffic microsimulation models simulate the behaviour of individual vehicles within a predefined road network and are used to predict the likely impact of changes in traffic patterns resulting from changes to traffic flow or from changes to the physical environment” (from Wikipedia: <https://en.wikipedia.org/wiki/Microsimulation>)

2.0 MODEL SCOPE / PROPOSED USES

Proposed Uses of the Model

- 2.1 The study area is defined in **Figure 1.1**. The model has been specifically designed to assess the impact of a potential development in Alderholt. Three sub-models have also been created to examine potential capacity issues at Cranborne, White Mill bridge and Church Street, Fordingbridge.

Base Year

- 2.2 The base year of the model was taken as 2019 (June).

Summary of the Main Features of the Model

- 2.3 In summary, the traffic model developed for the study area has the following features and capabilities:
- A 'defined' model area, on which every major junction within Alderholt has been modelled in detail. Specifically, B3078 Station Road/Ringwood Road, B3078 Station Road/Hillbury Road, B3078 Fordingbridge Road/Sandleheath Road, and Hillbury Road/Ringwood Road.
 - The model has been developed for the AM period (0700-1000hrs) and PM period (1600-1900hrs).
 - Trip matrices are sub-divided into two vehicle classes (Light Vehicles/Heavy Vehicles)

3.0 DO MINIMUM FORECAST MODEL

Forecasting Approach

- 3.1 A forecast model has been developed to assess the impact of a potential developments in and around Alderholt. The forecasting has been carried out in line with guidance contained in TAG Unit M4 Forecasting and Uncertainty, May 2019.
- 3.2 NTEM TEMPRO growth has been used for trips with origins and/or destinations outside of Alderholt. Trips with origins and/or destinations within Alderholt are based on local developments with permissions, allocations or at proposed Strategic Housing Land Availability Assessment (SHLAA) sites.
- 3.3 The Local Plan period is likely to end in 2033. Therefore, 2033 has been chosen as the forecast year.

'5 Year Housing Land Supply for Christchurch and East Dorset Councils 2018-2023'

- 3.4 This document, published in March 2019, is the latest publish document regarding future housing supply.

Forecast Networks

- 3.5 The Do Minimum Forecast model network has been developed from the base network. It includes a mini-roundabout on Daggons Road/ Station Road to provide access to the potential Surplus Stores development.
- 3.6 A reference case year of 2033 has been assumed.

Local Plans

- 3.7 The Christchurch and East Dorset Local Plan – Core Strategy was adopted in April 2014. However, Christchurch Borough Council and East Dorset District Council ceased to exist on 31 March 2019. Alderholt is now within the new Dorset Council area. On 25 June 2019 Dorset Council cabinet agreed to stop progressing work on the Local Plan Reviews for the former District Councils with the exception of the Purbeck Local Plan 2019-2034, which is under examination. It is planned that a new Dorset Council Local Plan will be adopted in spring 2023.
- 3.8 In terms of traffic forecasting, the latest figures are shown in **Table 3.1**, **Table 3.2**, **Table 3.3**, and **Table 3.4** below. The document '*5 Year Housing Land Supply for Christchurch and East Dorset Councils 2018-2023*', published in March 2019, contains the latest official available information on potential housing. This report is an update to appendix 1 of the Christchurch and East Dorset Local Plan – Core Strategy.

Settlement	Site Address	Application Number	Type	Net Dwellings
Alderholt	Alderholt Surplus Stores, Daggons Road	3/11/0558	RM	89
Alderholt	Drove End Farm, Hillbury Road	3/17/0061	F	1
Alderholt	Land north of Ringwood Road	3/16/1446	O	43
Alderholt	Montana, 4 Hillbury Road	3/17/1875	F	1
Alderholt	Montana, 4 Hillbury Road	3/17/0347	F	3
Alderholt	The Cottage, Camel Green Road	3/16/1376	F	1
Verwood	42 Ringwood Road (C2 Element)	3/16/0165	F	1

Table 3.1 – East Dorset 5 Year Supply Sites (Current Planning Permissions)

Settlement	Full Address	SHLAA Number	Site Ref	Potential Dwellings
Alderholt	23 - 31 Blackwater Grove, Alderholt	3/01/0697		2
Alderholt	10 Station Road and land adjacent, Alderholt	3/01/0701		5
Alderholt	43 - 57 Station Road, Alderholt	3/01/0703		1
Alderholt	3 - 15 Park Lane, 58 - 70 Station Road, 4 - 24 Camel Green Road, Alderholt	3/01/0705		1
Verwood	131-139 Newtown Road and 123-129 Lake Road, Verwood	3/22/0636		1
Verwood	50 - 62 Lake Road, Verwood	3/22/0641		4
Verwood	28 - 46 Lake Road and Public Open Space to west, Verwood	3/22/0650		1
Verwood	71 - 75 Burnbake Road and 8 - 14 Bugdens Lane, Verwood	3/22/0655		4
Verwood	44 - 70 Newtown Road and 42 - 50 Burnbake Road, Verwood	3/22/0656		1
Verwood	81 - 103 Manor Road, Verwood	3/22/0661		2

Table 3.2 – East Dorset 5 Year Supply Sites (5 Year Supply)

Settlement	Full Address	SHLAA Number	Site Ref	Potential Dwellings
Alderholt	Land adj 58 Ringwood Road, Alderholt	3/01/0119		4
Alderholt	23 - 31 Blackwater Grove, Alderholt	3/01/0697		2
Alderholt	1-9 Blackwater Grove, Alderholt	3/01/0698		10
Alderholt	Public Open Space adjacent to 2 Blackwater Grove, Alderholt	3/01/0700		2
Alderholt	Village Hall and 3 - 9 Station Road, Alderholt	3/01/0702		4
Alderholt	43 - 57 Station Road, Alderholt	3/01/0703		3
Alderholt	3 - 15 Park Lane, 58 - 70 Station Road, 4 - 24 Camel Green Road, Alderholt	3/01/0705		4
Alderholt	5 - 33 Hayters Way, Alderholt	3/01/0707		4
Alderholt	8 - 26 Hillbury Road, Alderholt	3/01/0708		3

Table 3.3 – East Dorset 6 to 15 Year Supply Sites

Settlement	Full Address	SHLAA Site Ref Number	Potential Dwellings
Alderholt	92 - 106 Station Road, Alderholt	3/01/0709	4
Alderholt	7 - 25 Hillbury Road, Alderholt	3/01/0710	2
Alderholt	Public Open Space adjacent 1 Wren Gardens, Alderholt	3/01/0712	5
Alderholt	37 - 43 Ringwood Road and Public Open Space to the rear, Alderholt	3/01/0716	4
Verwood	2 - 24a Howe Lane, Verwood	3/22/0631	4
Verwood	2 - 10 St Michaels Road, Verwood	3/22/0635	2
Verwood	131-139 Newtown Road and 123-129 Lake Road, Verwood	3/22/0636	3
Verwood	97 - 105 Newtown Road, 3 - 9 Claylake Drive and 9 - 13 Owls Road Verwood	3/22/0639	2
Verwood	50 - 62 Lake Road, Verwood	3/22/0641	3
Verwood	52 - 60 Moneyfly Road, Verwood	3/22/0643	2
Verwood	189 - 199 Ringwood Road and 163 - 167 The Chase, Verwood	3/22/0647	2
Verwood	41 - 55 Lake Road and Public Open Space to east, Verwood	3/22/0649	3
Verwood	28 - 46 Lake Road and Public Open Space to west, Verwood	3/22/0650	3
Verwood	Conifers - Mount Pleasant, Sandy Lane, Verwood	3/22/0653	10
Verwood	71 - 75 Burnbake Road and 8 - 14 Bugdens Lane, Verwood	3/22/0655	4
Verwood	11 - 21 Burnbake Road, Verwood	3/22/0660	4
Verwood	81 - 103 Manor Road, Verwood	3/22/0661	4
Verwood	4 - 14a Springfield Road, 3 - 17 Manor Lane, 78 84 Manor Road, Verwood	3/22/0662	4
Verwood	5 - 19 Springfield Road and 94 - 100 Manor Road, Verwood	3/22/0663	10
Verwood	Caradon Place, Somerley Cottage, Cedar Breaks - Harwood, Eastworth Road, Verwood	3/22/0666	3
Verwood	75 - 93 Lake Road, 1 - 15 Whitbeam Way and 76 - 84 Woodlinken Drive, Verwood	3/22/0669	2

Table 3.3 – East Dorset 6 to 15 Year Supply Sites (continued)

- 3.9 The New Forest District Local Plan Part 2: Sites and Development Management Development Plan document was adopted in April; 2014.
- 3.10 The New Forest District Council Strategic Housing Land Availability Assessment (June 2018) contains the latest official available information on potential housing. Appendix 12 covers the area of Fordingbridge, Ashford and Sandleheath. Sites included are listed in **Table 3.4**.

Settlement	Full Address	SHLAA Site Ref	Area (Ha)	Potential Dwellings
Fordingbridge	Land at Burgate	SHLAA_FOR001		350
Fordingbridge	Land at Whitsbury Road (also FORD1)	SHLAA_FOR002		330+145
Ashford	Land north of Station Road	SHLAA_ASH001	18.4	140
Ashford	Ashford Works	SHLAA_ASH002	0.35	10
Ashford	Land adjoining Jubilee Crescent (also ASH1)	SHLAA_ASH003	0.4	10
Ashford	Land to the north and east of 174 Station Road	SHLAA_ASH004	2.2	26
Sandleheath	Land between Kerry Gardens and Sandle Manor Farm	SHLAA_SAN002	0.68	5
Sandleheath	Land west of the Scout Centre, south of Station Road	SHLAA_SAN006a	0.5	10
Sandleheath	Land west of the Scout Centre, south of allocation (also SAND1)	SHLAA_SAN006b	0.8	5

Table 3.4 – New Forest 5 Year Supply Sites (5 Year Supply)

Transport Assessments

3.11 The following Transport Assessments have been consulted to identify the impact predicted from each development:

- Alderholt Surplus Stores site at Daggons Road, Alderholt
- Land North of Ringwood Road, Alderholt
- Alderholt Nursery, Alderholt
- Lands North and South and Edmonsham Road, Verwood (VTSW4)

NTEM Growth

3.12 Origin and destination growth rates have been extracted from the National Trip End Model (NTEM) using the TEMPRO V7.2 program.

3.13 Growth rates for car trips were applied to zones outside of Alderholt. These rates were then adjusted by Fuel Price and Income forecast factors using the guidance in Tag Unit M4 Section 7.4.13.

3.14 Traffic growth factors applied to the model are contained in **Table 3.5**.

NTEM Area	Area Description	AM	PM
New Forest 001	Fordingbridge	1.1530	1.1502
New Forest 012	Ringwood	1.1759	1.1766
East Dorset	East Dorset	1.1552	1.1535

Table 3.5 – TEMPRO Growth Factors (2019-2033)

3.15 Freight traffic growth (LGV and OGV trips) is based on growth factors obtained from the National Transport Model (NTM). Growth factors used are shown in **Table 3.6**.

Period	LGV	OGV
AM Peak	1.401	1.059
PM Peak	1.401	1.069

Table 3.6 – Goods Vehicle Growth Factors (2019-2033)

Trip Rates

- 3.16 Various peak hour trip rates have been extracted from the TRICS 7.4.4 database and from locally observed traffic counts. All trip rates are shown in **Table 3.7**.

Development	Arr. 7-10	Dep. 7-10	2-Way AM	Arr. 16-19	Dep. 16-19	2-Way PM
Snails Lane (<i>Transport Assessment</i>)	0.41	0.972	1.382	0.988	0.624	1.612
Alderholt (<i>Transport Assessment</i>)	0.317	0.747	1.064	0.909	0.547	1.456
NFDC Local Plan work	0.435	1.25	1.685	1.198	0.849	2.047
Apple Tree Road, Alderholt (<i>observed</i>)	0.267	0.924	1.191	1.092	0.595	1.687
Pine Road, Alderholt (<i>observed</i>)	0.267	1.083	1.35	1.100	0.600	1.7
Broomfield Drive, Alderholt (<i>observed</i>)	0.188	0.667	0.855	0.688	0.458	1.146
Wren Gardens, Alderholt (<i>observed</i>)	0.341	0.976	1.317	1.049	0.537	2.903

Table 3.7 – Comparison of Trip Rates (vehicles per dwelling per hour)

- 3.17 Apple Tree Road appears to include a mixture of housing types and sizes and is considered appropriate to represent future development in Alderholt. However, the trip rates observed at Pine Road are higher and will be used for this assessment as a 'worst case' scenario.

Trip Distribution

- 3.18 Trip distribution for new developments in Alderholt are based on the existing distribution within the relevant zone. Census Journey to Work data was used to estimate the proportion of trips passing through Alderholt from new developments in Verwood and Fordingbridge.

Do Minimum Forecast Matrices

- 3.19 Forecast matrices were initially created to represent the 2033 Do Minimum scenario. These include the committed and supply site developments, constrained to NTEM growth. The 2019 and 2033 forecast matrix sizes are shown in **Table 3.8** and **Table 3.9** for the AM and PM peaks respectively.

Matrix Level	Base 2019	2033 Do Min.	Difference (2033-2019)	Percent Difference.
Light Vehicles	6344.90	7879.89	1534.99	24%
Heavy Vehicles	213.70	229.16	15.46	7%
Total	6558.60	8109.05	1550.45	24%

Table 3.8 – AM Period (0700-1000) Matrix Totals

Matrix Level	Base 2019	2033 Do Min.	Difference (2033-2019)	Percent Difference.
Light Vehicles	7070.93	8750.92	1679.98	24%
Heavy Vehicles	78.72	85.93	7.21	9%
Total	7149.65	8836.84	1687.19	24%

Table 3.9 – PM Period (1600-1900) Matrix Totals

4.0 DO SOMETHING FORECAST MODELS

Do Something Forecast Matrices

- 4.1 Three 2033 forecast matrices were created to represent potential developments of 500, 1000, and 2500 dwellings in Alderholt village. These include the background growth scenario used in the Do Minimum forecast matrix.
- 4.2 The trips associated with proposed dwellings were split across three zones built into the model to represent sites identified for development. The percentage splits were roughly allocated according to provisional developer plans, as follows:
- Site West of Hillbury Road (Zone 29) = 30% of dwellings
 - Site North of Warren Park Farm: (Zone 30) = 40% of dwellings
 - Site West of Ringwood Road: (Zone 31) = 30% of dwellings
- 4.3 The location of the potential development zones are shown in **Figure 4.1**.



Figure 4.1 – Potential Development Zones

- 4.4 The trip rates were those used for the Do Minimum forecasting (Pine Road trip rates).
- 4.5 The distribution of trips was calculated according to an average of the distributions for each of the central Alderholt housing zones across the Do Minimum matrix (i.e. zone 4 to zone 28 inclusive).
- 4.6 The trip distribution *originating* from each of the potential new development zones are shown in **Figure 4.2**, **Figure 4.4**, **Figure 4.6**, **Figure 4.8**, **Figure 4.10** and **Figure 4.12** for zones 29, 30 and 31 respectively.

- 4.7 The trip distribution *arriving* at each of the potential new development zones are shown in **Figure 4.3**, **Figure 4.5**, **Figure 4.7**, **Figure 4.9**, **Figure 4.11** and **Figure 4.13** for zones 29, 30 and 31 respectively.
- 4.8 On the figures, the blue lines represent the amount of traffic as bandwidths. The thicker and darker the line, the greater the traffic.

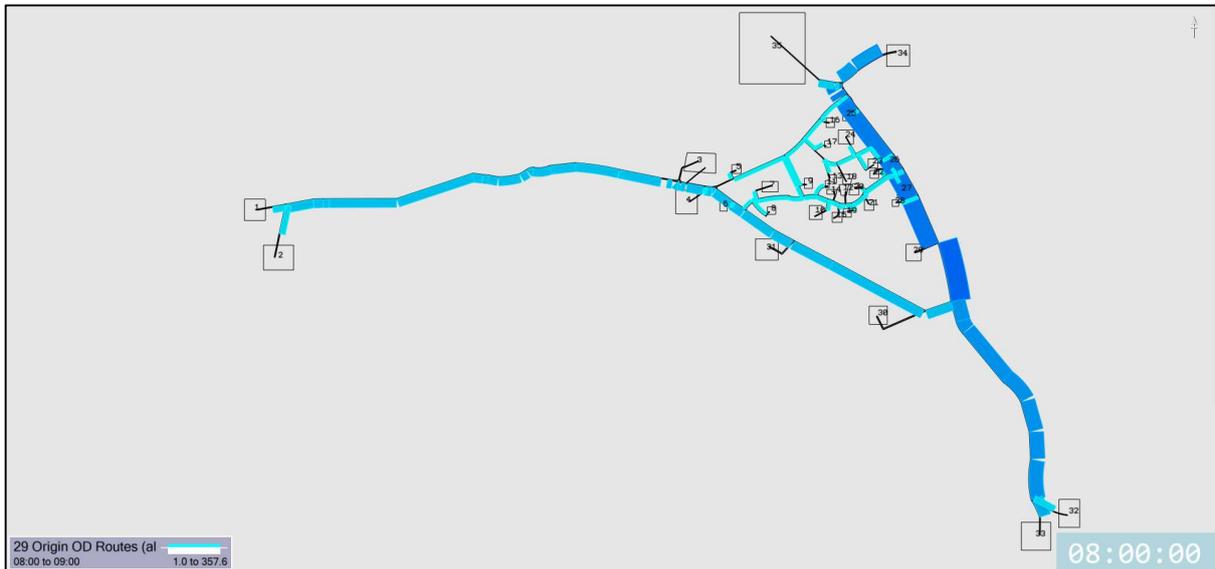


Figure 4.2 – Trip Distribution from Zone 29 (AM Peak)

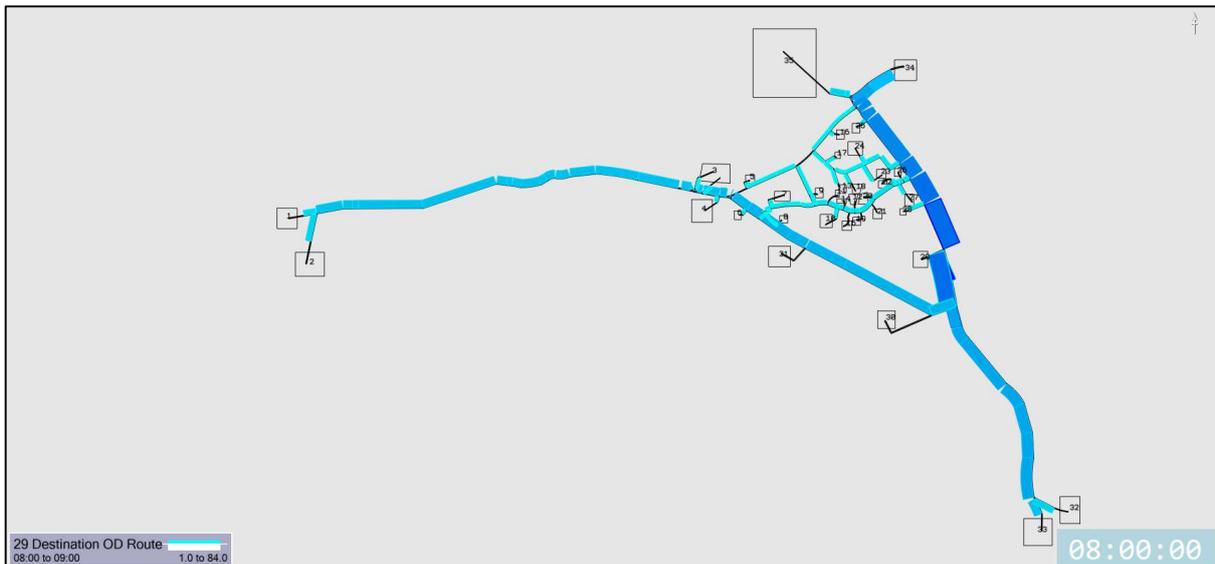


Figure 4.3 – Trip Distribution to Zone 29 (AM Peak)

- 4.9 In the AM peak, trips traveling to and from Zone 29 are mainly using Hillbury Road, Harbridge Drive, and Ringwood Road.

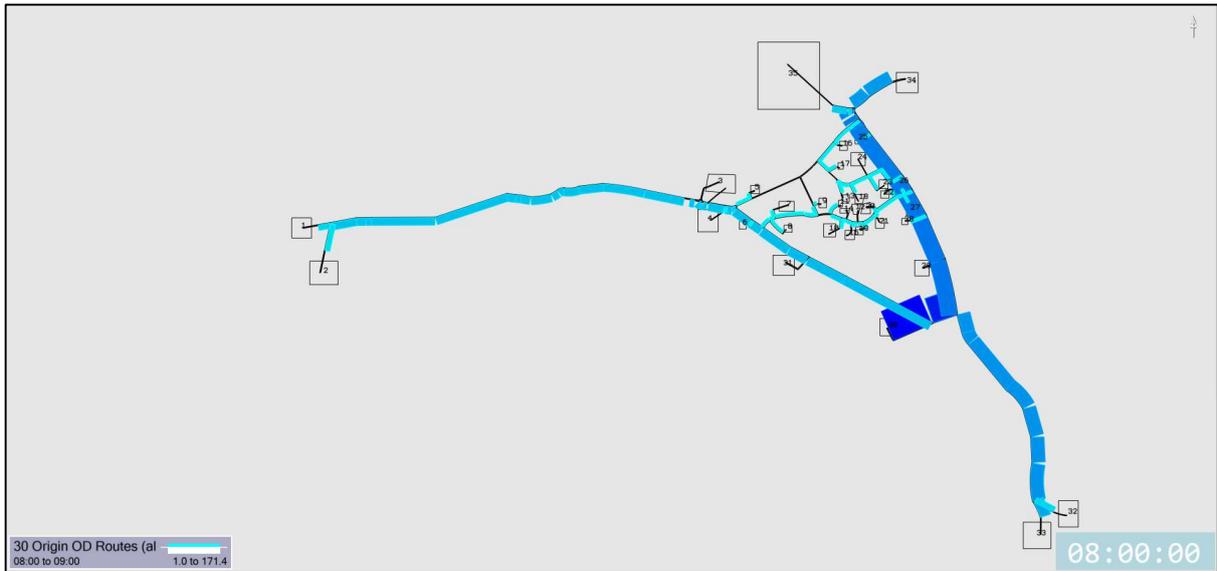


Figure 4.4 – Trip Distribution from Zone 30 (AM Peak)

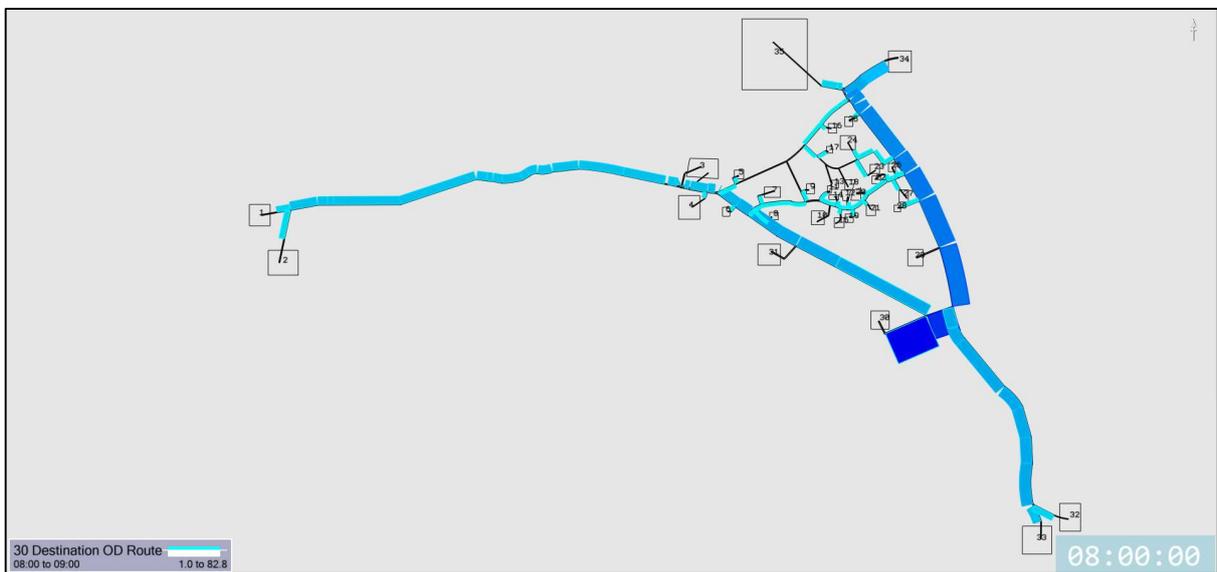


Figure 4.5 – Trip Distribution to Zone 30 (AM Peak)

- 4.10 In the AM peak, trips traveling to and from Zone 30 are mainly using Hillbury Road, Harbridge Drove and Ringwood Road.

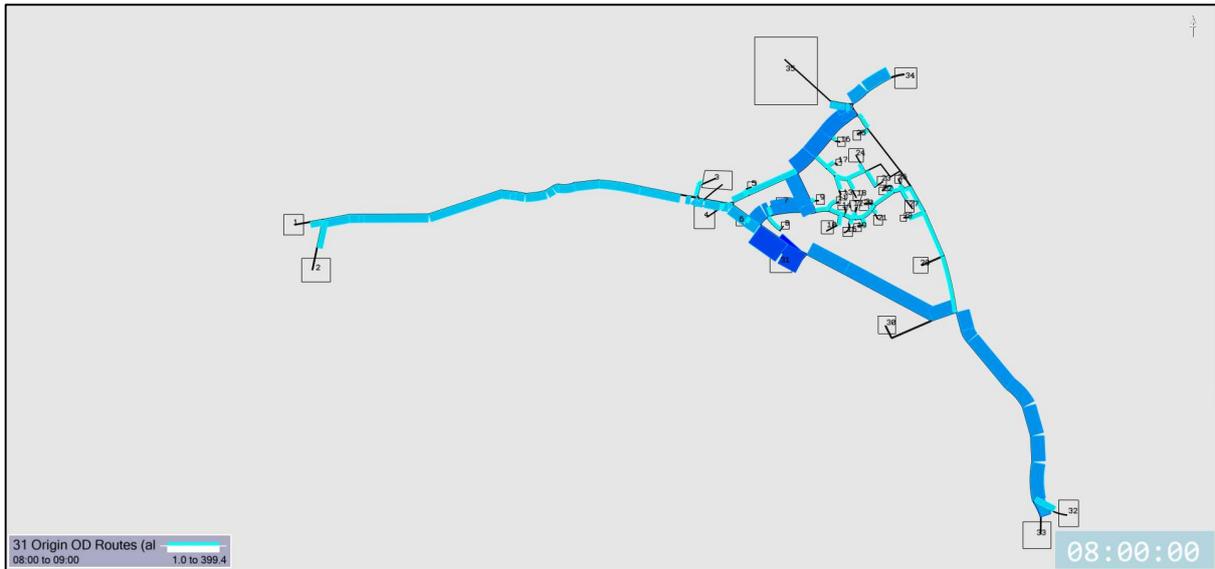


Figure 4.6 – Trip Distribution from Zone 31 (AM Peak)



Figure 4.7 – Trip Distribution to Zone 31 (AM Peak)

4.11 In the AM peak, trips traveling to and from Zone 31 are mainly using Ringwood Road and Harbridge Drive. The model shows a large proportion of trips cutting through Eastwood Drive, Park Lane to access the B3078. If this were a problem, traffic management measures could be introduced to encourage traffic to use the Station Road / Ringwood Road junction.



Figure 4.8 – Trip Distribution from Zone 29 (PM Peak)

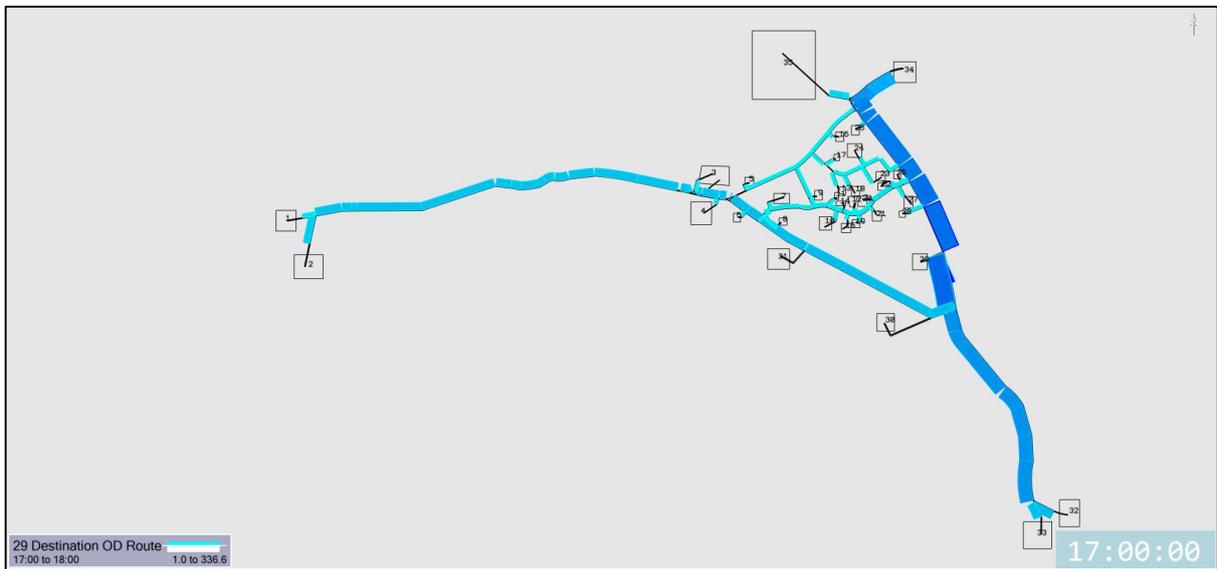


Figure 4.9 – Trip Distribution to Zone 29 (PM Peak)

4.12 In the PM peak, trips traveling to and from Zone 29 are mainly using Hillbury Road, Harbridge Drive and Ringwood Road.

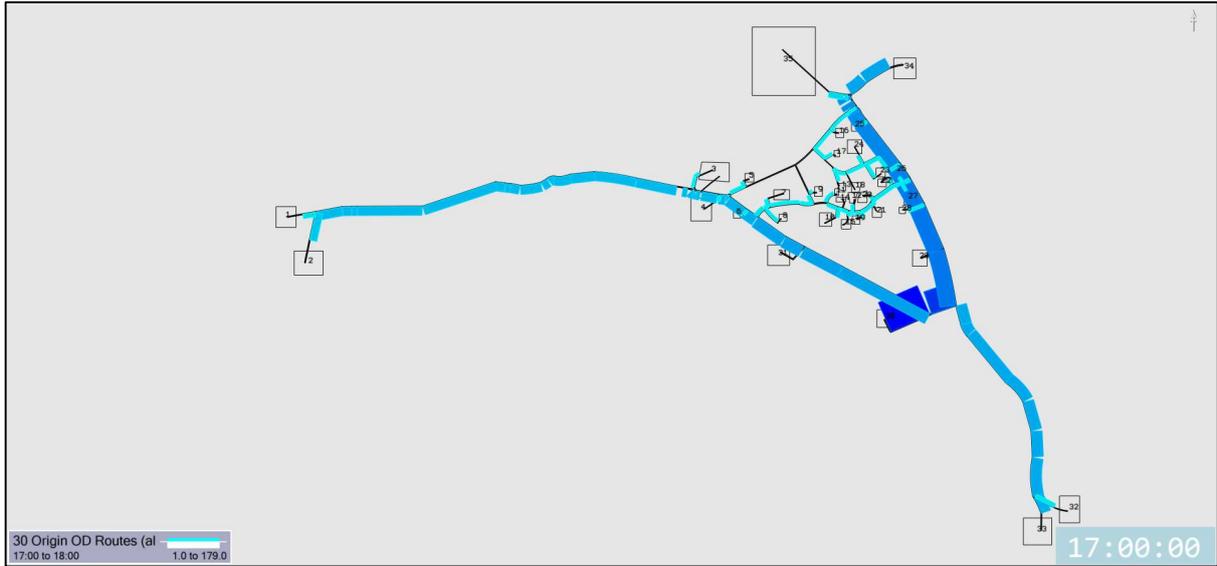


Figure 4.10 – Trip Distribution from Zone 30 (PM Peak)

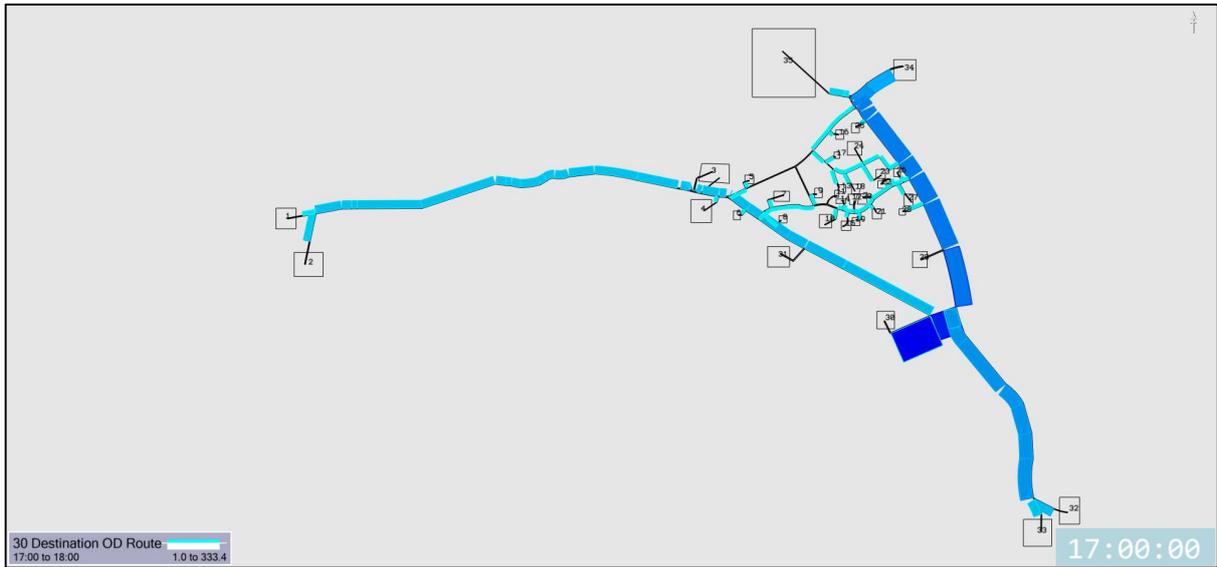


Figure 4.11 – Trip Distribution to Zone 30 (PM Peak)

- 4.13 In the PM peak, trips traveling to and from Zone 30 are mainly using Hillbury Road, Harbridge Drove and Ringwood Road.



Figure 4.12 – Trip Distribution *from* Zone 31 (PM Peak)

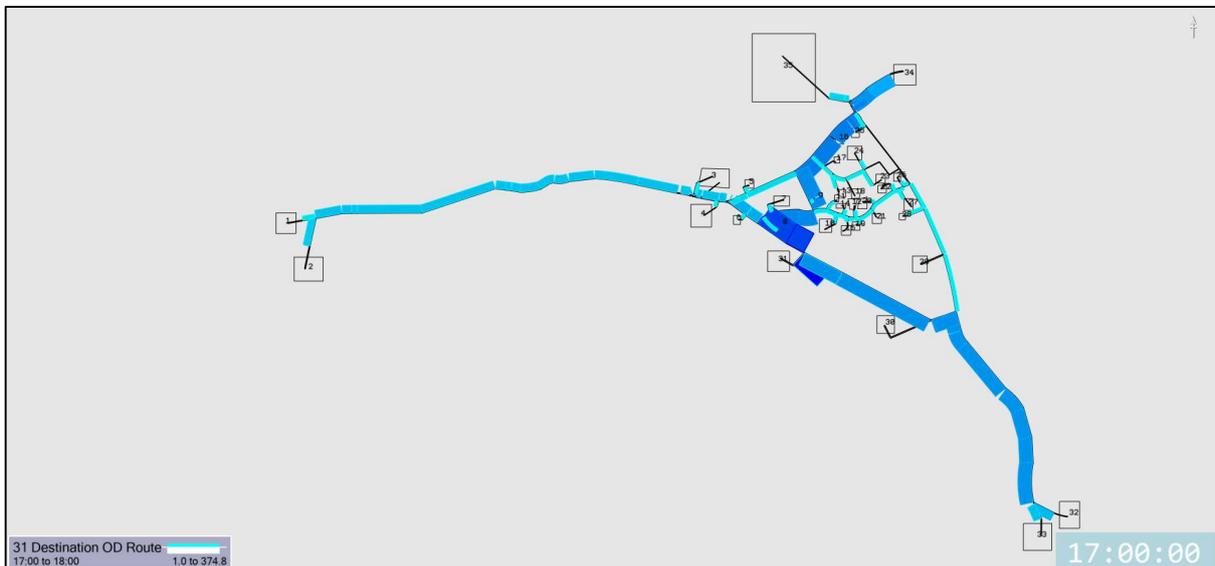


Figure 4.13 – Trip Distribution *to* Zone 31 (PM Peak)

4.14 In the AM peak, trips traveling to and from Zone 31 are mainly using Ringwood Road and Harbridge Drive. The model shows a large proportion of trips cutting through Eastwood Drive, Park Lane to access the B3078. If this were a problem, traffic management measures could be introduced to encourage traffic to use the Station Road / Ringwood Road junction.

Do Something Network

- 4.15 The network used is the same as the Do Minimum, however, it was discovered in the Do Something 2500 dwelling scenario that traffic waiting to turn left from Ringwood Road into Harbridge Drove cause excessive queuing and stopped vehicles exiting Zone 30.
- 4.16 To alleviate excessive queuing, the Ringwood Road/Hillbury Road/Harbridge Drove junction was changed from a priority T-junction to a mini roundabout in the Do Something 2500 scenario to allow traffic to flow more evenly across the network. The placement of the roundabout is shown in **Figure 4.14**.



Figure 4.14 – Do Something 2033 Network: Roundabout Close-up

- 4.17 The 2033 forecast matrix sizes are compared in **Table 4.1** and **Table 4.2** (*Do Minimum vs Do Something 500*), **Table 4.3** and **Table 4.4** (*Do Minimum vs Do Something 1000*), and **Table 4.5** and **Table 4.6** (*Do Minimum vs Do Something 2500*), for the AM and PM peaks respectively.

Matrix Level	2033 Do Min	DS 500	Difference (2033-2019)	Percent Difference.
Light Vehicles	7879.89	8885.57	1005.68	13%
Heavy Vehicles	229.16	229.16	0.00	0%
Total	8109.05	9114.73	1005.68	12%

Table 4.1 – AM Period (0700-1000) Matrix Totals

Matrix Level	2033 Do Min	DS 500	Difference (2033-2019)	Percent Difference.
Light Vehicles	8750.92	10066.08	1315.16	15%
Heavy Vehicles	85.93	85.93	0.00	0%
Total	8836.84	10152.01	1315.16	15%

Table 4.2 – PM Period (1600-1900) Matrix Totals

Matrix Level	2033 Do Min	DS 1000	Difference (2033-2019)	Percent Difference.
Light Vehicles	7879.89	9891.25	2011.36	26%
Heavy Vehicles	229.16	229.16	0.00	0%
Total	8109.05	10120.42	2011.36	25%

Table 4.3 – AM Period (0700-1000) Matrix Totals

Matrix Level	2033 Do Min	DS 1000	Difference (2033-2019)	Percent Difference.
Light Vehicles	8750.92	11292.82	2541.90	29%
Heavy Vehicles	85.93	85.93	0.00	0%
Total	8836.84	11378.75	2541.90	29%

Table 4.4 – PM Period (1600-1900) Matrix Totals

Matrix Level	2033 Do Min	DS 2500	Difference (2033-2019)	Percent Difference.
Light Vehicles	7879.89	12908.29	5028.40	64%
Heavy Vehicles	229.16	229.16	0.00	0%
Total	8109.05	13137.46	5028.40	62%

Table 4.5 – AM Period (0700-1000) Matrix Totals

Matrix Level	2033 Do Min	DS 2500	Difference (2033-2019)	Percent Difference.
Light Vehicles	8750.92	14973.04	6222.12	71%
Heavy Vehicles	85.93	85.93	0.00	0%
Total	8836.84	15058.96	6222.12	70%

Table 4.6 – PM Period (1600-1900) Matrix Totals

5.0 RESULTS

Unsatisfied Demand

- 5.1 To understand model performance, the expected peak hour demand from the matrix has been compared with the completed number of trips. All vehicles were released onto the network by the end of the AM and PM 3-hour periods in the Do Minimum scenario, the Do Something 500, and the Do Something 1000. In the Do Something 2500 scenario there were trips queueing to get onto the network at Zone 35 (Sandleheath Road). The average of five runs is shown in **Table 5.1**.

	Run 1		Run 2		Run 3		Run 4		Run 5		Average	
Zone	17:30	18:00	17:30	18:00	17:30	18:00	17:30	18:00	17:30	18:00	17:30	18:00
35	28	57	30	69	25	68	26	55	22	74	26	65
	08:30	09:00	08:30	09:00	08:30	09:00	08:30	09:00	08:30	09:00	08:30	09:00
41	113	16	-	-	65	-	-	-	77	-	85	16

Table 5.1 – Do Something 2500 Unsatisfied Demand during the Peak Period

Congestion

- 5.2 Three-hour matrices were used for both the AM and PM peaks and congestion heatmap snapshots were taken at the end of each peak hour and peak period model run. Hotspots show where vehicles are in a queued state, which is when the speed drops below 4.47mph and the gap in front drops below 10metres. Vehicles are no longer queued when the speed rises above 6.71mph and the gap in front rises above 15 metres.
- 5.3 The model shows minimal congestion across the peaks for all scenarios, with the greatest congestion shown in the Do Something 2500 scenario. Snapshots of congestion heatmaps were taken halfway through the peak hour and the end of the peak hour, and *where there were congestion hotspots* these are shown in **Figure 5.1** to **Figure 5.19**. The main areas of congestion highlighted are Provost Street in Fordingbridge, and the Alderholt junctions at Pressey's Corner, and Ringwood Road/Hillbury Road/Harbridge Drove.

Do Something 500 option

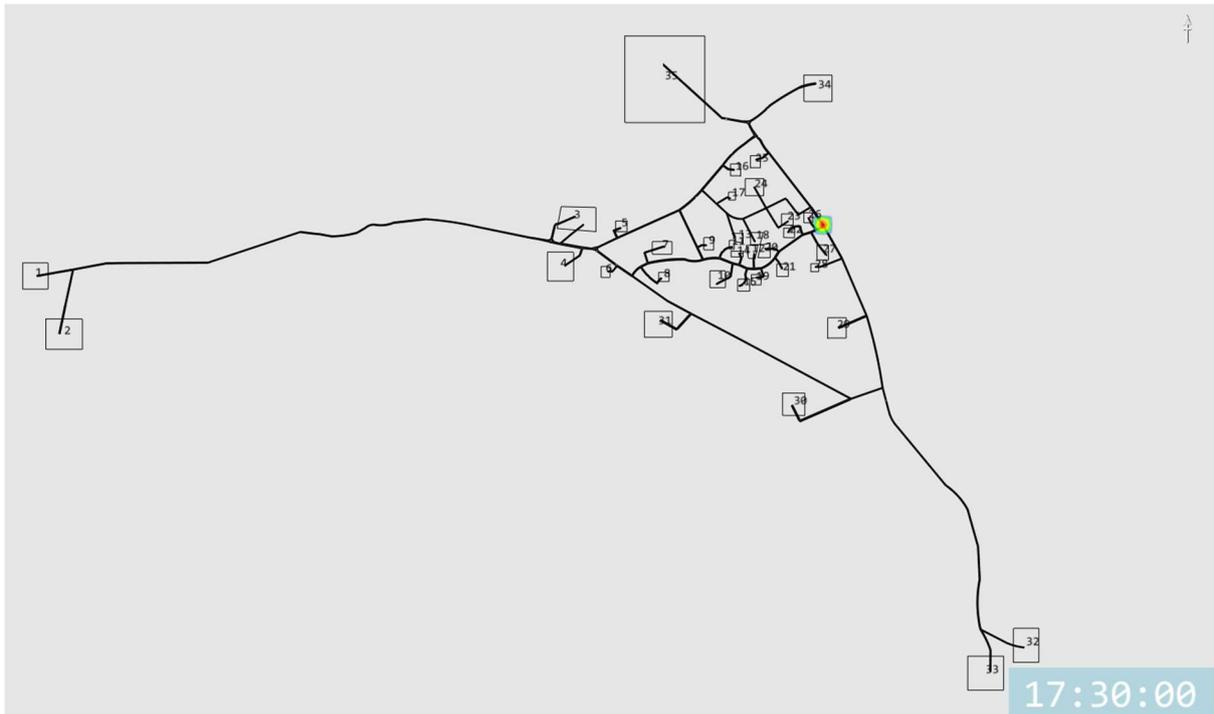


Figure 5.1 – Do Something 500 – Congestion in Alderholt during PM Peak



Figure 5.2 – Do Something 500 – Congestion in Alderholt after PM Peak

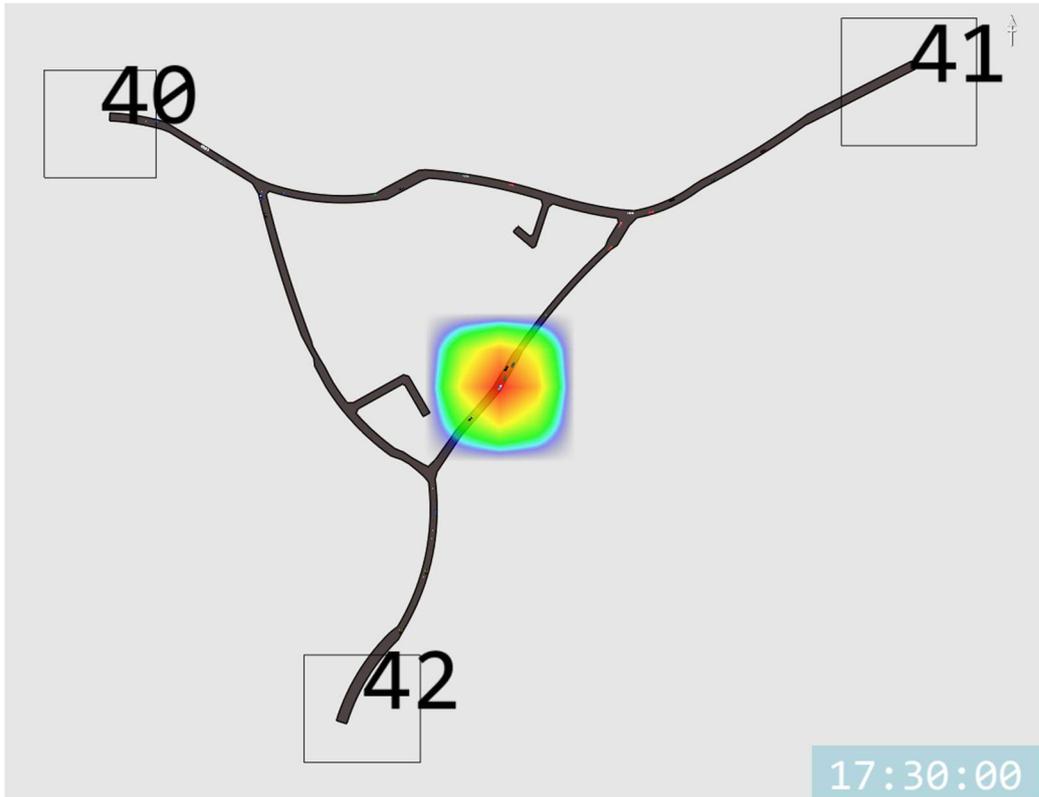


Figure 5.3 – Do Something 500 – Congestion in Fordingbridge during PM Peak

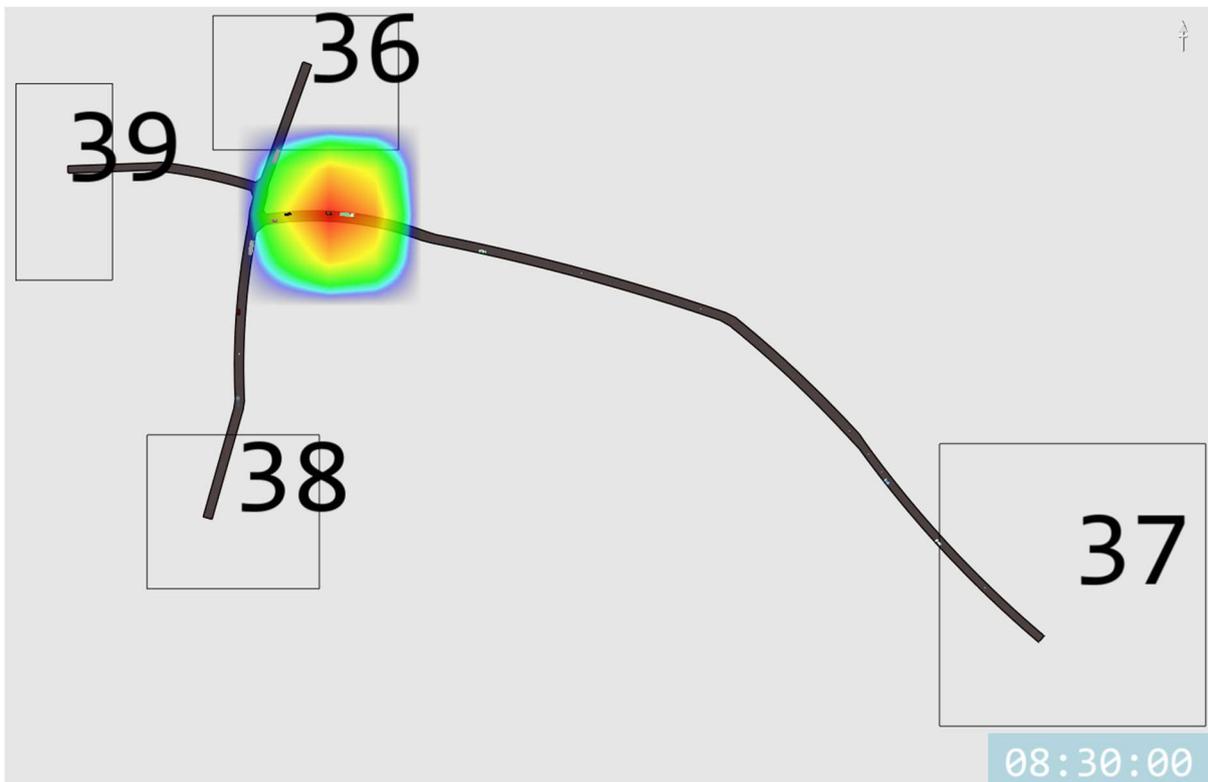


Figure 5.4 – Do Something 500 – Congestion in Cranborne during AM Peak

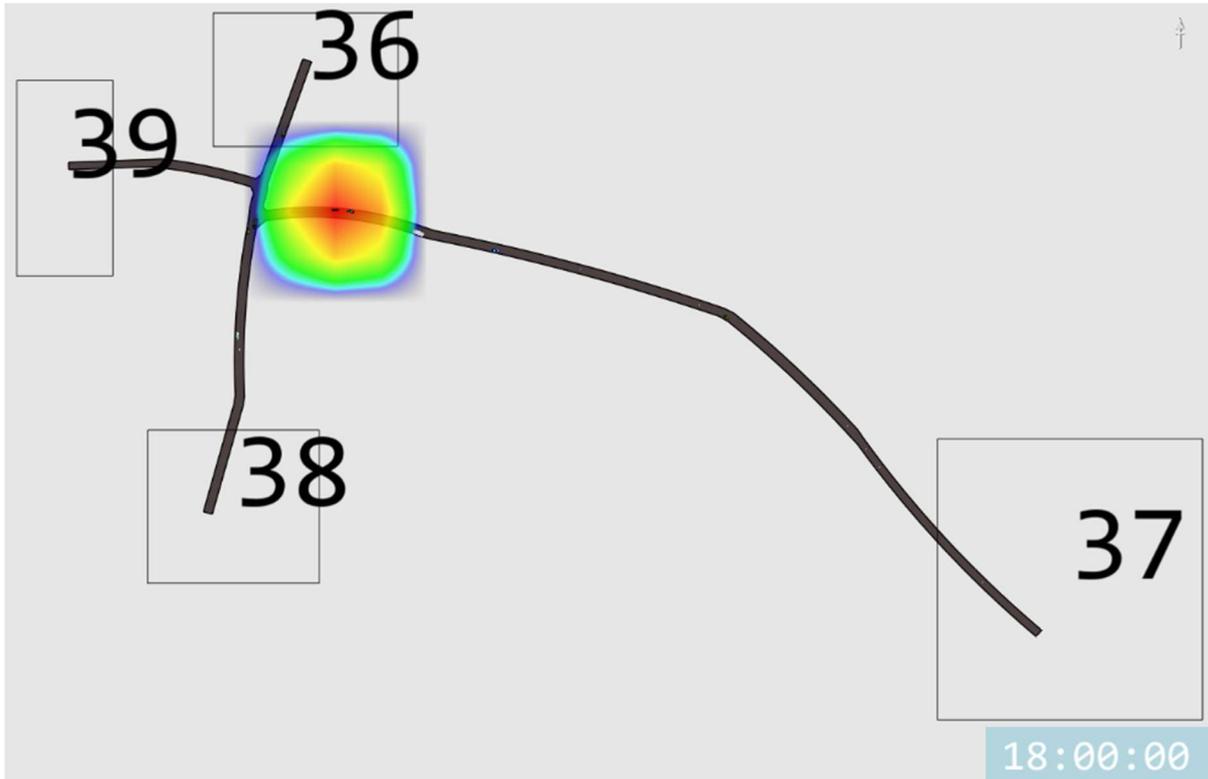


Figure 5.5 – Do Something 500 – Congestion in Cranborne after PM Peak

Do Something 1000 option



Figure 5.6 – Do Something 1000 – Congestion in Alderholt during AM Peak



Figure 5.7 – Do Something 1000 – Congestion in Alderholt after AM Peak



Figure 5.8 – Do Something 1000 – Congestion in Alderholt during PM Peak

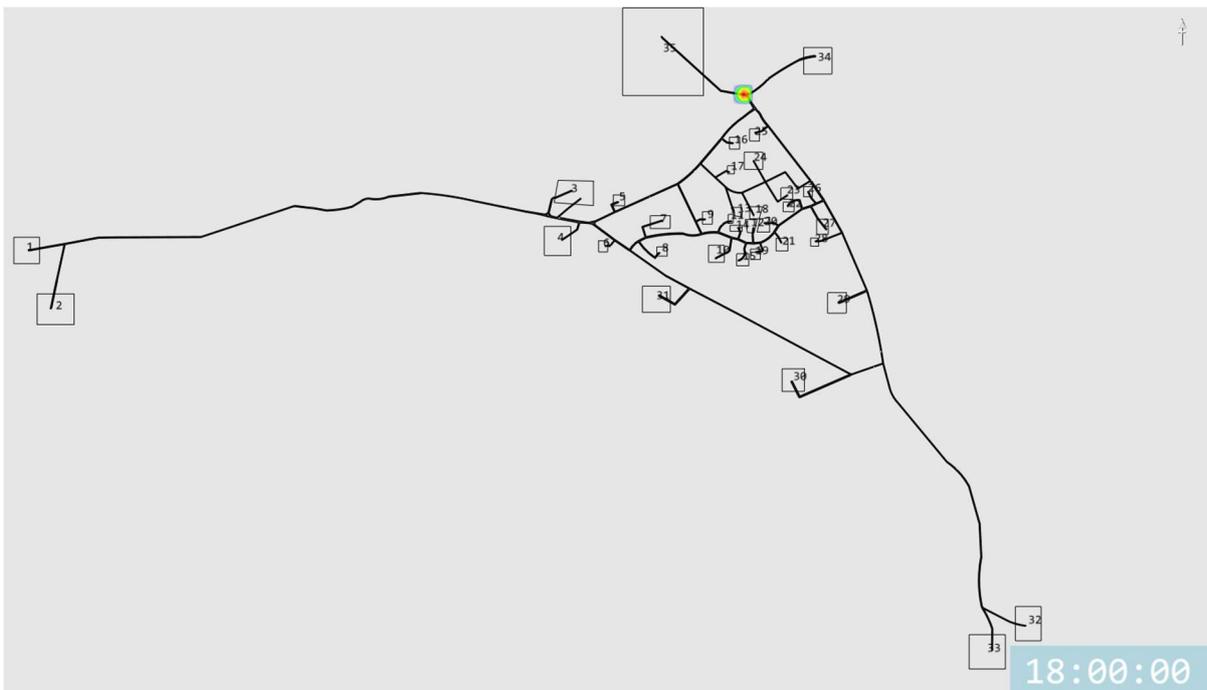


Figure 5.9 – Do Something 1000 – Congestion in Alderholt after PM Peak

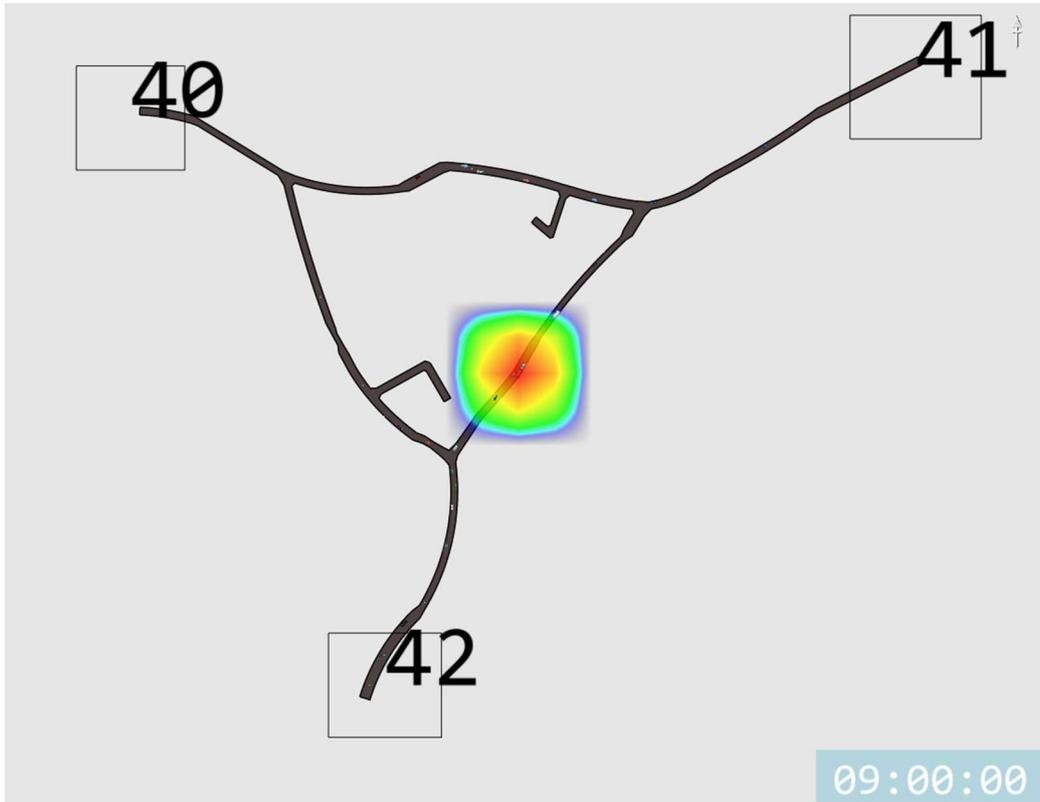


Figure 5.10 – Do Something 1000 – Congestion in Fordingbridge after AM Peak

Do Something 2500 option with roundabout



Figure 5.11 – Do Something 2500 w/Rbt – Congestion in Alderholt during AM Peak



Figure 5.12 – Do Something 2500 w/Rbt – Congestion in Alderholt after AM Peak



Figure 5.13 – Do Something 2500 w/Rbt – Congestion in Alderholt during PM Peak



Figure 5.14 – Do Something 2500 w/Rbt – Congestion in Alderholt after PM Peak

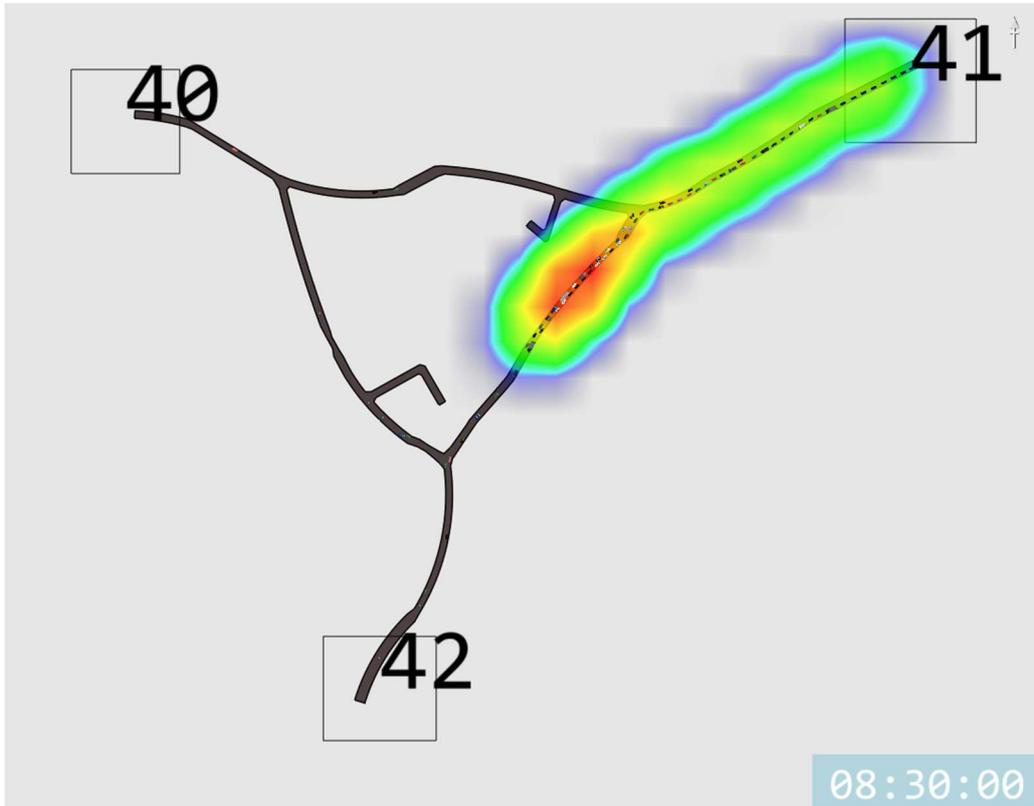


Figure 5.15 – Do Something 2500 w/Rbt – Congestion in Fordingbridge during AM Peak

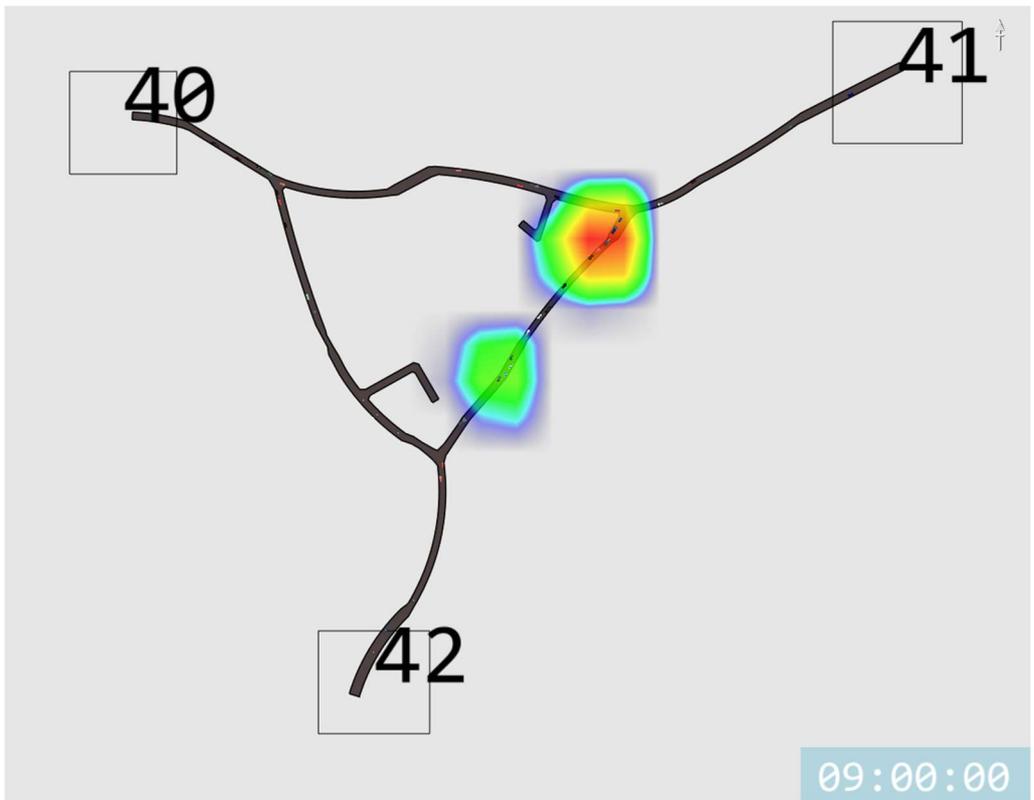


Figure 5.16 – Do Something 2500 w/Rbt – Congestion in Fordingbridge after AM Peak

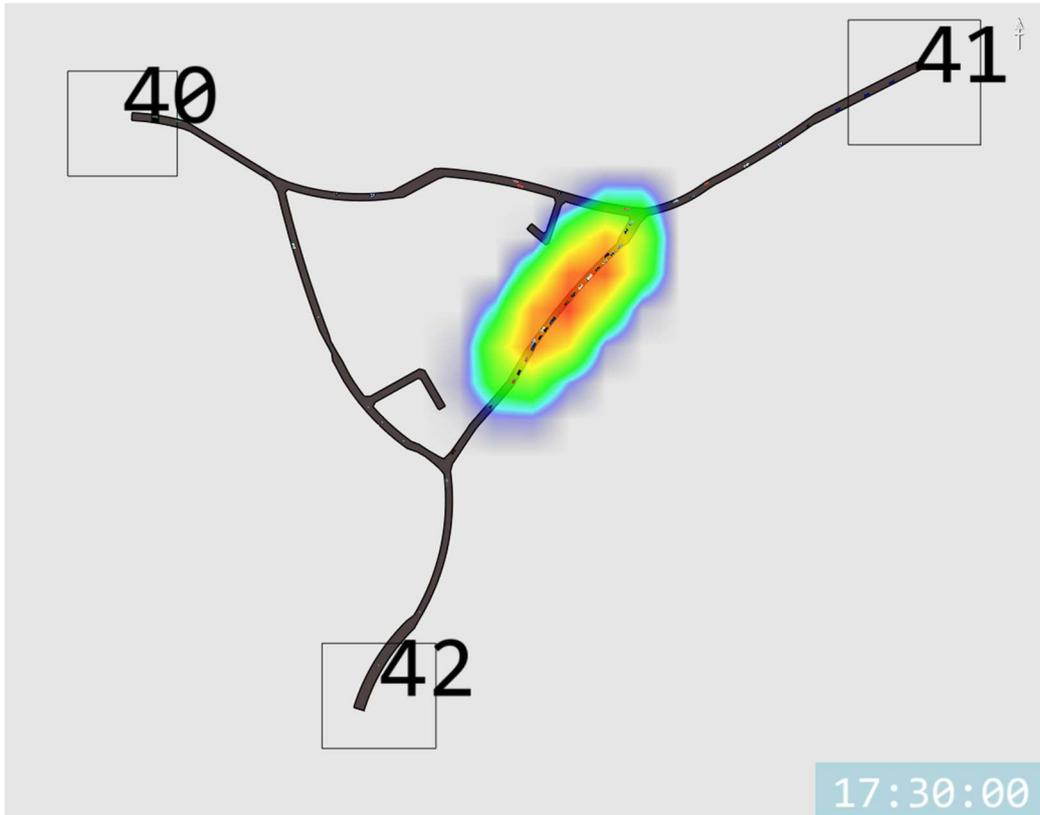


Figure 5.17 – Do Something 2500 w/Rbt – Congestion in Fordingbridge during PM Peak

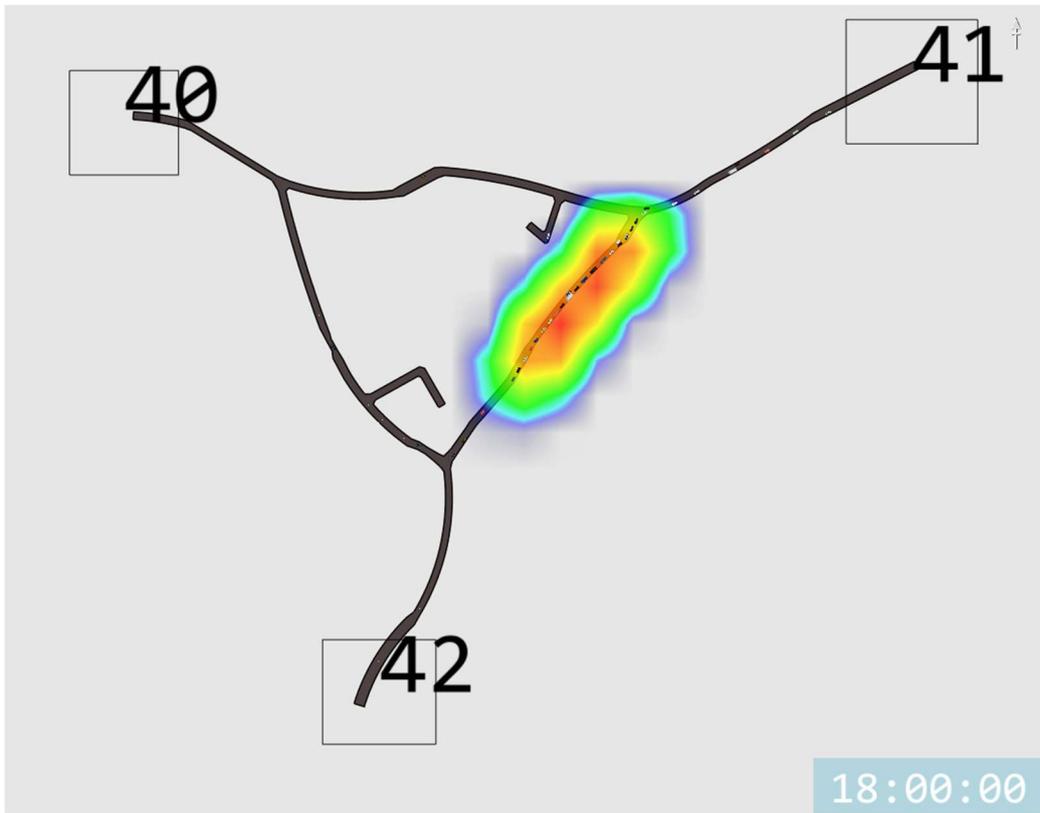


Figure 5.18 – Do Something 2500 w/Rbt – Congestion in Fordingbridge after PM Peak

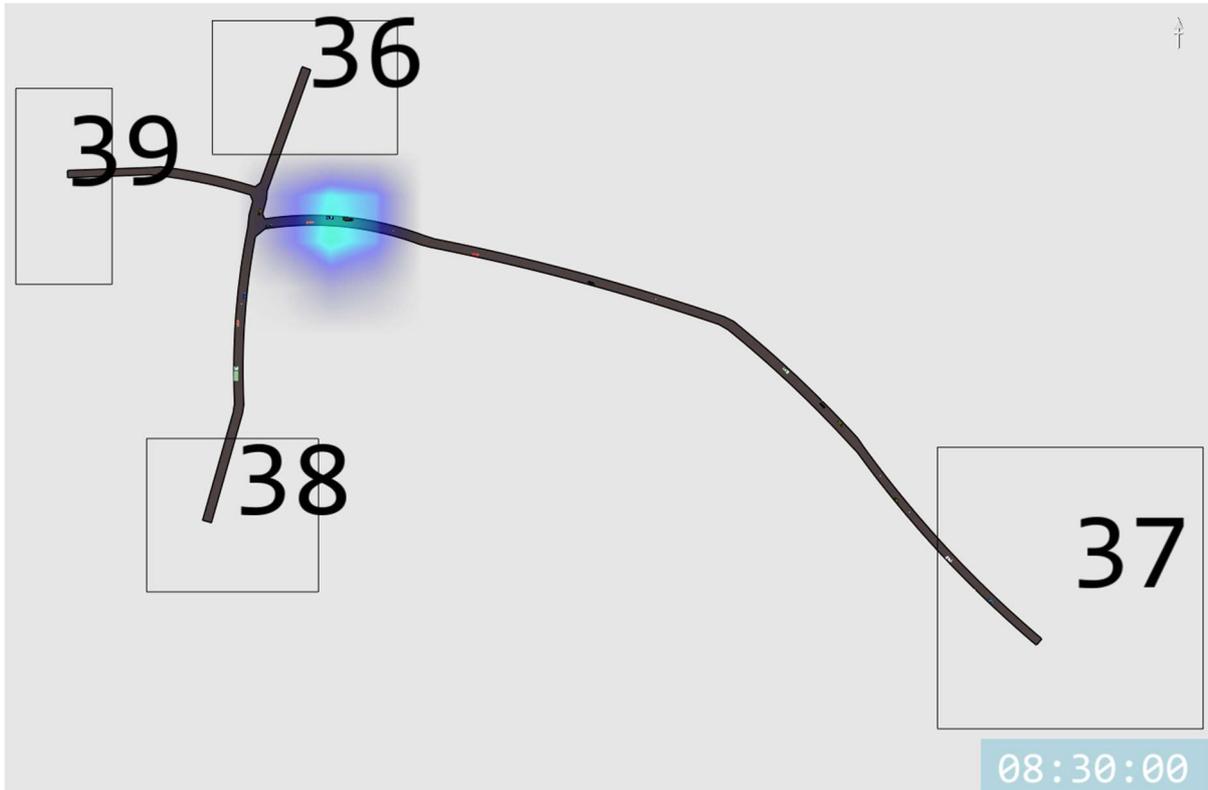


Figure 5.19 – Do Something 2500 w/Rbt – Congestion in Cranborne during AM Peak

Do Minimum Modelled Flows

- 5.4 Comparisons between the 2019 Base Year and 2033 Forecast year modelled link flows are illustrated in **Figure 5.20**, **Figure 5.21**, **Figure 5.22**, and **Figure 5.23** for the AM and PM peaks respectively.

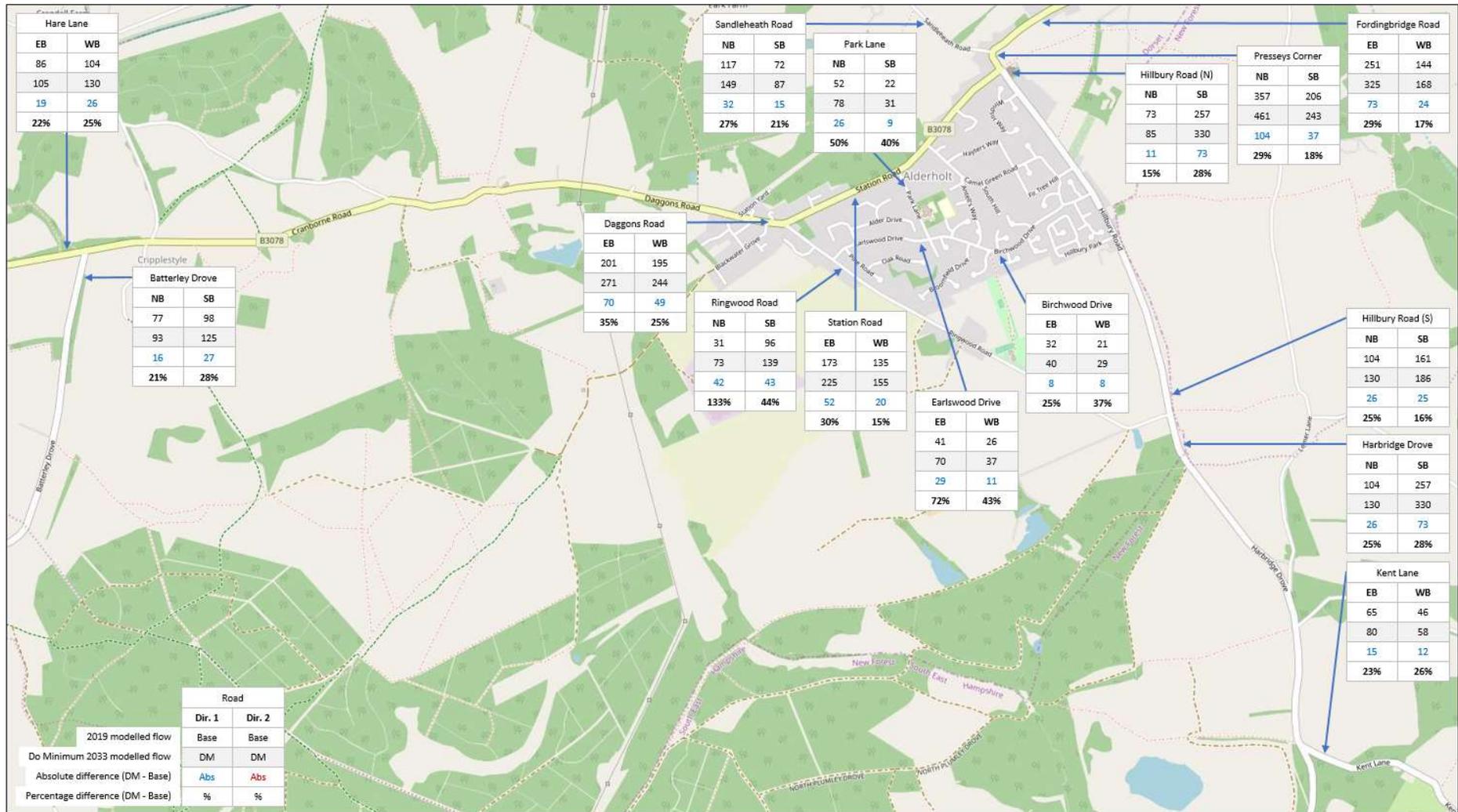


Figure 5.20 – Alderholt Modelled Flows AM (2019 Base and 2033 Do Minimum)

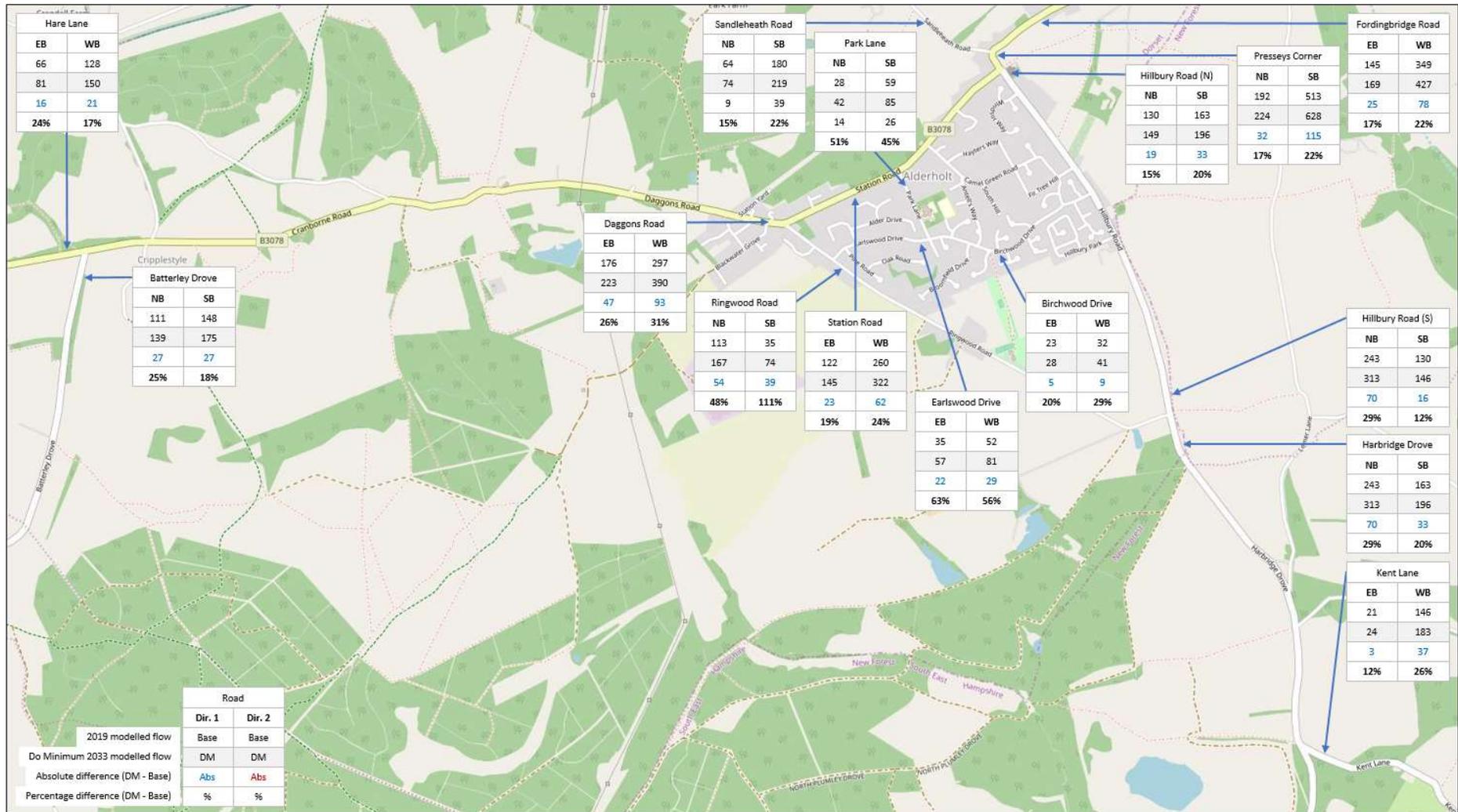


Figure 5.21 – Alderholt Modelled Flows PM (2019 Base and 2033 Do Minimum)



Figure 5.22 – Sub-Model Flows AM (2019 Base and 2033 Do Minimum)



Figure 5.23 – Sub-Model Flows PM (2019 Base and 2033 Do Minimum)

- 5.5 The diagrams show that modelled flows increase on all roads in the Do Minimum 2033 scenario (the predicted background growth scenario). The model trip matrices contain 24% more traffic in 2033 compared with 2019 which is reflected in the flow comparison diagrams.
- 5.6 In the AM and PM peak hours, traffic is predicted to increase by approximately 130-140 vehicles on B3078 Daggons Road, 50 vehicles on Sandleheath Road, 100 vehicles on B3078 Fordingbridge Road and 100 vehicles on Harbridge Drive.

Do Something Modelled Flows

- 5.7 Comparisons between the Do Minimum and the Do Something 500 2033 Forecast year modelled link flows are illustrated in **Figure 5.24**, **Figure 5.25**, **Figure 5.26**, and **Figure 5.27** for the AM and PM peaks respectively. Comparisons between the Do Minimum and the Do Something 1000 scenario are illustrated in **Figure 5.28**, **Figure 5.29**, **Figure 5.30**, and **Figure 5.31**. Comparisons between the Do Minimum and the Do Something 2500 scenario are illustrated in **Figure 5.32**, **Figure 5.33**, **Figure 5.34**, and **Figure 5.35**.

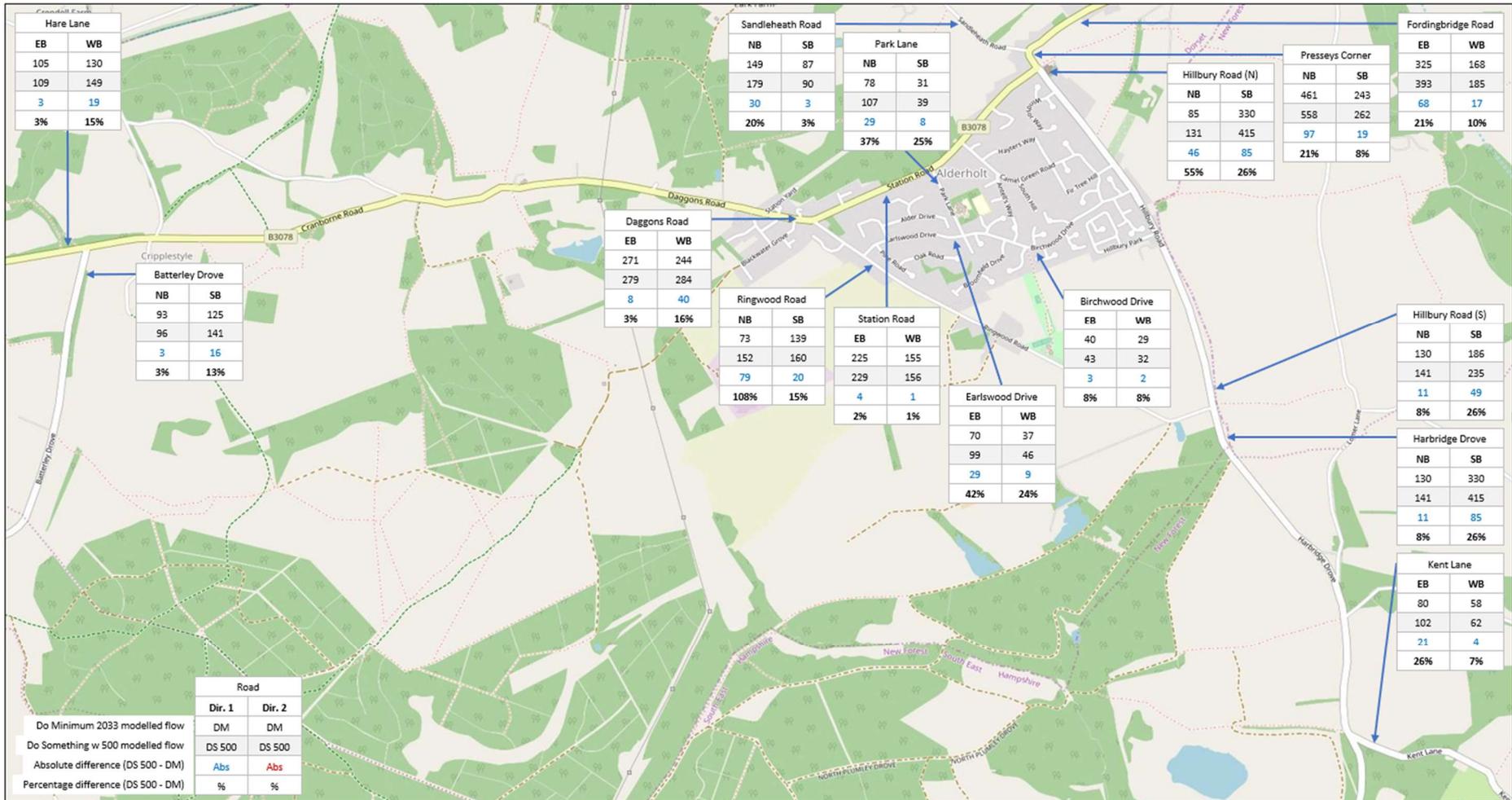


Figure 5.24 – Alderholt Modelled Flows AM (0800-0900) (Do Minimum vs DS 500 Additional Dwellings)

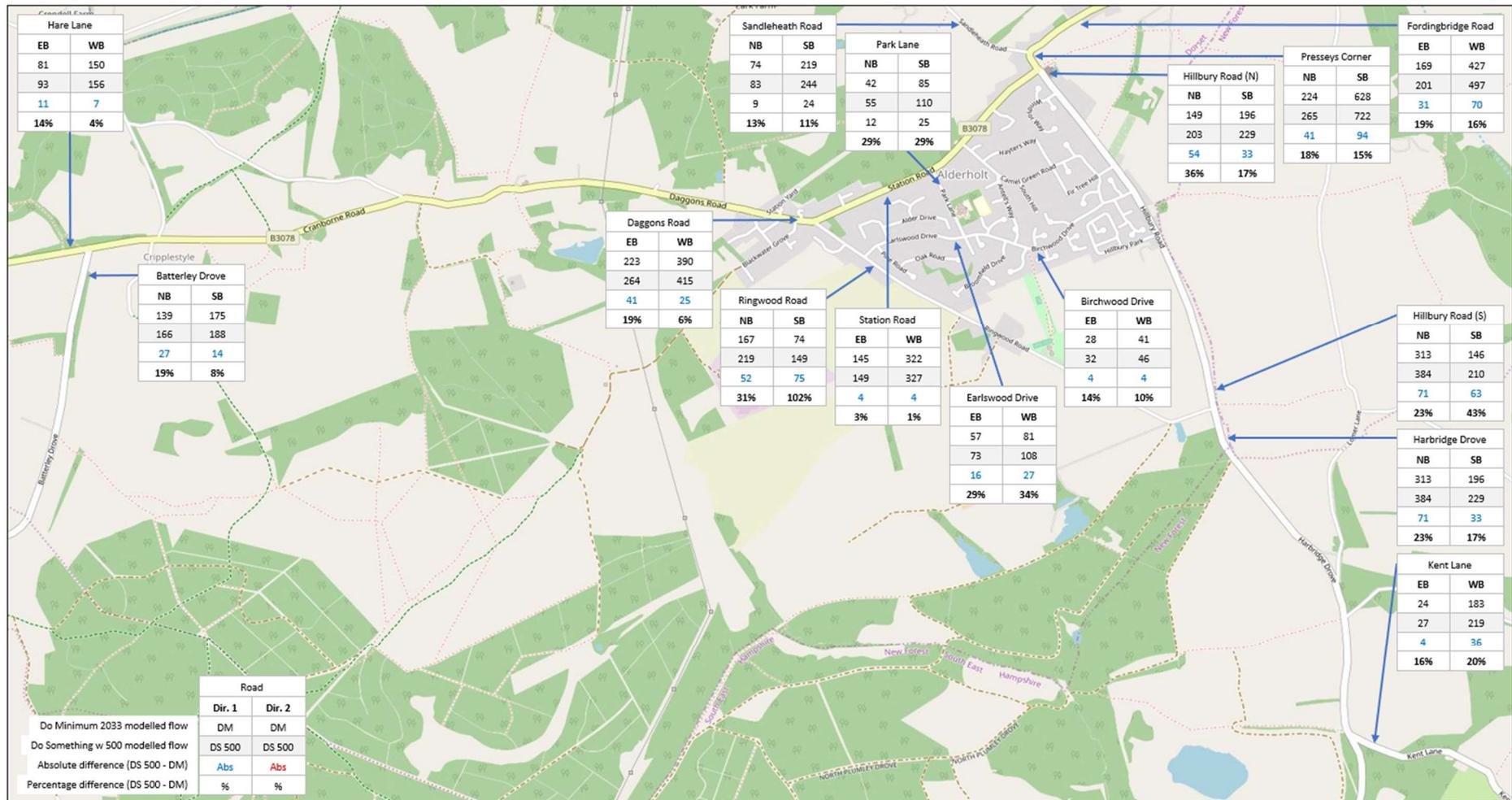


Figure 5.25 – Alderholt Modelled Flows PM (1700-1800) (Do Minimum vs DS 500 Additional Dwellings)



Figure 5.26 – Sub-Model Flows AM (0800-0900) (Do Minimum vs DS 500 Additional Dwellings)

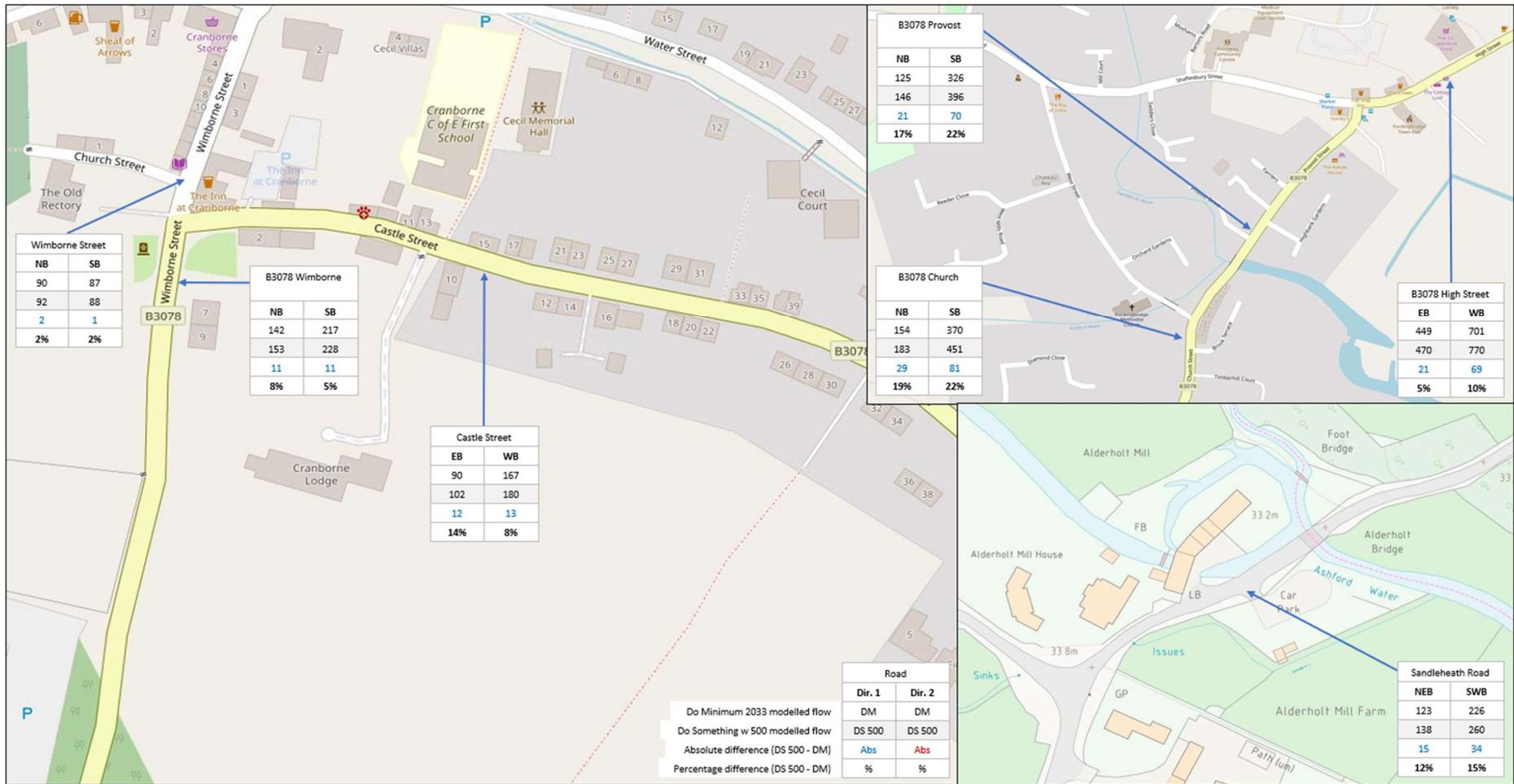


Figure 5.27 – Sub-Model Flows PM (1700-1800) (Do Minimum vs DS 500 Additional Dwellings)

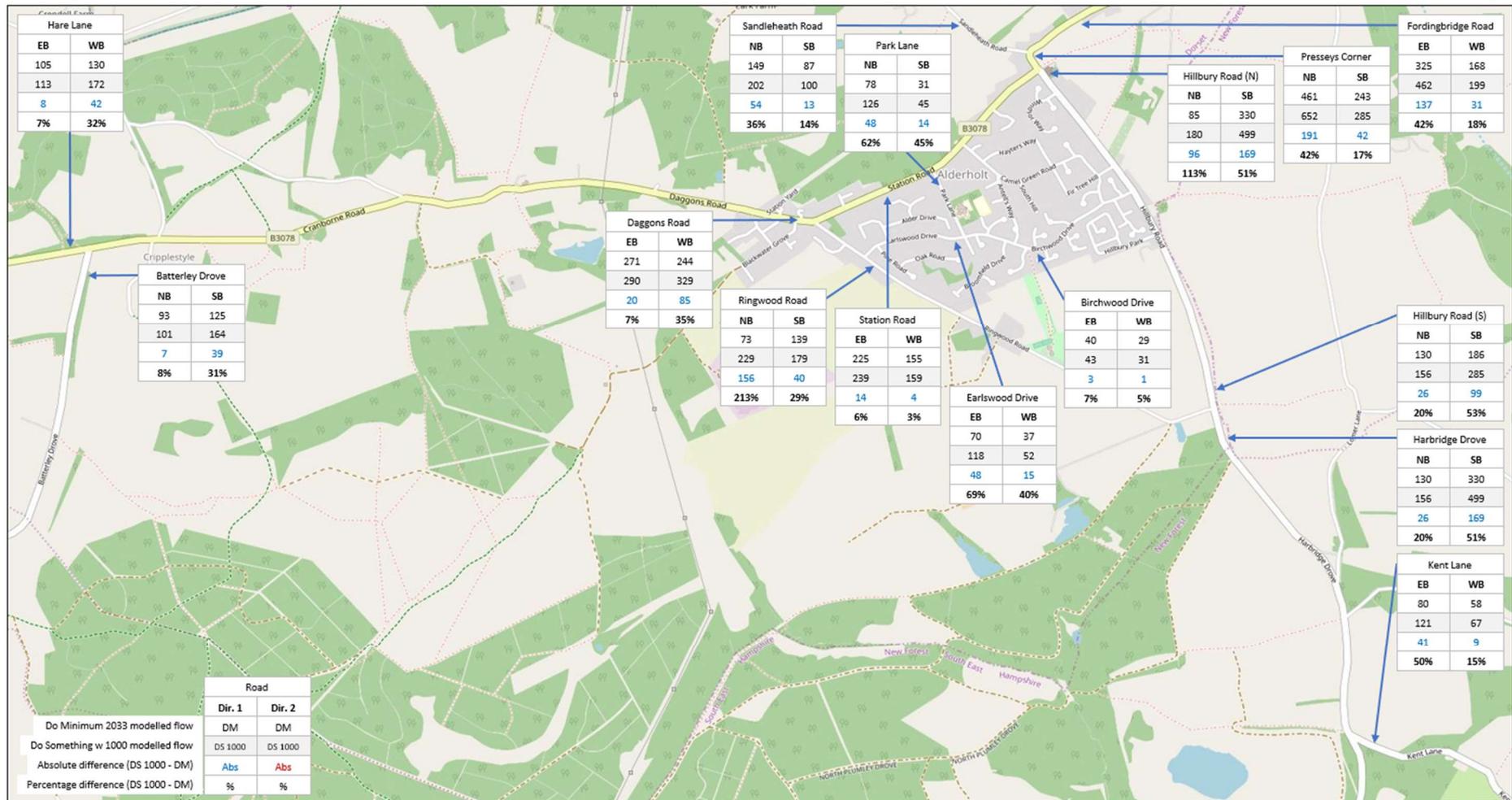


Figure 5.28 – Alderholt Modelled Flows AM (0800-0900) (Do Minimum vs DS 1000 Additional Dwellings)

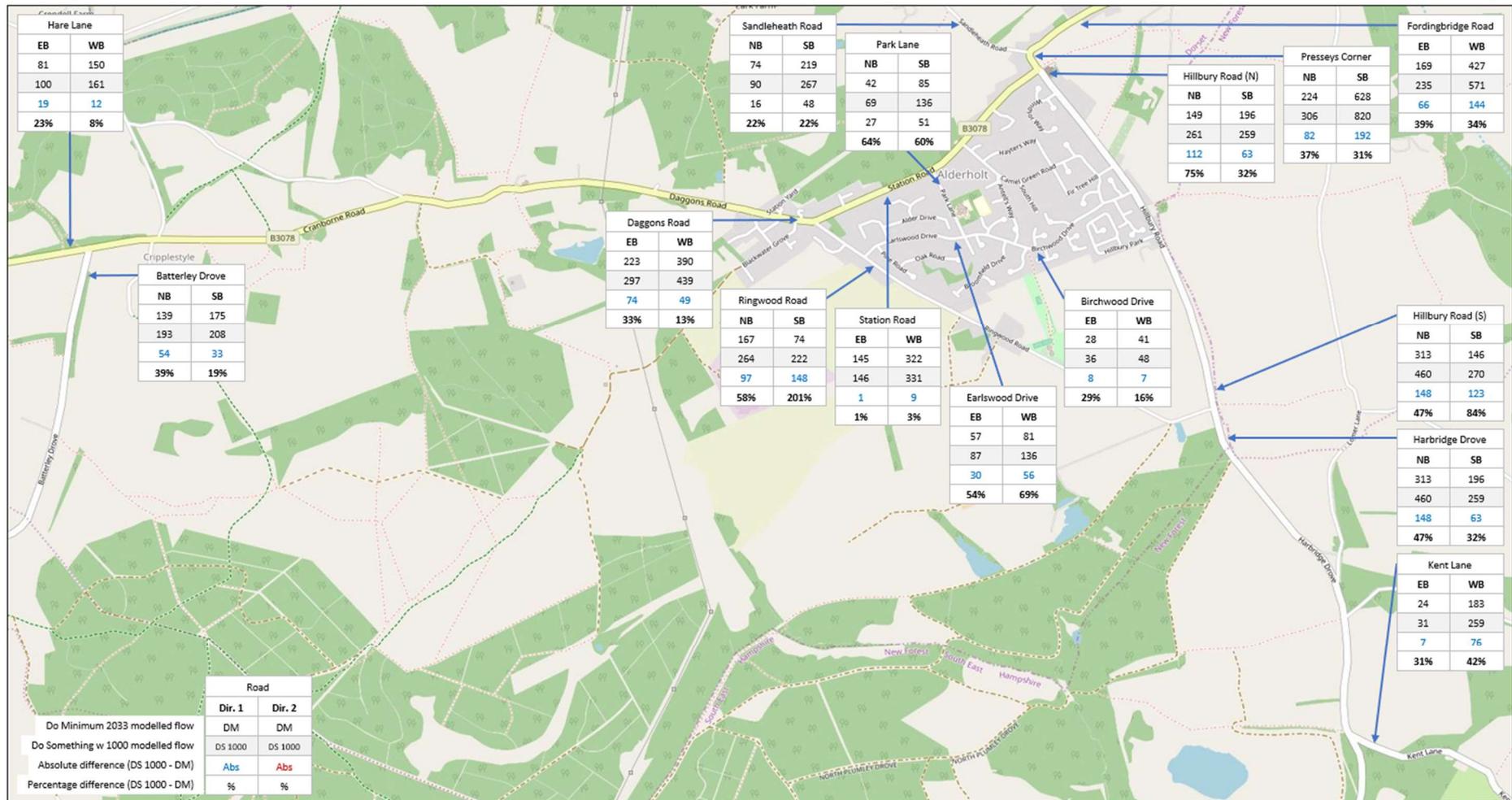


Figure 5.29 – Alderholt Modelled Flows PM (1700-1800) (Do Minimum vs DS 1000 Additional Dwellings)

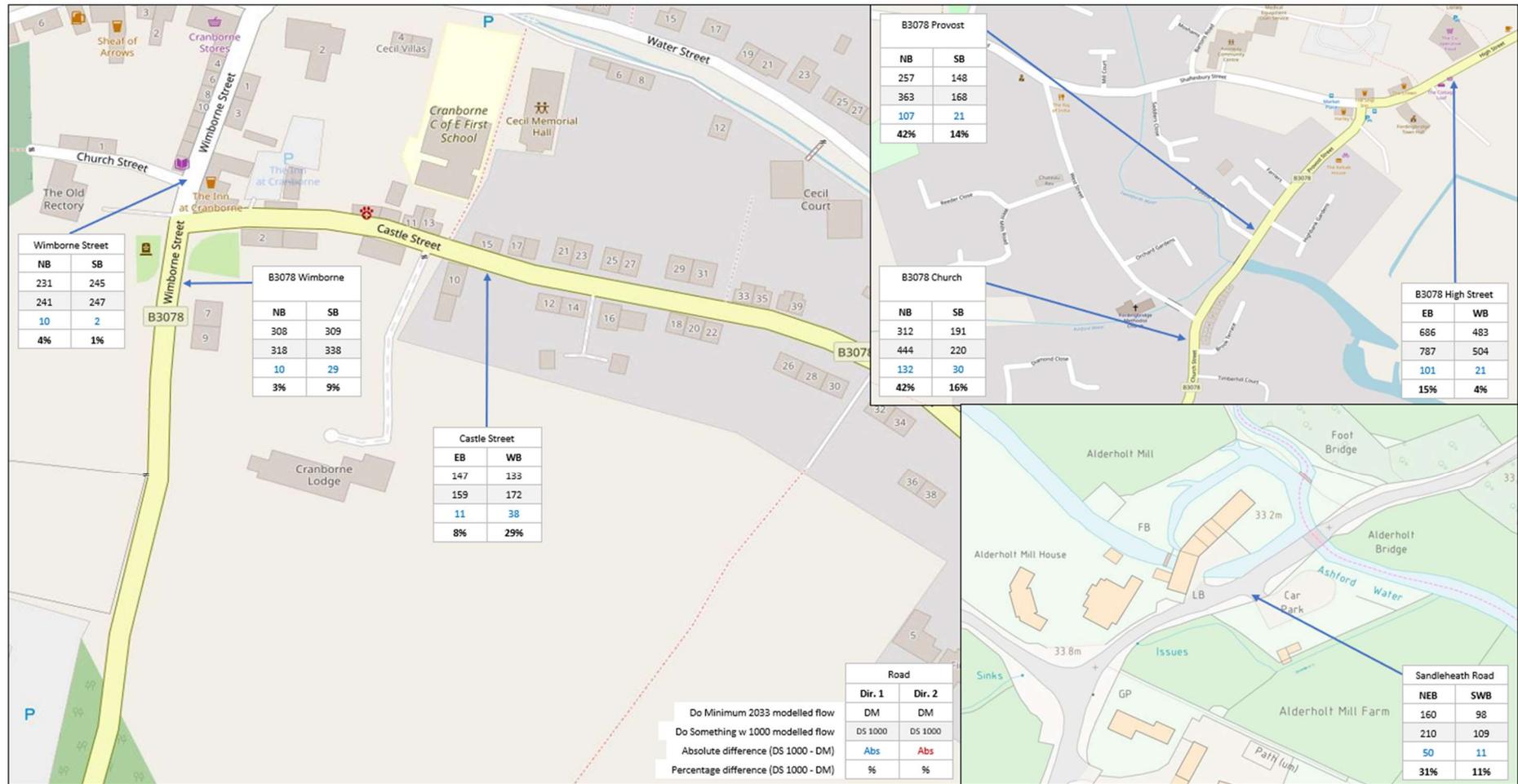


Figure 5.30 – Sub-Model Flows AM (0800-0900) (Do Minimum vs DS 1000 Additional Dwellings)



Figure 5.31 – Sub-Model Flows PM (1700-1800) (Do Minimum vs DS 1000 Additional Dwellings)

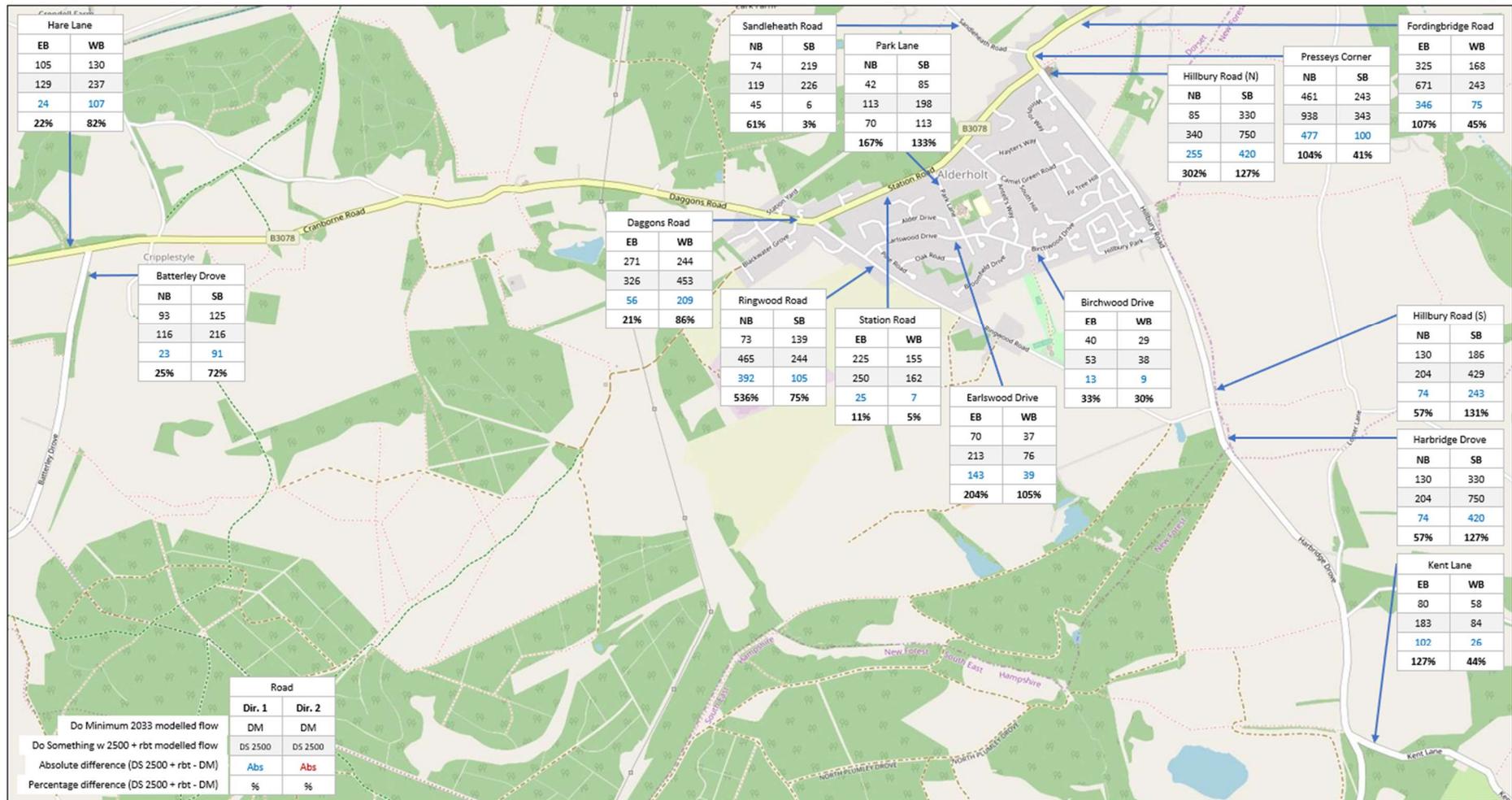


Figure 5.32 – Alderholt Modelled Flows AM (0800-0900) (Do Minimum vs DS 2500 Additional Dwellings)

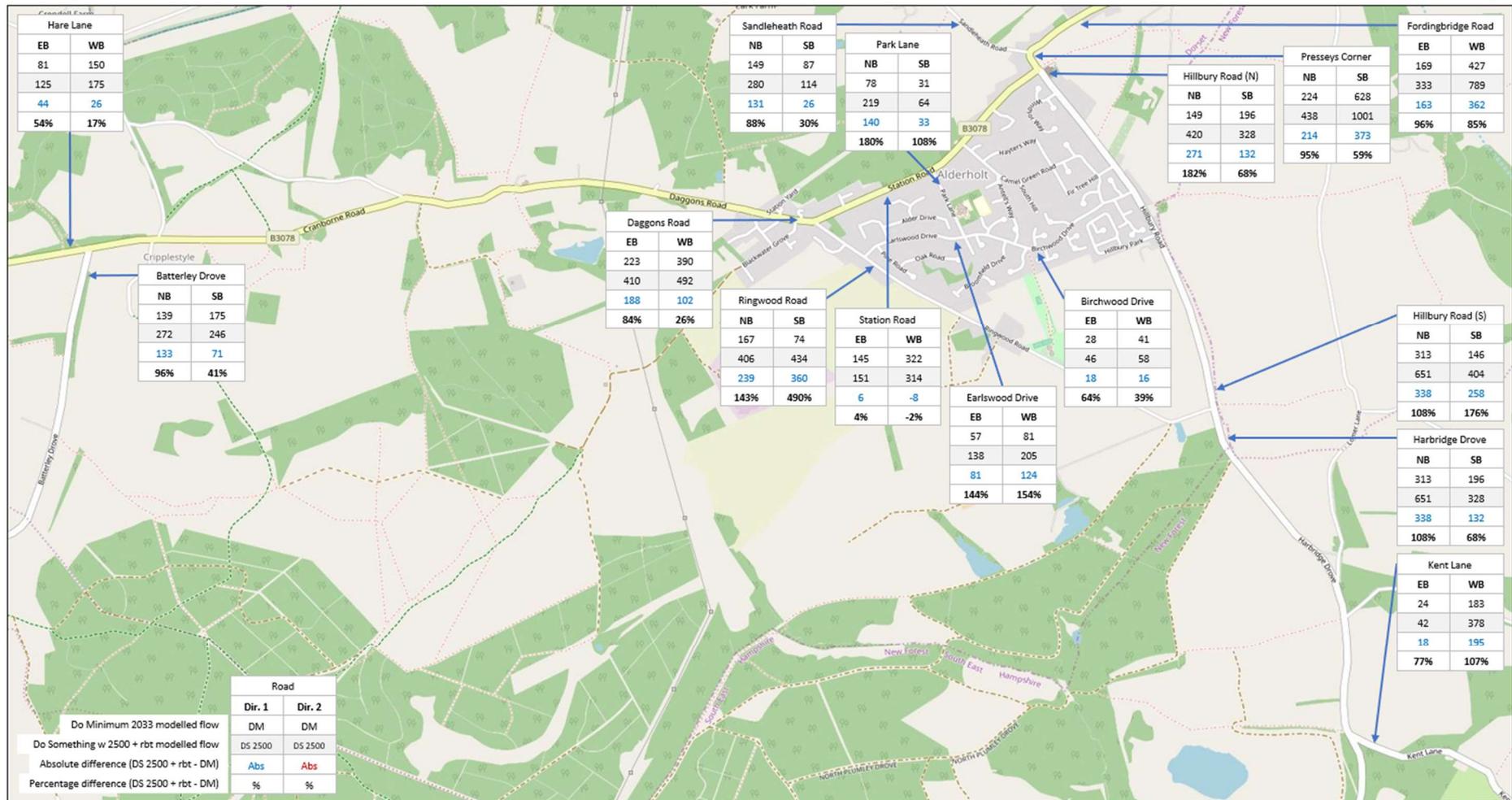


Figure 5.33 – Alderholt Modelled Flows PM (1700-1800) (Do Minimum vs DS 2500 Additional Dwellings)

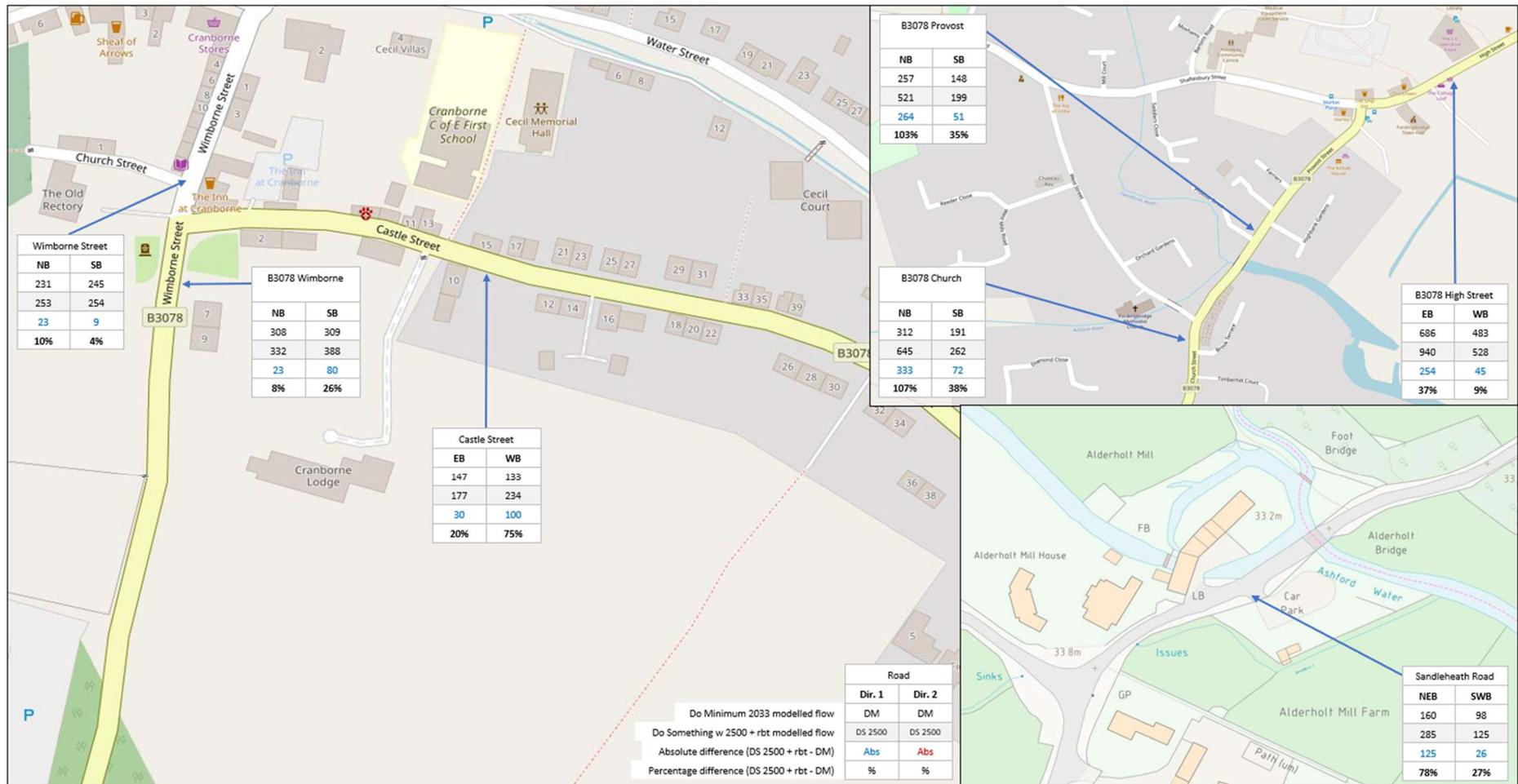


Figure 5.34 – Sub-Model Flows AM (0800-0900) (Do Minimum vs DS 2500 Additional Dwellings)



Figure 5.35 – Sub-Model Flows PM (1700-1800) (Do Minimum vs DS 2500 Additional Dwellings)

- 5.8 The diagrams show that modelled flows increase on most roads from Do Something 500 to Do Something 1000 and then Do Something 2500 2033 scenario. Where there is a decrease of 1 or 2 vehicles this is most likely due to traffic being released in the hour before or after the peak-hour period.
- 5.9 In the AM and PM peak hours, with 500 additional dwellings, traffic is predicted to increase by further 50 vehicles on B3078 Daggons Road, 35 vehicles on Sandleheath Road, 85 vehicles on B3078 Fordingbridge Road and 100 vehicles on Harbridge Drive.

Journey Times

- 5.10 The time taken for vehicles to travel along three routes have been extracted from the model. The routes are shown in **Figure 5.36** and listed in **Table 5.2**.

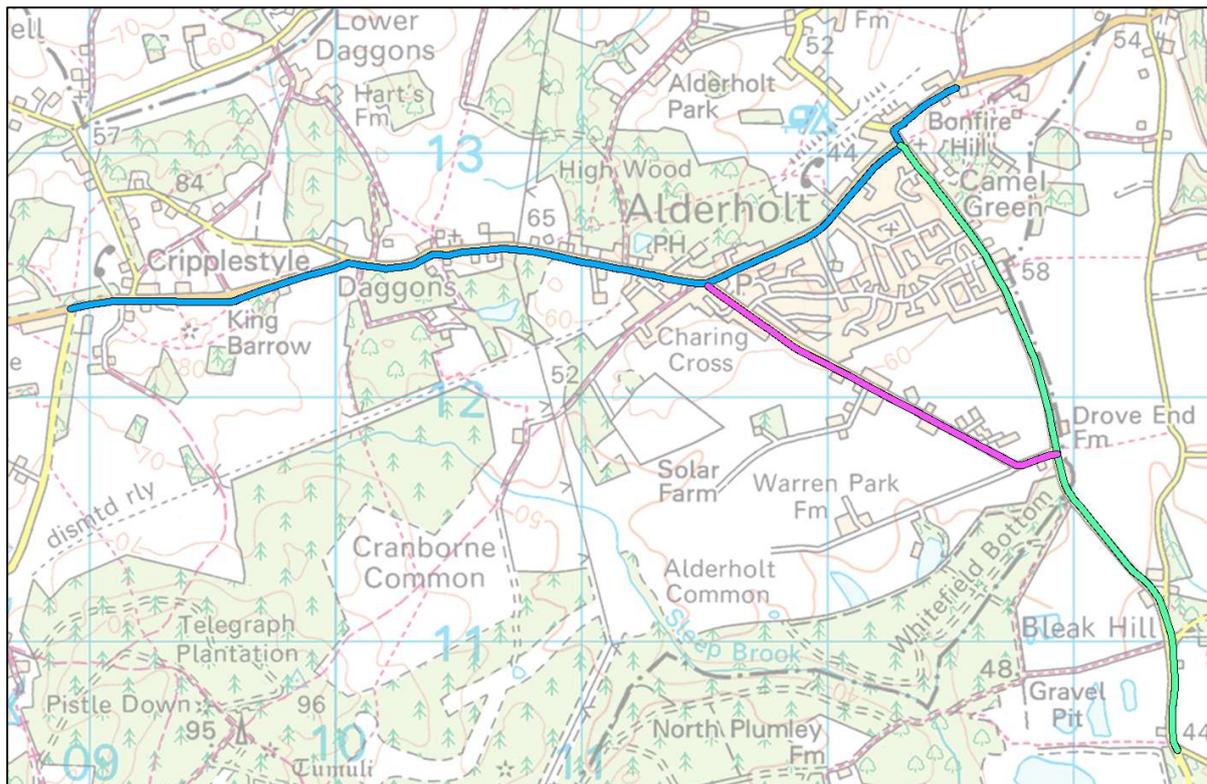


Figure 5.36 – Map of Journey Time Routes

Route	Direction	From	To
1. B3078	Eastbound	Batterley Drove	Fordingbridge Road
	Westbound	Fordingbridge Road	Batterley Drove
2. Ringwood Road	Northbound	Harbridge Drove	B3078
	Southbound	B3078	Harbridge Drove
3. Hillbury Road	Northbound	Kent Lane	B3078
	Southbound	B3078	Kent Lane

Table 5.2 – Journey Time Routes

- 5.11 Modelled journey times for each route are shown in **Appendix A**.

- 5.12 In most routes, the quickest journey times were the 2019 Base model and the slowest times were the 2033 Do Something 2500 modelled scenario.
- 5.13 The 500 and 1000 Do Something scenarios tend to follow a similar profile to the Base.
- 5.14 For the Do Something 2500 scenario some slowing down at major junctions along the route can be seen. With 2500 additional dwellings, northbound traffic on Hillbury Road is delayed approaching Pressey's Corner in the AM peak and southbound traffic delayed approaching Ringwood Road in the PM peak.
- 5.15 For the satellite models, journey times have been extracted between the entry and exit zones. The results are shown in **Table 5.3** for the AM peak and **Table 5.4** for the PM peak.

From Zone	To Zone	Base (s)	2033 DM	2033 DS500	2033 DS1000	2033 DS2500
41	42	59.4	62.0	67.0	70.6	502.2
42	41	61.5	64.8	66.0	68.1	121.1
43	44	14.8	15.7	16.2	16.2	18.5
44	43	13.2	13.2	13.2	13.3	13.3
37	38	60.6	61.1	61.2	61.6	62.8
38	37	62.5	63.6	65.6	69.4	77.7

Table 5.3 – Average Journey Times for Satellite Models (AM Peak) in seconds

From Zone	To Zone	Base (s)	2033 DM	2033 DS500	2033 DS1000	2033 DS2500
41	42	56.8	58.6	59.7	61.7	76.4
42	41	59.1	59.6	60.5	60.3	61.8
43	44	14.4	14.8	15.4	15.3	16.5
44	43	13.2	13.2	13.2	13.2	13.2
37	38	60.3	60.6	60.7	60.8	60.9
38	37	61.2	63.8	66.3	66.4	68.6

Table 5.4 – Average Journey Times for Satellite Models (PM Peak) in seconds

- 5.16 The journey times are generally faster in the AM peak across scenarios and get slower as the number of proposed dwellings increases. The main issue appears to be along Provost Street in Fordingbridge in both directions, particularly in the AM peak.

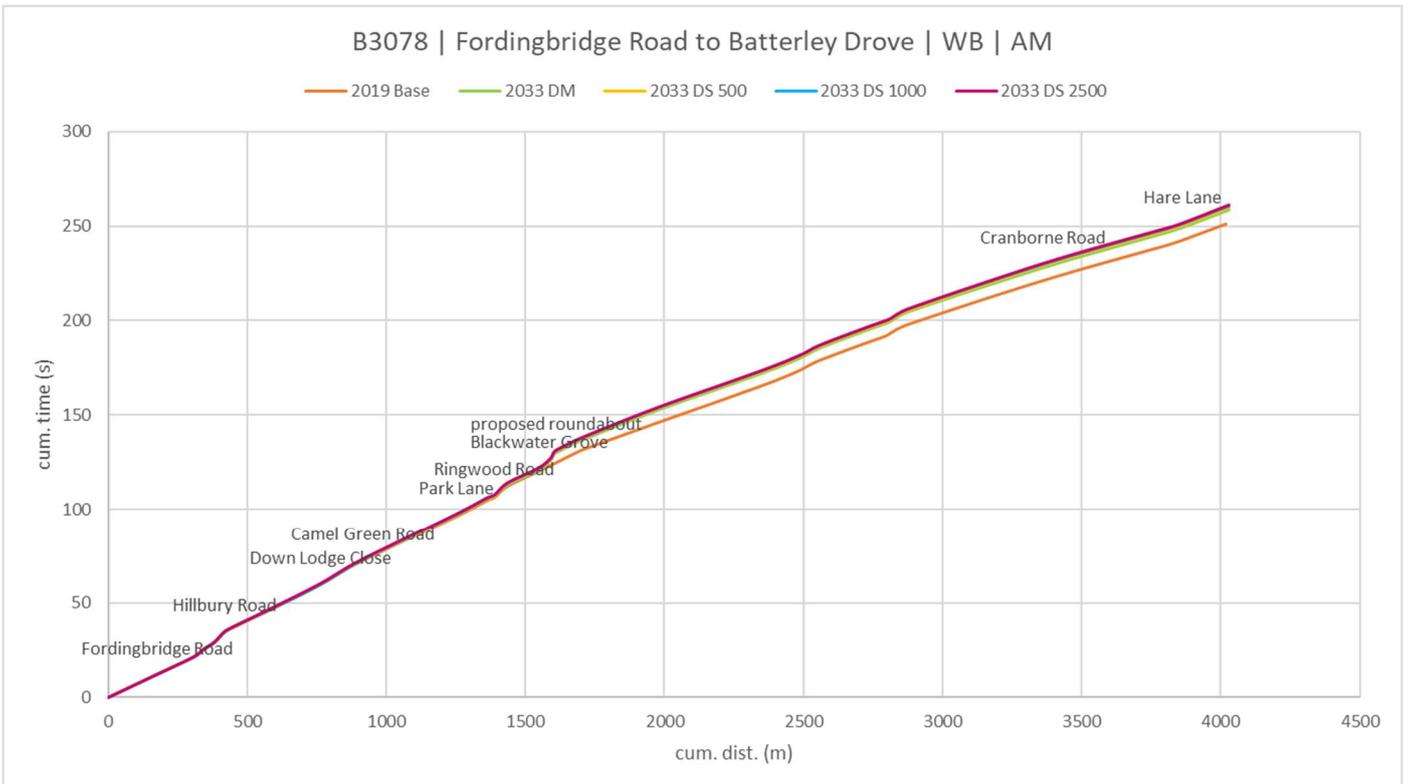
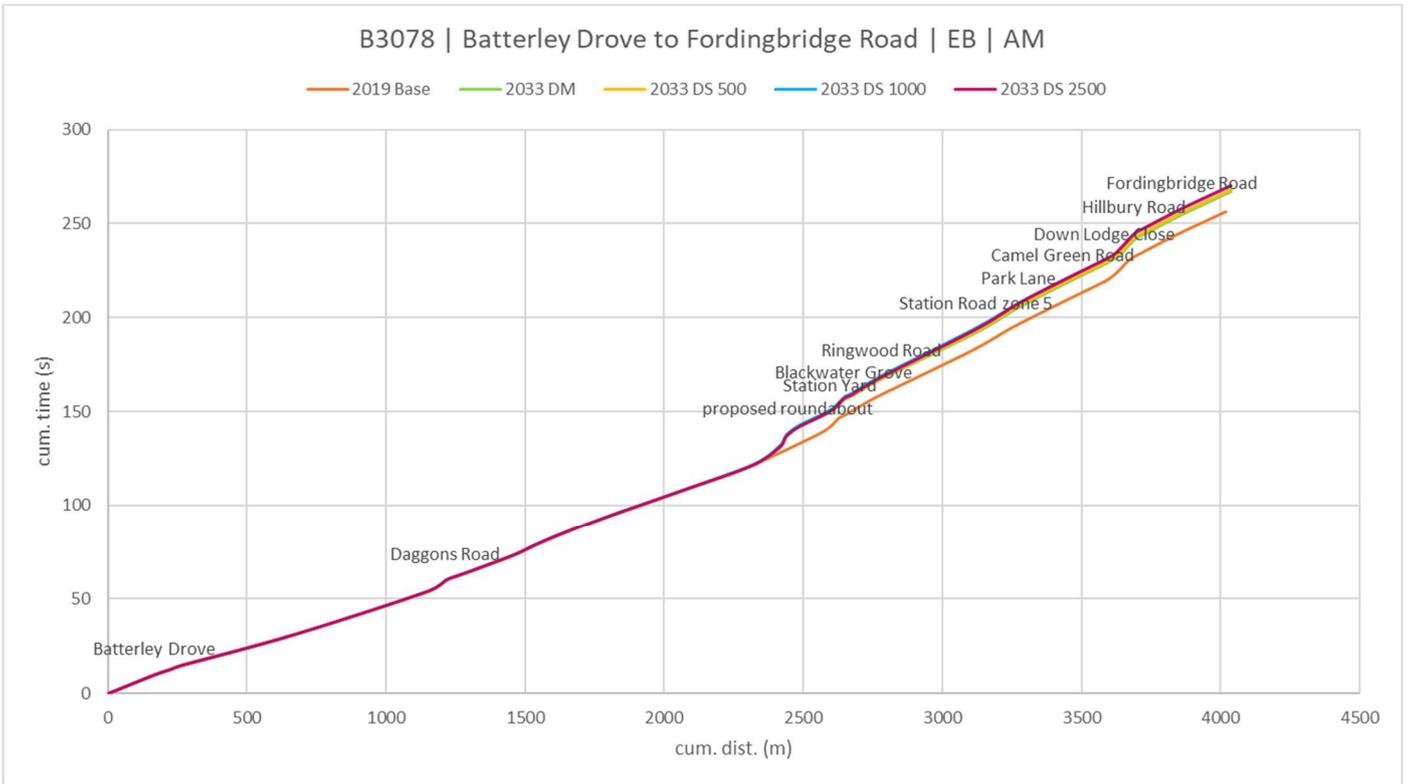
6.0 SUMMARY

- 6.1 Dorset Council's Transportation Modelling Team have developed the Alderholt traffic model using Paramics Discovery Software.
- 6.2 The model has been built following guidelines contained within the Department for Transport's TAG Unit M3.1 – Highway Assignment Modelling, and the Microsimulation Consultancy Good Practice Guide.
- 6.3 Three forecast scenarios were modelled for the year 2033. The Do Minimum scenario shows the predicted background growth and four further scenarios including an additional 500, 1000, and 2500 potential dwellings.
- 6.4 The network used was the same for the Do Minimum, Do Something 500, and Do Something 1000. A roundabout was added at the Ringwood Road/Hillbury Road/Harbridge Road in the Do Something 2500 when it was observed that the priority T-junction was over-capacity and couldn't function with the additional flow.
- 6.5 The results show traffic is predicted to increase by around 24% in the 2033 Do Minimum scenario compared to the 2019 Base matrix and by a further 62-70% if 2500 dwellings were built in Alderholt.
- 6.6 The models highlight the following areas of concern regarding congestion: Pressey's Corner, Ringwood Road/Hillbury Road/Harbridge Drive, and Provost Street in Fordingbridge.
- 6.7 Overall, journey times are seen to increase slightly as the number of dwellings increases. However, in the 2,500 dwelling scenario in the AM peak there are significant delays on Hillbury Road northbound approaching the B3078, Hillbury Road southbound approaching its junction with Ringwood Road. In the PM peak there are delays on Ringwood Road southbound between Earlwsood Drive and the proposed development, Hillbury Road northbound approaching Birchwood Drive, and Hillbury Road southbound approaching its junction with Ringwood Road.
- 6.8 Average journey times for the satellite models indicate the existing layouts could accommodate potential development up to 1000 dwellings but 2500 dwellings would cause congestion on the network.

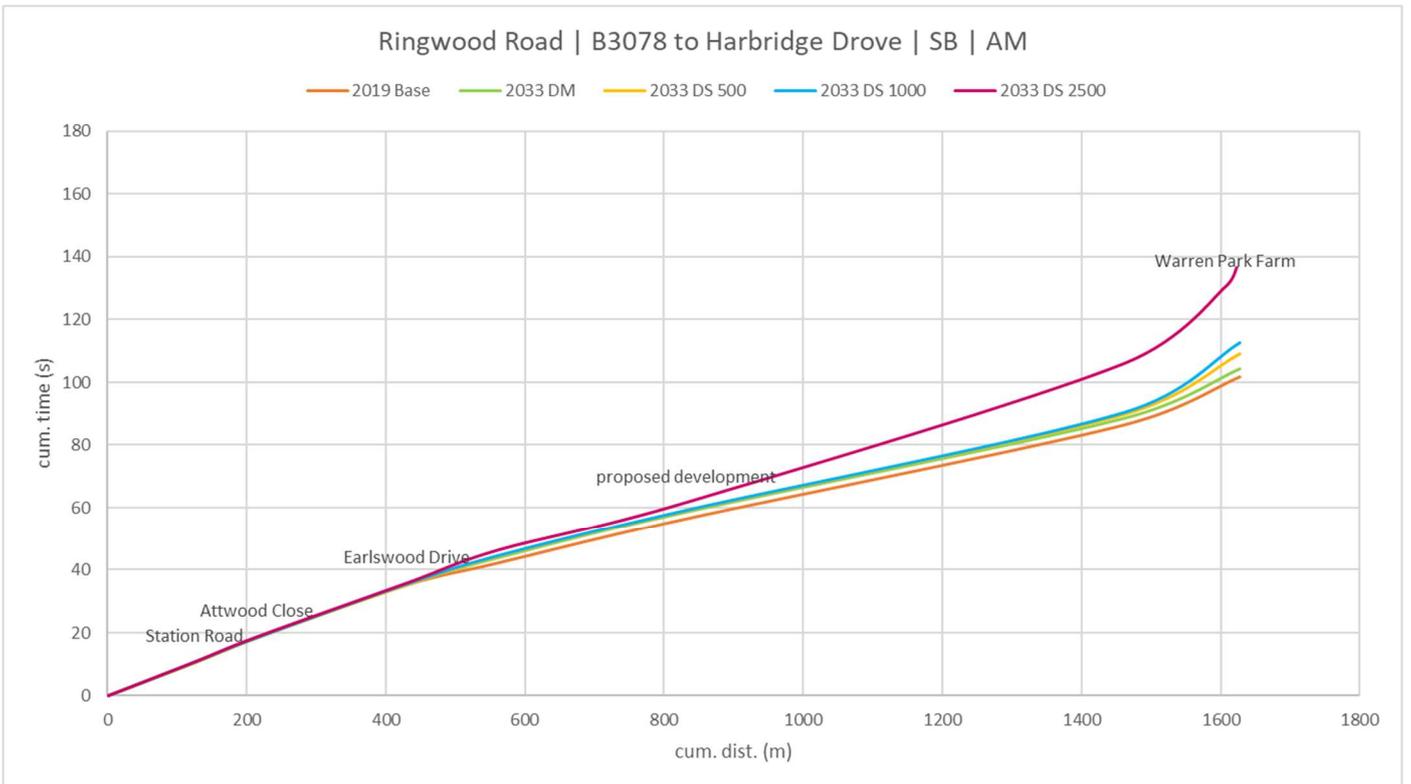
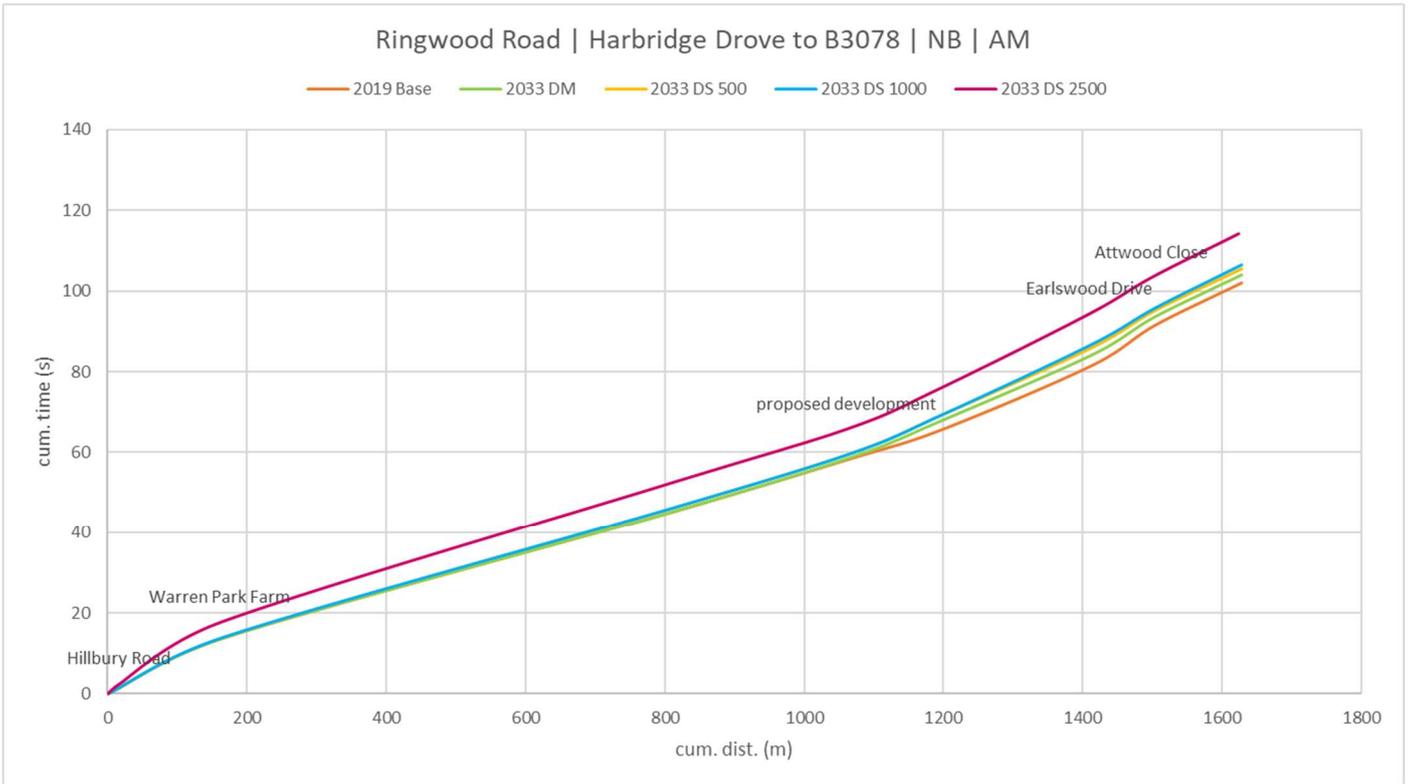
Appendix A

Journey Time Routes Distance vs. Time AM & PM Peaks

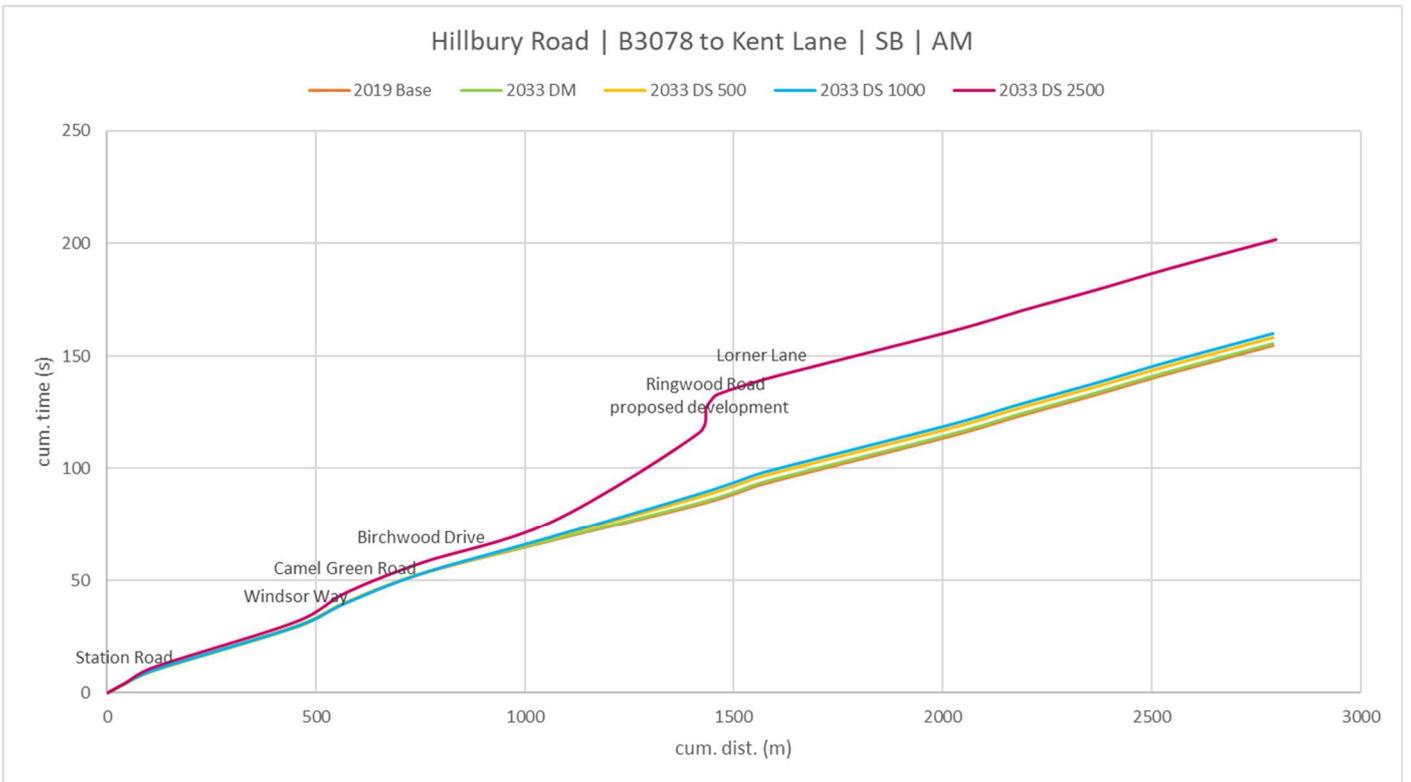
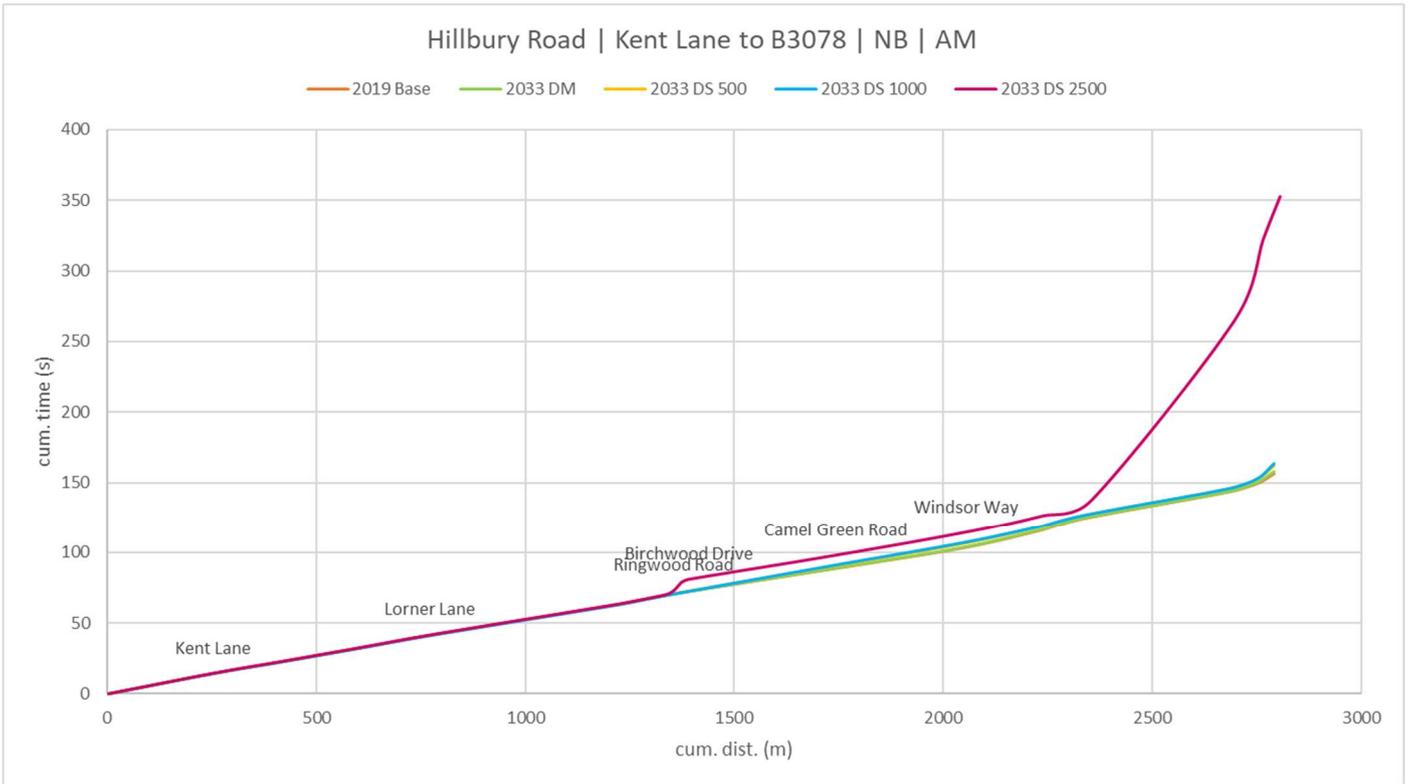
AM Peak



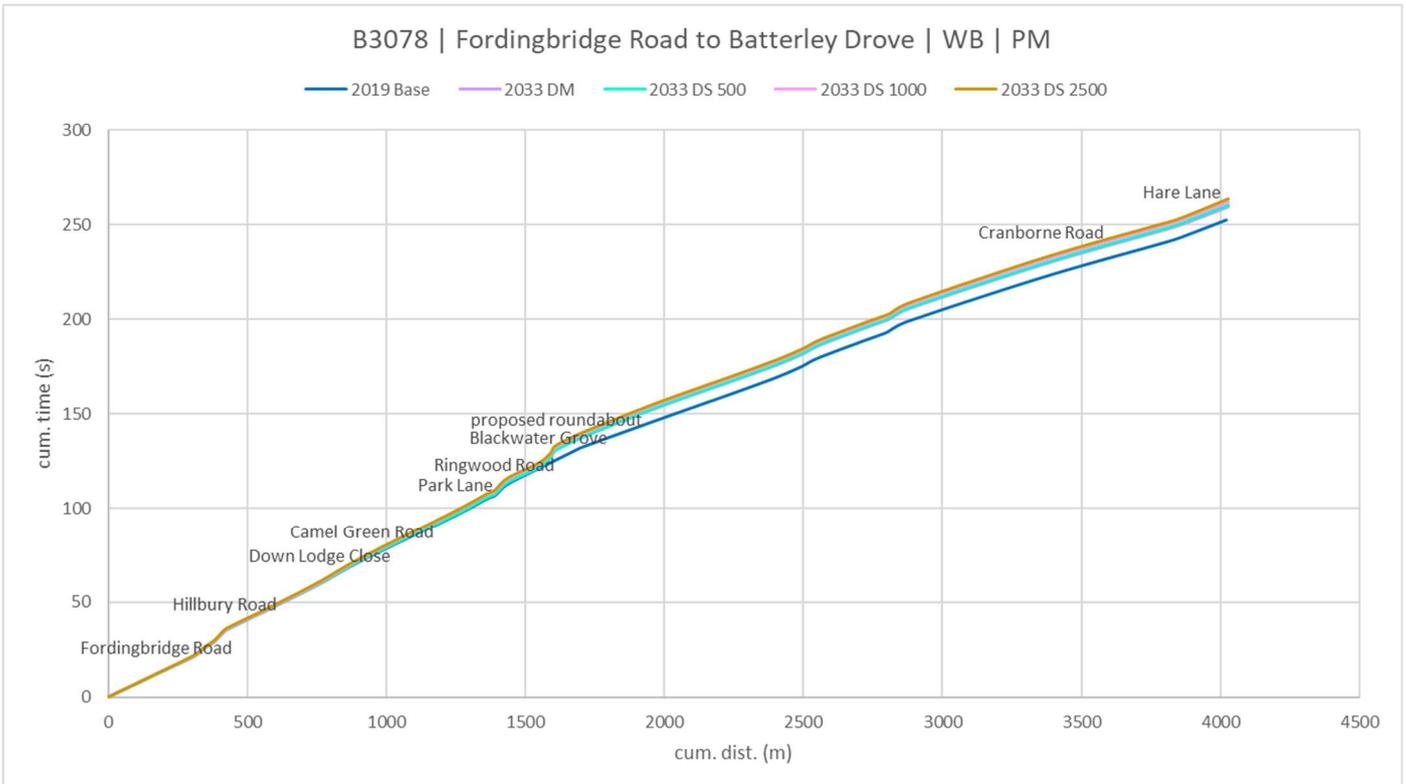
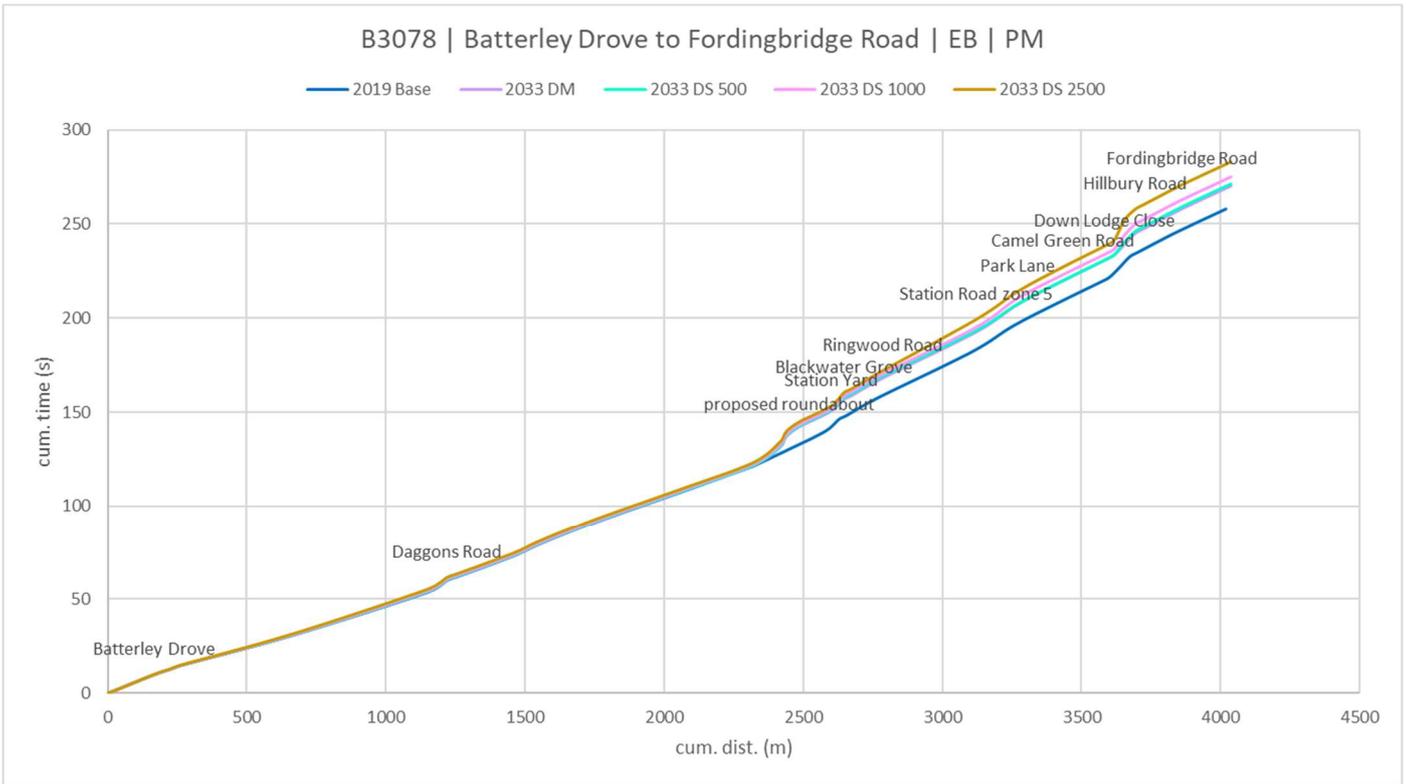
Alderholt Paramics Model 2019 – Forecasting Report



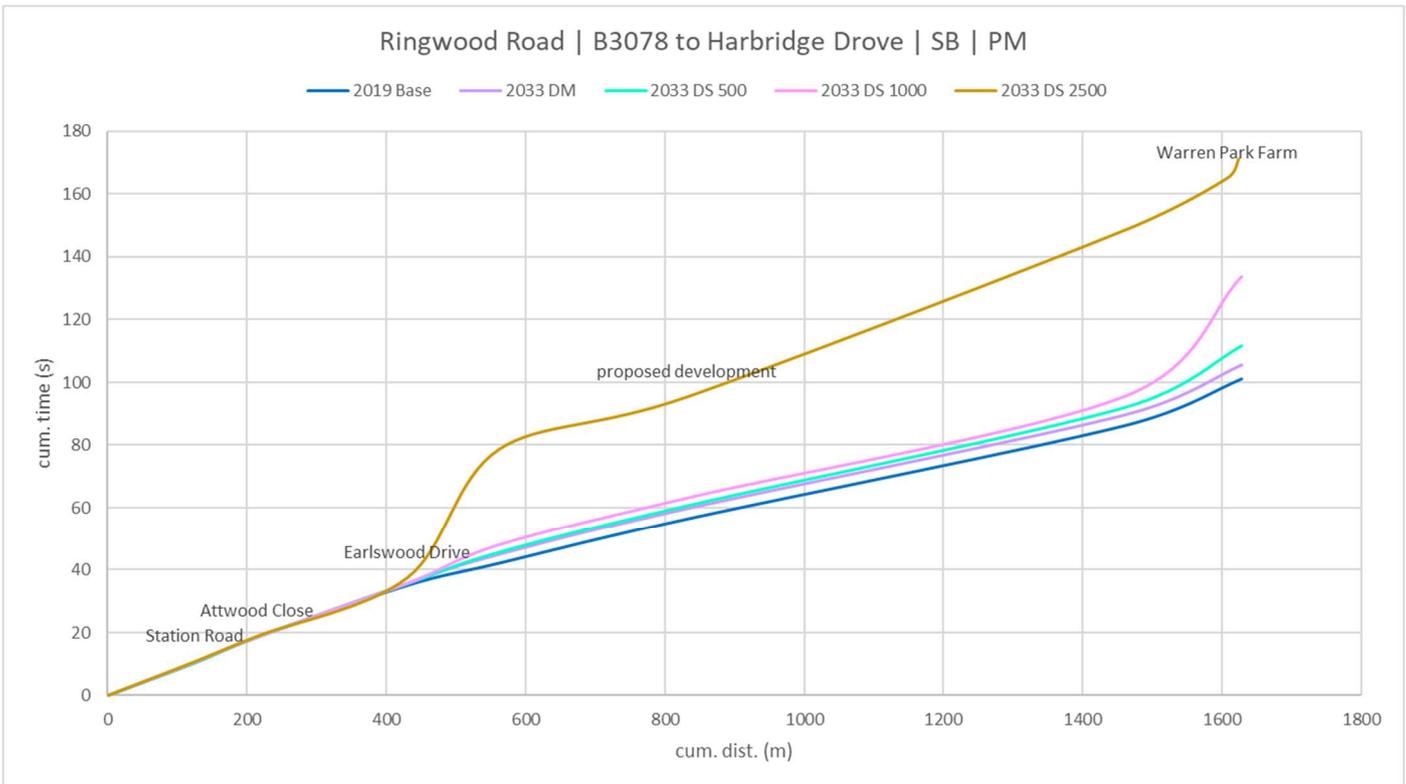
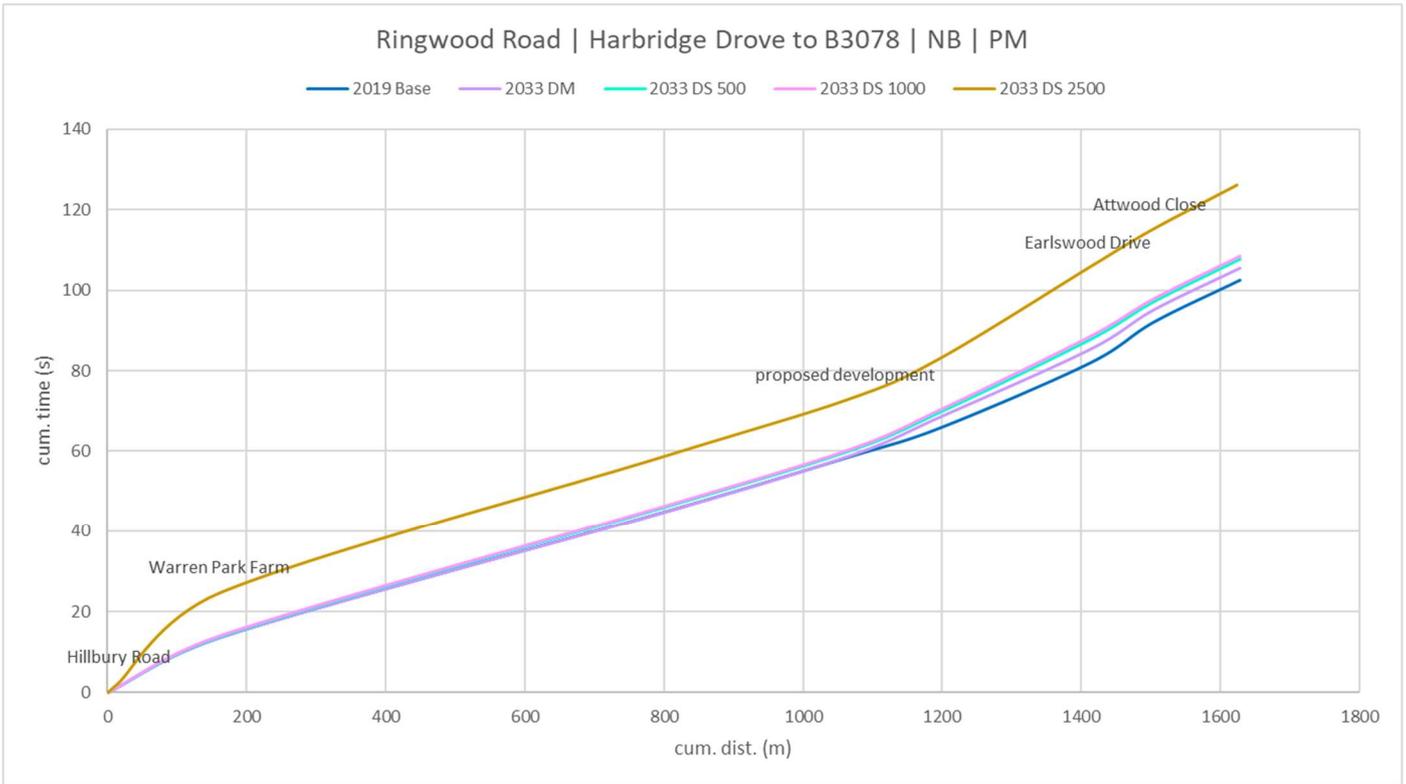
Alderholt Paramics Model 2019 – Forecasting Report



PM Peak



Alderholt Paramics Model 2019 – Forecasting Report



Alderholt Paramics Model 2019 – Forecasting Report

