

Project	Land West of Tye Lane, Walberton – Barratt David Wilson
Document Title or Subject	VISSIM Modelling
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1 Introduction

1.1 Overview

- 1.1.1 Pell Frischmann ('PF') is commissioned by Barratt David Wilson (Barratt) to provide micro-simulation traffic modelling consultancy services in connection with a proposed residential development at Land West of Tye Lane, Walberton for 155 dwellings, (application reference: WA/68/20/OUT). An application for 131 dwellings is also being considered simultaneously on the site application reference WA/127/21/OUT.
- 1.1.2 This application was refused due to further information being required and is subject to an upcoming appeal (reference: APP/C3810/W/21/3278130). Both applications are subject to a holding objection from National Highways, who require further information as to the level of the impact of the proposed development will be upon the performance of the A27 Fontwell East and West Roundabouts. This technical note assesses the impact of the proposed developments at this junction for the purposes of addressing National Highway's request.
- 1.1.3 Recent discussions with National Highways have also identified a requirement to consider the cumulative impact of this application alongside a planning application made by Linden Homes for 175 units at the Land North of Walberton, north of Avisford Park Road. The traffic generated by this proposed development and the associated mitigation scheme has also been considered in this technical note.

1.2 Existing Model

- 1.2.1 The VISSIM model has been provided to PF by National Highways and is for the 2031 end of local plan period with all local plan development and mitigation put forward by Dandara. The AM and PM peak period models have been provided and the extent of the VISSIM network is shown in Figure 1.1.

Figure 1.1: Study Area



2 Modelling Assessment and Results

2.1.1 A comparison of the results has been made between the 'Proposed Improvement Scheme' scenario, 'Land North of Walberton Development (Linden Homes)' scenario and the 'Barratt Development scenario.

2.2 Land North of Walberton Development (Linden Homes)

2.2.1 Proposed development traffic flows for the Land North of Walberton, Linden Homes site detailing the traffic movements to and from the site during both peak periods are detailed in Figures 2.1 and 2.2. Alongside this development mitigation has been proposed for Fontwell West Roundabout, these consist of minor increases in flare lengths on the eastern and southern arms, refer to Figure 2.3.

Figure 2.1: Land North of Walberton (Linden Homes) Development – AM Traffic Flows

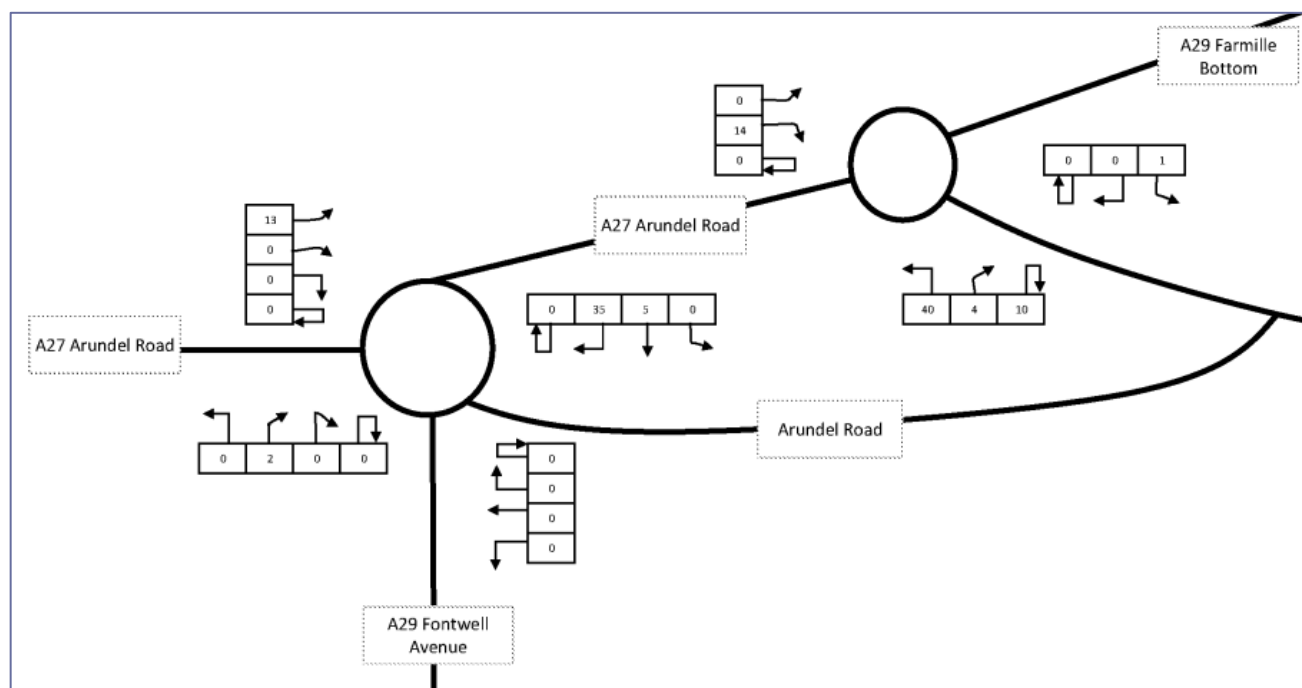


Figure 2.2: Land North of Walberton (Linden Homes) Development – PM Traffic Flows

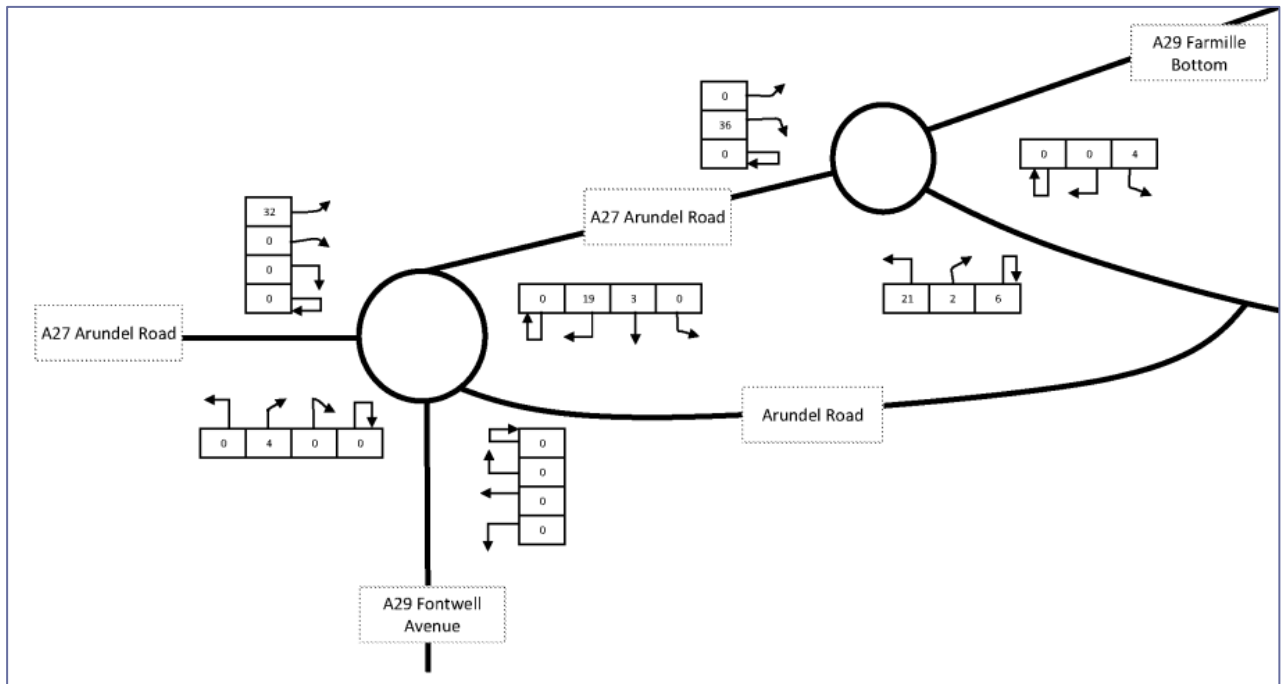
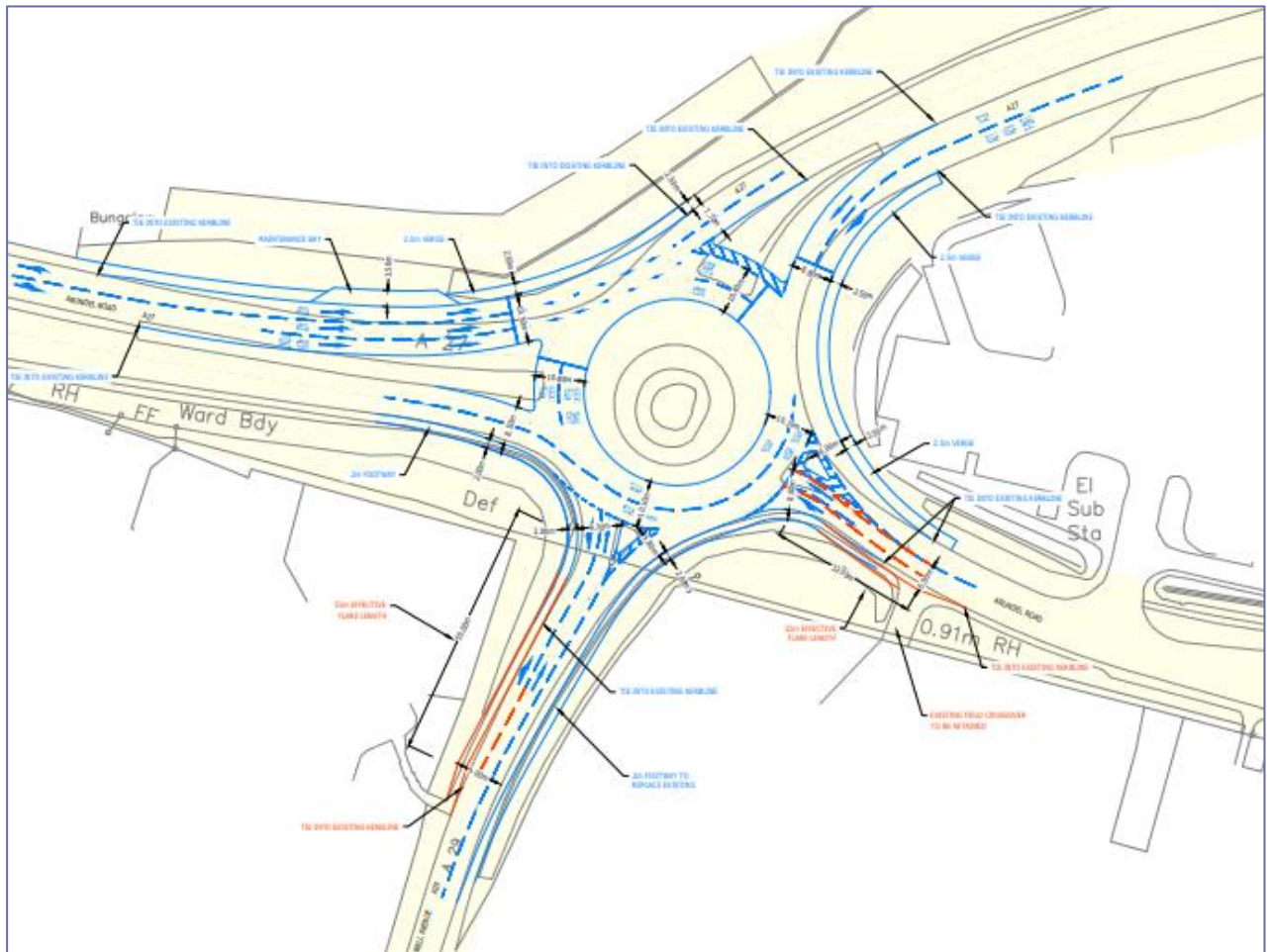


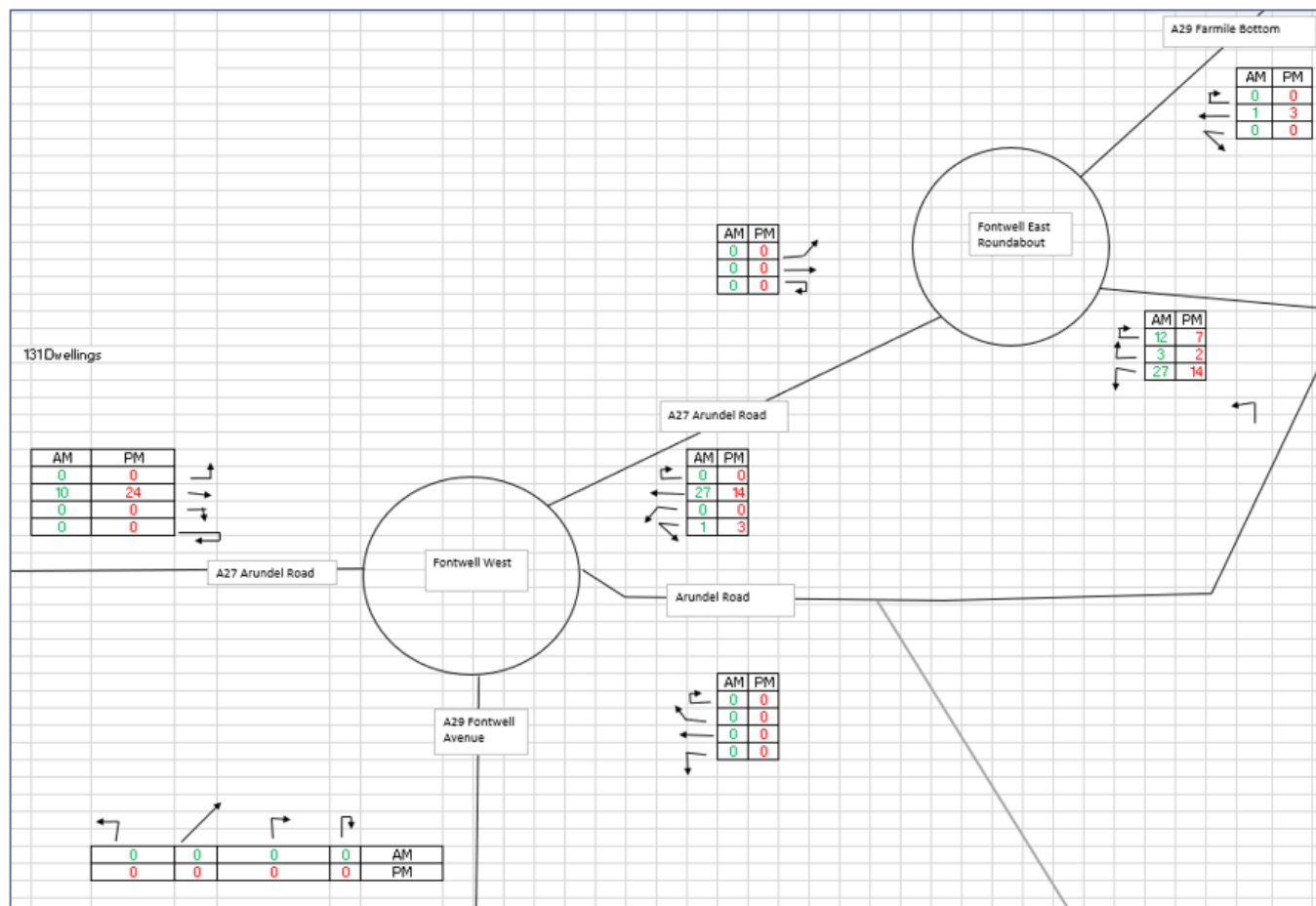
Figure 2.3: Land North of Walberton (Linden Homes) Development – mitigation scheme



2.3 Barratt Development

2.3.1 Proposed development traffic flows were provided by Barratt's consultants detailing the traffic movements to and from the site during both peak periods, these are shown in Figure 2.4.

Figure 2.4: Barratt Development Traffic Flows



2.3.2 The VISSIM models have been run and cumulative assessment results are presented in Tables 2.1 to Table 2.3.

Table 2.1: Network Performance Comparisons

Network Performance	Proposed Improvement Scheme (Dandara)		Land North of Walberton Development (Linden)		Land West of Tye Lane Development (Barratt)	
	AM	PM	AM	PM	AM	PM
Number of vehicles in the network, All Vehicle Types	356	386	361	387	363	385
Number of vehicles that have left the network, All Vehicle Types	5692	5327	5704	5312	5714	5330
Total travel time [h], All Vehicle Types	305	355	306	360	308	358
Average speed [mph], All Vehicle Types	30	25	30	24	30	24
Total delay time [h], All Vehicle Types	99	160	100	167	101	165
Latent demand, All Vehicle Types	0	224	0	261	0	257

2.3.3 The results presented in the above table demonstrate that there is no significant difference in the overall network performance between each cumulative scenario. As presented in Table 2.1, the AM peak scenarios show no latent demand in all scenarios. In the PM models the table indicates latent demand, i.e. some proportion of vehicles from the projected demand that has not made into the simulation/model. Whilst the incremental impact of each development is minor the greater increase is from the Proposed Dandara Improvement Scheme to the Land North of Walberton Development (Linden) scheme. The additional traffic from the Barratt development has very minimal observable impact.

2.3.4 The location of the journey time routes is shown in Figure 2.2.

Figure 2.2: Journey Time Route Locations

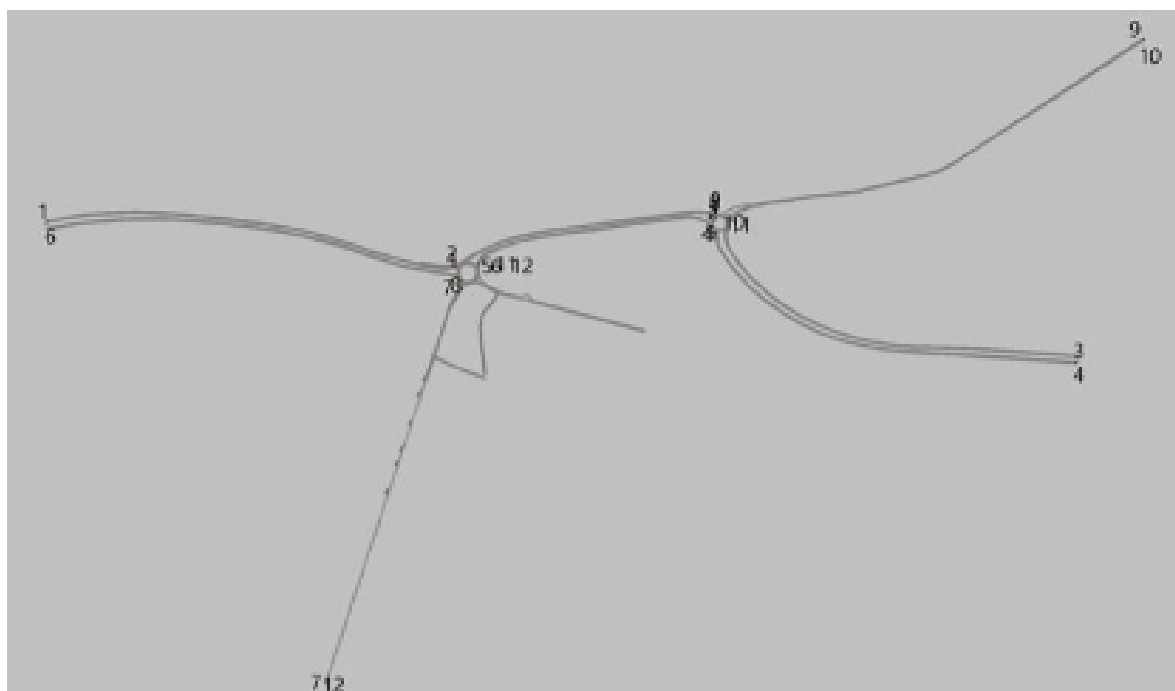


Table 2.2: Journey Time Comparisons

Journey Time Routes	Proposed Improvement Scheme (Dandara)		Land North of Walberton Development (Linden)		Land West of Tye Lane Development (Barratt)	
	AM	PM	AM	PM	AM	PM
1	75	90	75	91	75	88
2	44	41	44	41	45	41
3	56	56	56	56	56	56
4	64	54	64	53	64	54
5	54	48	54	48	55	48
6	64	61	64	60	64	60
7	171	102	172	102	174	101
8	48	57	48	57	49	57
9	80	79	80	79	80	79
10	100	441	102	490	102	485
11	62	57	62	56	63	56
12	89	94	95	95	90	95

2.3.5 The above table demonstrates that there is no significant difference in the journey times across all routes. The most significant increase is during the PM peak period from the Proposed Improvement Scheme to the Land

North of Walberton Development scheme along route 10 (A29 southbound towards Fontwell East Roundabout), which is currently congested.

2.3.6 The location of the queue counters is shown in Figure 2.3.

Figure 2.3: Queue Counter Locations



Table 2.3: Queue Length (m) Comparisons

Queue Counter Locations	Proposed Improvement Scheme (Dandara)				Land North of Walberton Development (Linden)				Land West of Tye Lane Development (Barratt)			
	AM		PM		AM		PM		AM		PM	
	Ave	Max	Ave	Max	Ave	Max	Ave	Max	Ave	Max	Ave	Max
1	80	359	3054	3938	88	405	3283	4122	88	405	3278	4103
2	37	459	10	180	39	463	9	173	39	463	9	172
3	11	258	2	143	13	279	2	139	13	279	3	151
4	135	730	70	491	153	767	65	486	153	767	66	482
5	18	127	10	92	19	127	10	92	19	127	10	93
6	458	1122	33	182	450	1097	34	178	450	1097	32	177
7	47	250	44	294	47	252	38	272	47	252	43	292
8	7	124	24	193	7	114	24	193	7	121	25	194
9	25	160	72	273	26	164	67	270	27	166	71	272

2.3.7 The above table demonstrates that during the AM peak period there is queuing on the A29 Fontwell Avenue at the Fontwell West Roundabout (queue counter 6). With both proposed developments added to the network the average queue length is reduced by 8m (approx. 1pcu's), which is possibly due to the mitigation on this arm of the roundabout.

2.3.8 During the PM peak period there is a large queue on the A29 at the Fontwell East Roundabout (queue counter 1). This is partly created due to the large number of opposing right turning vehicles from the A27. The average queue length increases by 229m (approx. 40pcu's) when the Proposed Improvement Scheme development traffic is added onto the network. This queue length remains similar with the Barratt Development added to the network.

3 Conclusion

3.1.1 In light of the findings of this technical report, it is concluded that the impacts arising from the proposed Barratt development, Land West of Tye Lane is minimal and should not be considered to suggest a severe impact.

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