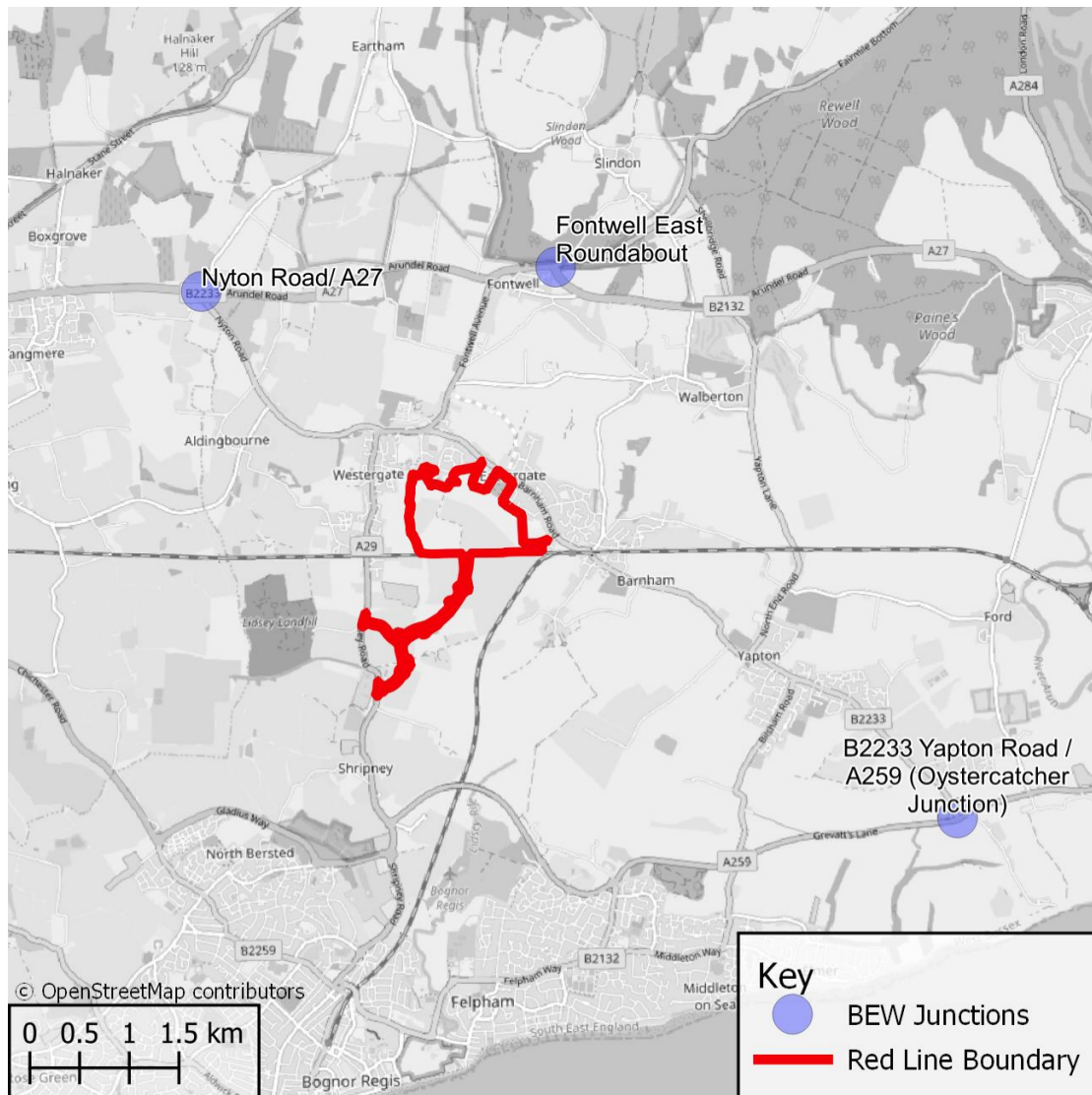


6.4.1.3 Apportionment Study Junctions

The junctions considered in this section of the review are shown in Figure 6.11.

Figure 6.11: Apportionment study junctions



Nyton Road / A27

The T-junction has been modelled using Junctions 9. A traffic survey was undertaken at this junction in November 2019 that included collection of classified turning counts and vehicle queue length surveys. The turning count data was collected in 15 minute intervals which allows the DIRECT data entry methodology to be used. The use of DIRECT was agreed with WSCC.

The performance of the base model was considered to reflect the observed conditions and therefore no capacity adjustments were made to calibrate the model. It should be noted that the left turn out of Nyton Road is a merge lane with the A27 and therefore this traffic flow has been removed from the model. The baseline modelling results are shown in Table 6-66 and the output file is included in Appendix R. These results show that the junction operates within capacity.

Table 6-66: 2019 base junction modelling results (Nyton Road/A27)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Nyton Road	0.00	0	0.00	0
A27 Arundel Road (W)	0.69	2	0.93	7.7

The strategic model outputs provide peak hour turning flows as an hourly figure. It was agreed with WSCC where an observed 15 minute interval profile was available that this should be applied to the forecast year flows, and the data entered using the DIRECT methodology.

The results from the 2031 do minimum and do something scenarios are shown in Table 6-67 to Table 6-70 and the output file is included in Appendix R. These results show that the junction is forecast to operate within capacity and the queue length reported could be accommodated within the right turn lane capacity that is available.

Table 6-67: 2031 do minimum junction modelling results (Nyton Road/A27)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Nyton Road	0.00	0	0.00	0
A27 Arundel Road (W)	0.80	3.0	0.86	4.9

Table 6-68: 2031 do something junction modelling results (Nyton Road/A27)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Nyton Road	0.00	0	0.00	0
A27 Arundel Road (W)	0.83	3.4	0.89	5.7

Table 6-69: 2031 do minimum No Cala junction modelling results (Nyton Road/A27)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Nyton Road	0.00	0	0.00	0
A27 Arundel Road (W)	0.82	3.2	0.86	4.8

Table 6-70: 2031 do something No Cala junction modelling results (Nyton Road/A27)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Nyton Road	0.00	0	0.00	0
A27 Arundel Road (W)	0.80	2.9	0.86	4.9

A27 / A29 (Fontwell Eastern roundabout)

The roundabout junction has been modelled using Junctions 9. A traffic survey was not undertaken at this junction, and therefore following agreement with WSCC it was determined that traffic data could be used from an older source. 2017 traffic data was obtained from the planning application for the Tye Lane site (application

reference WA/44/17/OUT) and this was factored up to a base year of 2019 using TEMPro to be consistent with the other model forecast years.

It is understood that traffic flows across the area tend to be flat during the peak periods and therefore it was agreed that in the absence of a 15 minute traffic profile the FLAT data entry methodology would be acceptable. The baseline modelling results are shown in Table 6-71 and the output file is included in Appendix S. These results show that the junction operates within capacity.

Table 6-71: 2019 base junction modelling results (Fontwell Eastern Roundabout)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A29 Farmille Bottom	0.45	0.8	0.63	1.7
A27 South (Arundel Road)	0.72	2.6	0.49	0.9
A27 West	0.62	1.6	0.65	1.9

The strategic model outputs provide peak hour turning flows as an hourly figure. The FLAT data entry methodology was used to model the junction. The results from the 2031 do minimum and do something scenarios are shown in Table 6-72 to Table 6-75 and the output file is included in Appendix S. These results show that the junction is forecast to operate within capacity.

Table 6-72: 2031 do minimum junction modelling results (Fontwell Eastern Roundabout)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A29 Farmille Bottom	0.59	1.7	0.81	4.5
A27 South (Arundel Road)	0.84	5.7	0.57	1.5
A27 West	0.67	2.3	0.77	3.6

Table 6-73: 2031 do something junction modelling results (Fontwell Eastern Roundabout)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A29 Farmille Bottom	0.58	1.6	0.85	5.9
A27 South (Arundel Road)	0.87	7.3	0.57	1.5
A27 West	0.68	2.4	0.78	3.8

Table 6-74: 2031 do minimum No Cala junction modelling results (Fontwell Eastern Roundabout)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A29 Farmille Bottom	0.59	1.7	0.80	4.3
A27 South (Arundel Road)	0.83	5.3	0.57	1.5
A27 West	0.67	2.3	0.77	3.6

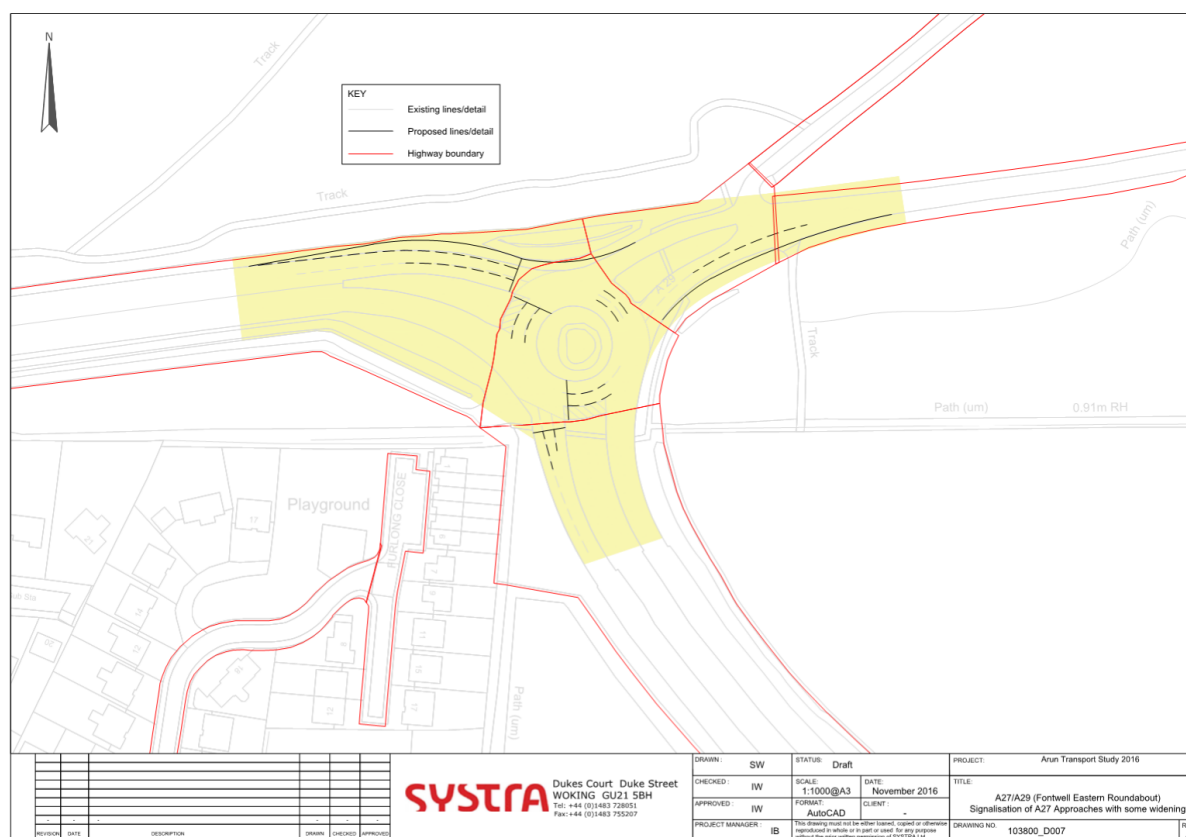
Table 6-75: 2031 do something no Cala junction modelling results (Fontwell Eastern Roundabout)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A29 Farmille Bottom	0.57	1.5	0.84	5.7
A27 South (Arundel Road)	0.89	8.2	0.57	1.5
A27 West	0.67	2.3	0.77	3.8

Mitigation scheme

ADC has undertaken several studies to determine mitigation schemes. The Arun Transport Study Stage 3 Report and the Enterprise Bognor Regis Transport Review (2017) both reference the same mitigation scheme at the Fontwell East Roundabout. An extract showing this junction is in Figure 6.12.

Figure 6.12: Fontwell East Roundabout mitigation scheme



Source: Enterprise Bognor Regis Transport Review (2017) and Arun District Council Phase 3 Study (2016)

The mitigation scheme includes widening the western and southern arms and signalisation of the junction. This junction has been modelled using LinSig and the results for the forecast years are presented in Table 6-76 to Table 6-79. The model output file is included in Appendix S. The results from this modelling shows the junction is forecast to operate within capacity.

Table 6-76: 2031 do minimum junction modelling results (Fontwell Eastern Roundabout) for mitigation scheme

	AM Peak		PM Peak	
	DoS	MMQ	DoS	MMQ
A29 Farmille Bottom	68%	4	85%	10
A27 South (Arundel Road)	87%	19	83%	14
A27 West	67%	11	84%	18
Overall PRC for junction	3.2%		5.6%	

Table 6-77: 2031 do something junction modelling results (Fontwell Eastern Roundabout) for mitigation scheme

	AM Peak		PM Peak	
	DoS	MMQ	DoS	MMQ
A29 Farmille Bottom	67%	4	89%	12
A27 South (Arundel Road)	88%	18	85%	14
A27 West	72%	12	87%	21
Overall PRC for junction	2.0%		1.0%	

Table 6-78: 2031 do minimum No Cala junction modelling results (Fontwell Eastern Roundabout) for mitigation scheme

	AM Peak		PM Peak	
	DoS	MMQ	DoS	MMQ
A29 Farmille Bottom	65%	4	82%	9
A27 South (Arundel Road)	88%	19	83%	14
A27 West	71%	8	81%	16
Overall PRC for junction	2.9%		8.0%	

Table 6-79: 2031 do something No Cala junction modelling results (Fontwell Eastern Roundabout) for mitigation scheme

	AM Peak		PM Peak	
	DoS	MMQ	DoS	MMQ
A29 Farmille Bottom	63%	3	86%	11
A27 South (Arundel Road)	89%	18	82%	14
A27 West	73%	9	87%	20
Overall PRC for junction	1.7%		3.6%	

B2233 Yapton Road / A259 Crookthorn Lane / Grevatt's Lane (Oystercatcher Junction)

The junction has been modelled using Junctions 9. A traffic survey was not undertaken at this junction, and following agreement with WSCC it was determined that this junction could be modelled in the forecast years only due to no base data being available.

The strategic model outputs provide peak hour turning flows as an hourly figure. It was agreed with WSCC where an observed 15 minute interval profile was available that this should be applied to the forecast year flows, and the data entered using the FLAT methodology.

The results from the 2031 do minimum and do something scenarios are shown Table 6-80 to Table 6-83 and the output file is included in Appendix T. These results show that the junction operates over capacity in both peak hours and therefore mitigation is required.

Table 6-80: 2031 do minimum junction modelling results (B2233 Yapton Road/A259 (Oystercatcher Junction))

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Yapton Road Left	**	**	**	**
Yapton Road Right	**	**	**	**
A259 Crookthorn Lane (E)	0.71	2.5	0.75	3.2

** operates significantly over capacity.

Table 6-81: 2031 do something junction modelling results (B2233 Yapton Road/A259 (Oystercatcher Junction))

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Yapton Road Left	**	**	**	**
Yapton Road Right	**	**	**	**
A259 Crookthorn Lane (E)	0.70	2.5	0.76	3.4

** operates significantly over capacity.

Table 6-82: 2031 do minimum No Cala junction modelling results (B2233 Yapton Road/A259 (Oystercatcher Junction))

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Yapton Road Left	**	**	**	**
Yapton Road Right	**	**	**	**
A259 Crookthorn Lane (E)	0.71	2.5	0.75	3.3

** operates significantly over capacity.

Table 6-83: 2031 do something no Cala junction modelling results (B2233 Yapton Road/A259 (Oystercatcher Junction))

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Yapton Road Left	**	**	**	**
Yapton Road Right	**	**	**	**
A259 Crookthorn Lane (E)	0.70	2.4	0.76	3.3

** operates significantly over capacity.

Mitigation scheme

There is a mitigation scheme for this junction that is presented in the WSCC Comet Corner and Oystercatcher report (December 2019). An extract showing this junction is in Figure 6.13. The mitigation scheme includes a junction redesign to realign the Yapton Road and provide a new roundabout junction.

Figure 6.13: A259/ B2187 Littlehampton West – Tesco Roundabout mitigation scheme



Source: WSCC Comet Corner and Oystercatcher report (December 2019)

The mitigation scheme results show that the junction is forecast to operate within capacity.

Table 6-84: 2031 do minimum junction modelling results (B2233 Yapton Road/A259 (Oystercatcher Junction))

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Yapton Road	0.41	0.7	0.50	1.1
A259 East	0.67	2.1	0.78	3.6
Climping Street	0.10	0.1	0.26	0.4
A259 West	0.60	1.6	0.61	1.6

Table 6-85: 2031 do something junction modelling results (B2233 Yapton Road/A259 (Oystercatcher Junction))

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Yapton Road	0.42	0.8	0.51	1.1
A259 East	0.68	2.2	0.79	3.7
Climping Street	0.10	0.1	0.26	0.4
A259 West	0.60	1.6	0.61	1.6

Table 6-86: 2031 do minimum No Cala junction modelling results (B2233 Yapton Road/A259 (Oystercatcher Junction))

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Yapton Road	0.42	0.7	0.50	1.0
A259 East	0.67	2.1	0.78	3.6
Climping Street	0.09	0.1	0.26	0.4
A259 West	0.60	1.6	0.60	1.6

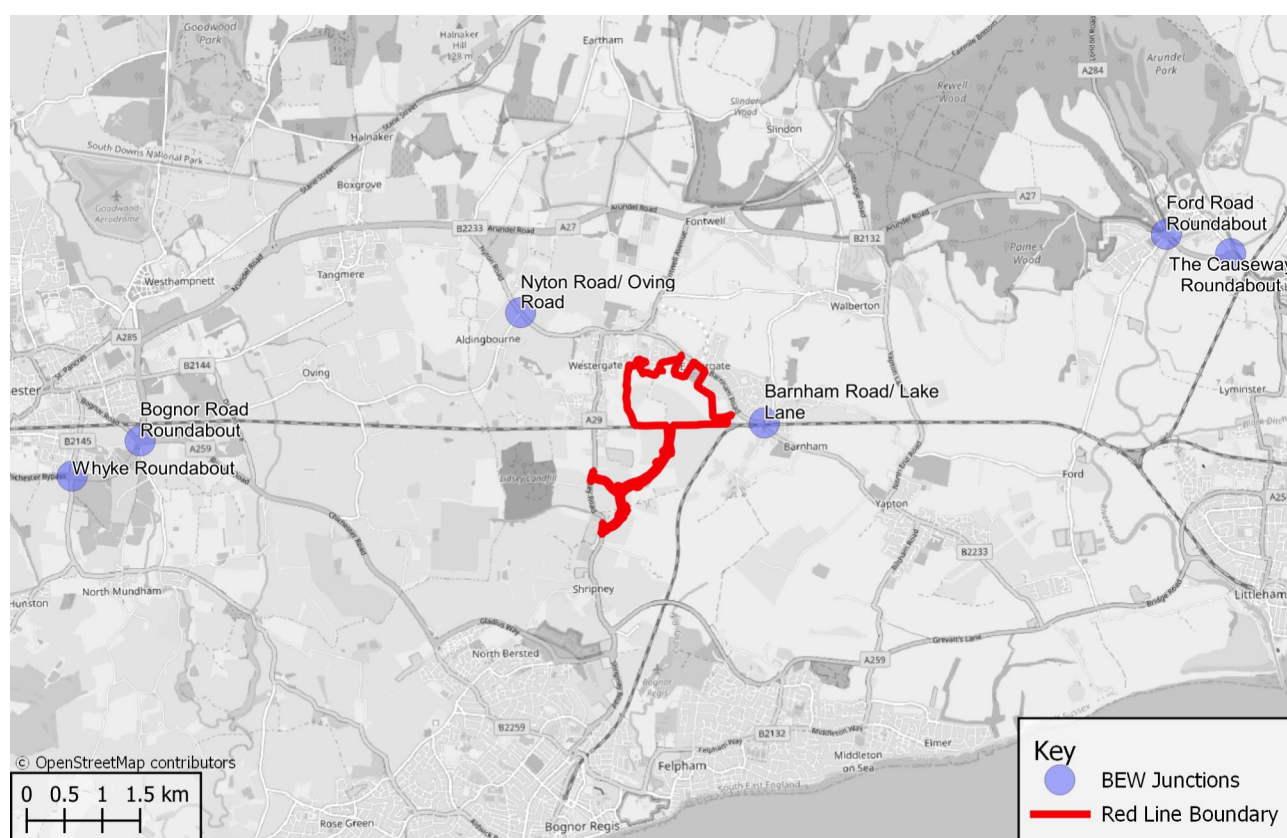
Table 6-87: 2031 do something no Cala junction modelling results (B2233 Yapton Road/A259 (Oystercatcher Junction))

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Yapton Road	0.42	0.8	0.50	1.1
A259 East	0.68	2.2	0.79	3.8
Climping Street	0.10	0.1	0.26	0.4
A259 West	0.60	1.6	0.61	1.6

6.4.1.4 Other junctions modelled

The junctions considered in this section of the review are shown in Figure 6.14.

Figure 6.14: Other junctions modelled



B2145/ A27 (Whyke Roundabout)

The roundabout junction has been considered using Junctions 9. A traffic survey was not undertaken at this junction, and therefore following agreement with WSCC it was determined that traffic data could be used from

an older source. 2016 traffic data was obtained from the planning application for the site referred to as Land North of Sefter Road and 80 Rose Green Road (P/134/16/OUT) and this was factored up to a base year of 2019 using TEMPro to be consistent with the other model forecast years.

It is understood that traffic flows across the area tend to be flat during the peak periods and therefore it was agreed that in the absence of a 15 minute traffic profile the FLAT data entry methodology would be acceptable. The baseline modelling results are shown in Table 6-88 and the output file is included in Appendix U . These results show that the junction operates within capacity in the baseline.

Table 6-88: 2019 base junction modelling results junction modelling results (Whyke Roundabout)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
B2145 (N)	0.30	0.5	0.98	17.5
A27 Chichester bypass (E)	0.70	2.6	0.70	2.5
B2145 (S)	0.45	0.8	0.24	0.3
A27 Chichester bypass (W)	0.74	3.2	0.83	4.9

The strategic model outputs provide peak hour turning flows as an hourly figure. The FLAT data entry technique was used to model the junction. The results from the 2031 do minimum and do something scenarios are shown in Table 6-89 to Table 6-92 and the output file is included in Appendix U. These results show that the junction is forecast to operate within capacity in the AM peak hour in all scenarios. In the PM peak hour the B2145 (N) arm operates over capacity in all scenarios.

Table 6-89: 2031 do minimum junction modelling results junction modelling results (Whyke Roundabout)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
B2145 (N)	0.44	0.9	1.01	24.5
A27 Chichester bypass (E)	0.65	2.1	0.64	2.0
B2145 (S)	0.79	3.9	0.36	0.6
A27 Chichester bypass (W)	0.74	3.1	0.84	5.8

Table 6-90: 2031 do something junction modelling results junction modelling results (Whyke Roundabout)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
B2145 (N)	0.45	0.9	1.05	36.1
A27 Chichester bypass (E)	0.65	2.1	0.64	2.1
B2145 (S)	0.81	4.4	0.37	0.6
A27 Chichester bypass (W)	0.74	3.3	0.85	6.3

Table 6-91: 2031 do minimum No Cala junction modelling results junction modelling results (Whyke Roundabout)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
B2145 (N)	0.45	0.9	1.00	22.1
A27 Chichester bypass (E)	0.65	2.1	0.64	2.0
B2145 (S)	0.79	3.8	0.36	0.6
A27 Chichester bypass (W)	0.74	3.2	0.84	5.6

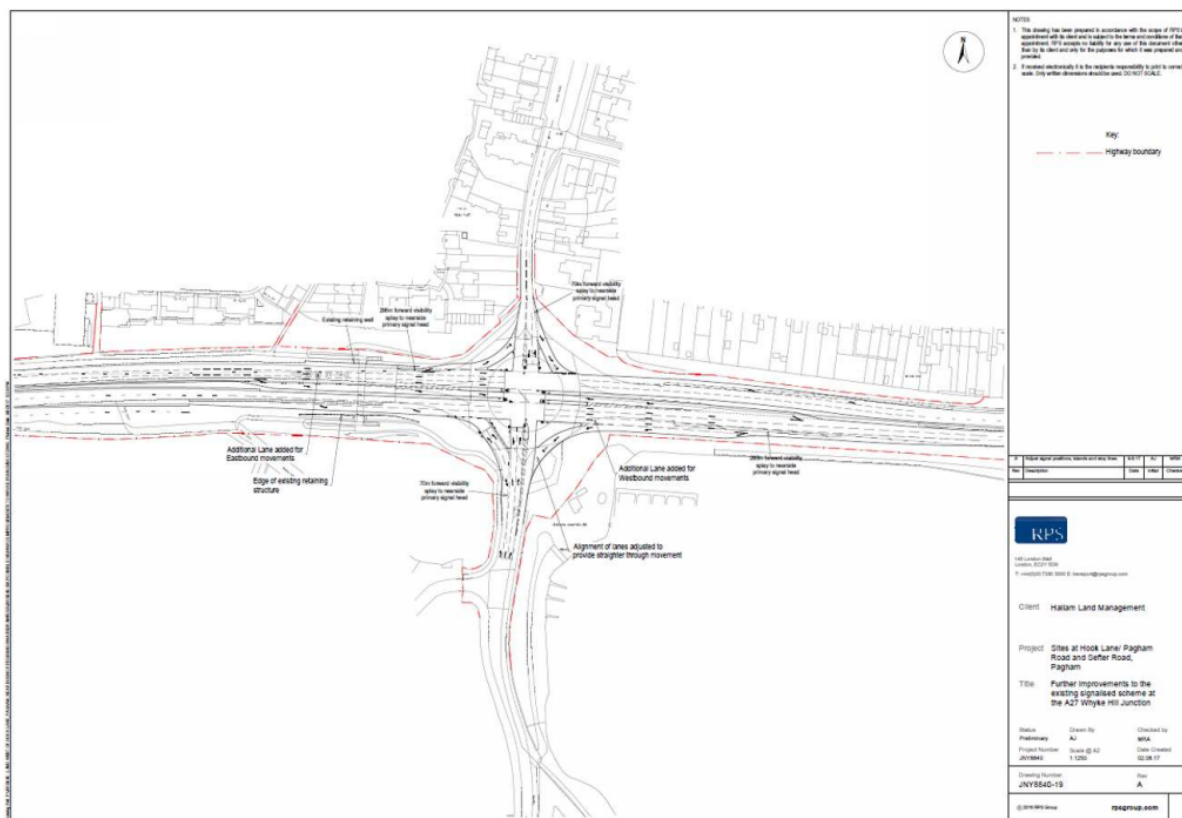
Table 6-92: 2031 do something no cala junction modelling results junction modelling results (Whyke Roundabout)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
B2145 (N)	0.45	0.9	1.04	33.7
A27 Chichester bypass (E)	0.65	2.1	0.64	2.0
B2145 (S)	0.81	4.3	0.36	0.6
A27 Chichester bypass (W)	0.74	3.3	0.85	6.2

Mitigation scheme

ADC has undertaken several studies to determine mitigation schemes. The Arun Transport Study Stage 3 Report references to Chichester District Council for a mitigation scheme at the Whyke Roundabout. Discussions with WSCC have determined that the mitigation scheme included in the Enterprise Bognor Regis Transport Review (2017) should be considered. An extract from this junction is shown in Figure 6.15.

Figure 6.15: Whyke Roundabout mitigation scheme



Source: Enterprise Bognor Regis Transport Review (2017)

The mitigation scheme includes converting the existing roundabout to a signalised junction. This junction has been modelled using LinSig and the results for the forecast years are presented in Table 6-93 to Table 6-96. The model output file is included in Appendix U.

The results from this modelling shows that the mitigation scheme results in congestion being spread across the junction rather than focused on the B2145 (N) arm of the junction. The junction is shown to operate within capacity in the AM peak in all scenarios, but close to or over capacity on all arms during the PM peak hour.

Table 6-93: 2031 do minimum junction modelling results (Whyke Roundabout) for mitigation scheme

	AM Peak		PM Peak	
	DoS	MMQ	DoS	MMQ
B2145 (N)	71%	6	108%	42
A27 (E)	73%	15	98%	22
B2145 (S)	72%	9	102%	15
A27 (W)	75%	12	109%	49
Overall PRC for junction	20.8%		-21.0%	

Table 6-94: 2031 do something junction modelling results (Whyke Roundabout) for mitigation scheme

	AM Peak		PM Peak	
	DoS	MMQ	DoS	MMQ
B2145 (N)	72%	6	108%	43
A27 (E)	73%	15	99%	23
B2145 (S)	73%	10	105%	17
A27 (W)	75%	12	111%	53
Overall PRC for junction	20.8%		-23.4%	

Table 6-95: 2031 do minimum No Cala junction modelling results (Whyke Roundabout) for mitigation scheme

	AM Peak		PM Peak	
	DoS	MMQ	DoS	MMQ
B2145 (N)	70%	6	108%	44
A27 (E)	74%	16	100%	25
B2145 (S)	74%	10	107%	17
A27 (W)	71%	12	110%	49
Overall PRC for junction	21.5%		-22.1%	

Table 6-96: 2031 do something No Cala junction modelling results (Whyke Roundabout) for mitigation scheme

	AM Peak		PM Peak	
	DoS	MMQ	DoS	MMQ
B2145 (N)	71%	6	113%	54
A27 (E)	73%	15	97%	21
B2145 (S)	72%	10	104%	16
A27 (W)	75%	12	112%	59
Overall PRC for junction	20.8%		-25.5%	

A27/ A259/ Vinnetrow Road (Bognor Road Roundabout)

The roundabout junction has been modelled using Junctions 9. A traffic survey was undertaken at this junction in November 2019 that included collection of classified turning counts and vehicle queue length surveys. The turning count data was collected in 15 minute intervals which allows the DIRECT data entry methodology to be used. The use of DIRECT was agreed with WSCC.

Initial modelling of this junction returned queues lower than observed queue data and RFC of greater than 1, and this required the model to be calibrated given the traffic flows entered are observed data. The video survey that accompanied the traffic data was reviewed for this junction, along with the survey's reported queue lengths.

Comparison between modelled and observed data showed that adjustments were needed to the A27 North arm of the junction in both the AM and PM peak hours. These are summarised in Table 6-97, and the model output files are included in Appendix V. The model calibration has been applied to the forecast year models.

Table 6-97: 2019 baseline modelling results and capacity adjustments to calibrate the model (A27/ A259/ Vinnetrow Road: Bognor Road Roundabout)

AM						
	Queue without intercept (PCU)	RFC without intercept adjustment	Observed queue (PCU)	Intercept Adjustment (%)	Queue after adjustment (PCU)	RFC after intercept adjustment
A27 Chichester Bypass (N)	1.4	0.56	6.58	75	5.2	0.83
A259 Bognor Road (E)	2.8	0.73	13.75	86	13.0	0.95
Vinnetrow Road	105.3	1.95	6.75	111	6.5	0.93
A27 Chichester Bypass (S)	1.7	0.61	5.50	79	5.4	0.84
A259 Bognor Road (W)	7.9	0.93	4.17	107	4.0	0.81
PM						
	Queue without intercept (PCU)	RFC without intercept adjustment	Observed queue (PCU)	Intercept Adjustment (%)	Queue after adjustment (PCU)	RFC after intercept adjustment
A27 Chichester Bypass (N)	1.1	0.50	6.08	72	5.8	0.86
A259 Bognor Road (E)	1.6	0.62	12.33	77.5	12.3	0.96
Vinnetrow Road	1.8	0.65	3.67	93	3.8	0.84
A27 Chichester Bypass (S)	1.5	0.60	5.83	74	5.7	0.86
A259 Bognor Road (W)	115.7	1.21	8.83	115	8.8	0.92

The strategic model outputs provide peak hour turning flows as an hourly figure. It was agreed with WSCC where an observed 15 minute interval profile was available that this should be applied to the forecast year flows, and the data entered using the DIRECT methodology.

The results from the 2031 do minimum and do something scenarios are shown in Table 6-98 to Table 6-101 and the output file is included in Appendix V. These results show that the junction is forecast to operate over capacity in the forecast years and therefore mitigation is required.

Table 6-98: 2031 do minimum junction modelling results (A27/ A259/ Vinnetro Road: Bognor Road Roundabout)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A27 Chichester Bypass (N)	1.04	52.5	1.13	70.6
A259 Bognor Road (E)	0.87	6.1	1.11	42.9
Vinnetro Road	1.30	29.6	2.22	136.1
A27 Chichester Bypass (S)	0.97	15.0	1.01	29.2
A259 Bognor Road (W)	0.97	11.3	0.90	7.0

Table 6-99: 2031 do something junction modelling results (A27/ A259/ Vinnetro Road: Bognor Road Roundabout)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A27 Chichester Bypass (N)	1.06	71.4	1.14	77.5
A259 Bognor Road (E)	0.87	6.3	1.11	43.7
Vinnetro Road	1.31	30.8	2.33	139.9
A27 Chichester Bypass (S)	0.98	15.5	1.02	36.2
A259 Bognor Road (W)	0.97	10.8	0.91	7.9

Table 6-100: 2031 do minimum No Cala junction modelling results (A27/ A259/ Vinnetro Road: Bognor Road Roundabout)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A27 Chichester Bypass (N)	1.04	50.5	1.13	65.9
A259 Bognor Road (E)	0.87	6.0	1.11	42.7
Vinnetro Road	1.28	28.1	2.27	136.9
A27 Chichester Bypass (S)	0.97	14.6	1.00	26.8
A259 Bognor Road (W)	0.97	10.9	0.90	7.0

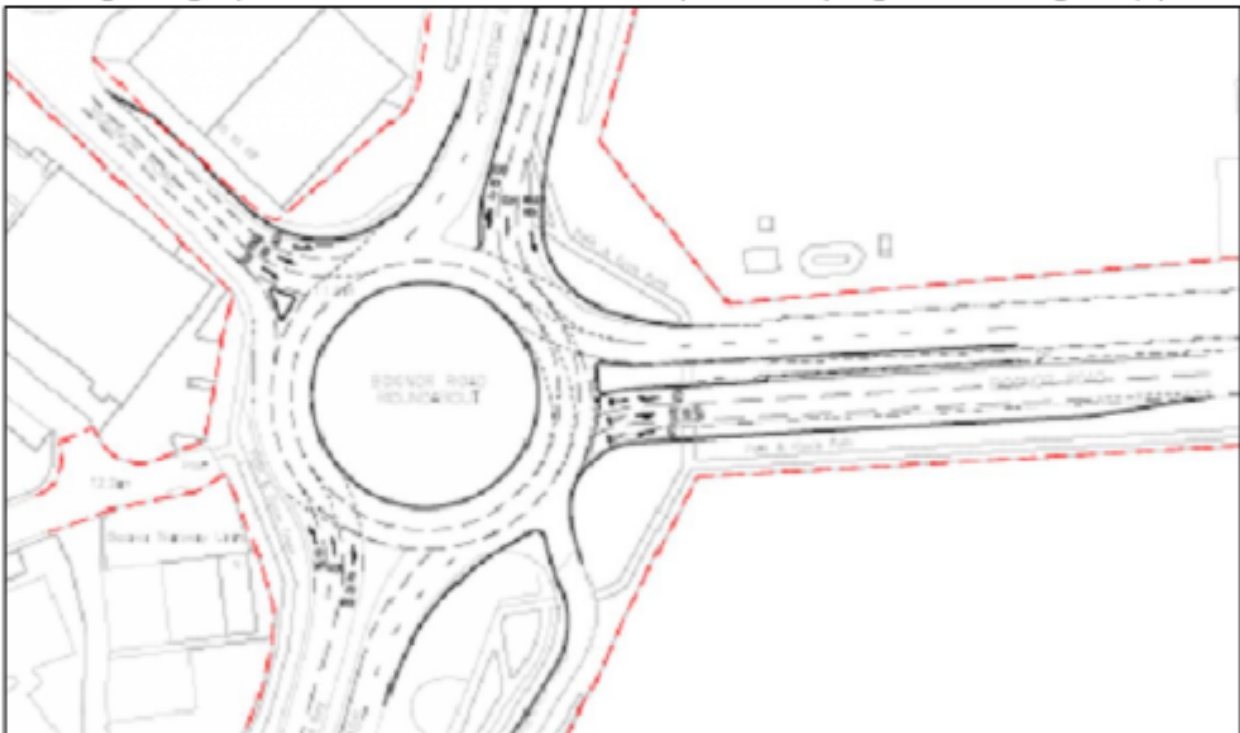
Table 6-101: 2031 do something no cala junction modelling results (A27/ A259/ Vinnetro Road: Bognor Road Roundabout)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A27 Chichester Bypass (N)	1.06	67.9	1.12	65.8
A259 Bognor Road (E)	0.87	6.2	1.11	44.0
Vinnetro Road	1.30	29.2	2.33	139.7
A27 Chichester Bypass (S)	0.98	15.7	1.02	34.4
A259 Bognor Road (W)	0.97	11.5	0.92	8.0

Mitigation scheme

ADC has undertaken several studies to determine mitigation schemes at this junction. The Arun Transport Study Stage 3 Report references a design prepared by Jacobs for the A27/ A259/ Vinnetro Road: Bognor Road Roundabout. The layout of this junction for the scheme included in the Arun Transport Study Stage 3 Report is shown in Figure 6.16.

Figure 6.16: A27/ A259/ Vinnetrov Road: Bognor Road Roundabout mitigation scheme (Arun Transport Study Stage 3 Report)



Source: Arun Transport Study Stage 3 Report

This Arun Transport Study Stage 3 Report junction option has been modelled using Junctions9. The layout was designed by Jacobs to provide extra lane capacity from the north, east and west, and Vinnetrov Road becoming exit only. Traffic flow which currently exits Vinnetrov Road will be rerouted along A259 Bognor Road East. The results from this modelling shows that the performance of the junction is improved overall as a result of the junction improvement scheme.

Table 6-102: 2031 do minimum junction modelling results (A27/ A259/ Vinnetrov Road: Bognor Road Roundabout) for mitigation scheme (Arun Transport Study Stage 3 Report)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A27 Chichester Bypass (N)	0.92	10.0	0.99	18.1
A259 Bognor Road (E)	0.74	2.8	0.86	5.8
A27 Chichester Bypass (S)	1.00	19.1	1.11	96.3
A259 Bognor Road (W)	0.61	1.5	0.57	1.3

Table 6-103: 2031 do something junction modelling results (A27/ A259/ Vinnetrov Road: Bognor Road Roundabout) for mitigation scheme (Arun Transport Study Stage 3 Report)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A27 Chichester Bypass (N)	0.94	12.1	0.99	19.4
A259 Bognor Road (E)	0.75	2.9	0.87	5.9
A27 Chichester Bypass (S)	1.01	20.6	1.13	115.7
A259 Bognor Road (W)	0.60	1.5	0.58	1.4

Table 6-104: 2031 do minimum No Cala junction modelling results (A27/ A259/ Vinnetrow Road: Bognor Road Roundabout) for mitigation scheme (Arun Transport Study Stage 3 Report)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A27 Chichester Bypass (N)	0.92	9.8	0.98	17.2
A259 Bognor Road (E)	0.74	2.8	0.86	5.8
A27 Chichester Bypass (S)	1.00	18.7	1.10	89.8
A259 Bognor Road (W)	0.61	1.5	0.57	1.3

Table 6-105: 2031 do something No Cala junction modelling results (A27/ A259/ Vinnetrow Road: Bognor Road Roundabout) for mitigation scheme (Arun Transport Study Stage 3 Report)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A27 Chichester Bypass (N)	0.94	11.6	0.98	16.5
A259 Bognor Road (E)	0.75	2.9	0.86	5.8
A27 Chichester Bypass (S)	1.01	20.7	1.13	113.5
A259 Bognor Road (W)	0.61	1.5	0.58	1.4

Nyton Road / Oving Road

The T-junction has been modelled using Junctions 9. A traffic survey was undertaken at this junction in November 2019 that included collection of classified turning counts and vehicle queue length surveys. The turning count data was collected in 15 minute intervals which allows the DIRECT data entry methodology to be used. The use of DIRECT was agreed with WSCC.

The performance of the base model was considered to reflect the observed conditions and therefore no capacity adjustments were made to calibrate the model. The baseline modelling results are shown in Table 6-106 and the output file is included in Appendix W. These results show that the junction is operating within capacity in the base scenario.

Table 6-106: 2019 base junction modelling results (Nyton Road/Oving Road)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Oving Road Left	0.22	0.3	0.12	0.1
Oving Road Right	0.56	1.3	0.62	1.6
Nyton Road West	0.13	0.2	0.34	0.8

The strategic model outputs provide peak hour turning flows as an hourly figure. It was agreed with WSCC where an observed 15 minute interval profile was available that this should be applied to the forecast year flows, and the data entered using the DIRECT methodology.

The results from the 2031 do minimum and do something scenarios are shown in Table 6-107 to Table 6-110 and the output file is included in Appendix W. These results show that in the junction is forecast to operate within capacity in all of the scenarios.

Table 6-107: 2031 do minimum junction modelling results (Nyton Road/Oving Road)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Oving Road Left	0.31	0.5	0.35	0.5
Oving Road Right	0.69	2.0	0.65	1.8
Nyton Road West	0.37	0.8	0.42	1.0

Table 6-108: 2031 do something junction modelling results (Nyton Road/Oving Road)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Oving Road Left	0.46	0.8	0.46	0.8
Oving Road Right	0.84	3.7	0.82	3.9
Nyton Road West	0.41	0.9	0.47	1.2

Table 6-109: 2031 do minimum No Cala junction modelling results (Nyton Road/Oving Road)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Oving Road Left	0.32	0.5	0.34	0.5
Oving Road Right	0.69	2.0	0.64	1.7
Nyton Road West	0.38	0.8	0.41	0.9

Table 6-110: 2031 do something No Cala junction modelling results (Nyton Road/Oving Road)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Oving Road Left	0.31	0.4	0.34	0.5
Oving Road Right	0.68	1.9	0.66	1.8
Nyton Road West	0.37	0.8	0.52	1.4

Barnham Road / Lake Lane

The T-junction has been modelled using Junctions 9. A traffic survey was undertaken at this junction in November 2019 that included collection of classified turning counts and vehicle queue length surveys. The turning count data was collected in 15 minute intervals which allows the DIRECT data entry methodology to be used. The use of DIRECT was agreed with WSCC.

The performance of the base model was considered to reflect the observed conditions and therefore no capacity adjustments were made to calibrate the model. The baseline modelling results are shown in Table 6-111 and the output file is included in Appendix X. These results show that the junction is operating within capacity in the base scenario.

Table 6-111: 2019 base junction modelling results (Barnham Road/Lake Lane)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Lake Lane Left	0.17	0.2	0.29	0.4
Lake Lane Right	0.50	1.0	0.43	0.7
Yapton Road Right	0.43	1.1	0.13	0.1

The strategic model outputs provide peak hour turning flows as an hourly figure. It was agreed with WSCC where an observed 15 minute interval profile was available that this should be applied to the forecast year flows, and the data entered using the DIRECT methodology.

The results from the 2031 do minimum and do something scenarios are shown in Table 6-112 to Table 6-115 and the output file is included in Appendix X . These results show that in the AM peak hour the junction is forecast to operate within capacity in all of the scenarios. In the PM peak hour, the right turning traffic from Yapton Road into Lake Lane operates within capacity, except the 2031 do something with and without Cala scenario. However, this is for a single 15 minute period within the hour and by only 11 PCUs. There is approximately 70 PCUs of spare capacity at other times of the day. The Barnham Eastergate Westergate site is identified in the Apportionment Study as being required to make a financial contribution towards Barnham Village Centre enhancements and therefore no further mitigation is proposed.

Table 6-112: 2031 do minimum junction modelling results (Barnham Road/Lake Lane)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Lake Lane Left	0.85	4.7	0.64	1.7
Lake Lane Right	0.42	0.7	0.41	0.7
Yapton Road Right	0.40	0.7	0.96	9.1

Table 6-113: 2031 do something junction modelling results (Barnham Road/Lake Lane)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Lake Lane Left	0.84	4.4	0.70	2.2
Lake Lane Right	0.53	1.1	0.47	0.9
Yapton Road Right	0.46	0.9	1.07	18.4

Table 6-114: 2031 do minimum No Cala junction modelling results (Barnham Road/Lake Lane)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Lake Lane Left	0.85	4.7	0.63	1.6
Lake Lane Right	0.42	0.7	0.40	0.7
Yapton Road Right	0.39	0.7	0.96	9.1

Table 6-115: 2031 do something No Cala junction modelling results (Barnham Road/Lake Lane)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Lake Lane Left	0.83	4.3	0.74	2.6
Lake Lane Right	0.49	0.9	0.47	0.9
Yapton Road Right	0.46	0.9	1.07	17.5

A27/ A284 Ford Road / Arundel Bypass

The roundabout junction has been modelled using Junctions 9. A traffic survey was undertaken at this junction in June 2015 that included collection of classified turning counts and vehicle queue length surveys and this was factored up to a base year of 2019 using TEMPro to be consistent with the other model forecast years. The turning count data was collected in 15 minute intervals which allows the DIRECT data entry methodology to be used. The use of DIRECT was agreed with WSCC.

The performance of the base model was considered to reflect the observed conditions and therefore no capacity adjustments were made to calibrate the model. The baseline modelling results are shown in Table 6-116 and the output file is included in Appendix Y . These results show that the junction is operating within capacity in the base scenario.

Table 6-116: 2019 base junction modelling results (A27/A284 Ford Road / Arundel Bypass)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A284 Arundel Bypass	0.47	0.9	0.50	1.0
Maltravers Street	0.19	0.2	0.26	0.4
A27 S/E Arundel Bypass	0.97	15.6	0.98	18.3
Ford Road	0.79	3.6	0.76	2.9
A27 Chichester Road	0.96	14.8	0.65	1.9

The strategic model outputs provide peak hour turning flows as an hourly figure. It was agreed with WSCC where an observed 15 minute interval profile was available that this should be applied to the forecast year flows, and the data entered using the DIRECT methodology.

The results from the 2031 do minimum and do something scenarios are shown in Table 6-117 to Table 6-120 and the output file is included in Appendix Y . These results show that the junction is forecast to operate over capacity in both peak hours and therefore mitigation is required.

Table 6-117: 2031 do minimum junction modelling results (A27/A284 Ford Road / Arundel Bypass)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A284 Arundel Bypass	0.31	0.4	0.31	0.5
Maltravers Street	0.10	0.1	0.20	0.2
A27 S/E Arundel Bypass	0.91	8.9	0.82	4.4
Ford Road	0.53	1.1	0.33	0.5
A27 Chichester Road	0.79	3.6	0.89	7.0

Table 6-118: 2031 do something junction modelling results (A27/A284 Ford Road / Arundel Bypass)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A284 Arundel Bypass	0.28	0.4	0.30	0.4
Maltravers Street	0.10	0.1	0.20	0.3
A27 S/E Arundel Bypass	0.91	8.6	0.85	5.2
Ford Road	0.55	1.2	0.34	0.5
A27 Chichester Road	0.80	3.9	0.91	8.5

Table 6-119: 2031 do minimum No Cala junction modelling results (A27/A284 Ford Road / Arundel Bypass)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A284 Arundel Bypass	0.31	0.5	0.31	0.5
Maltravers Street	0.10	0.1	0.19	0.2
A27 S/E Arundel Bypass	0.92	9.1	0.82	4.3
Ford Road	0.52	1.1	0.33	0.5
A27 Chichester Road	0.79	3.6	0.89	6.9

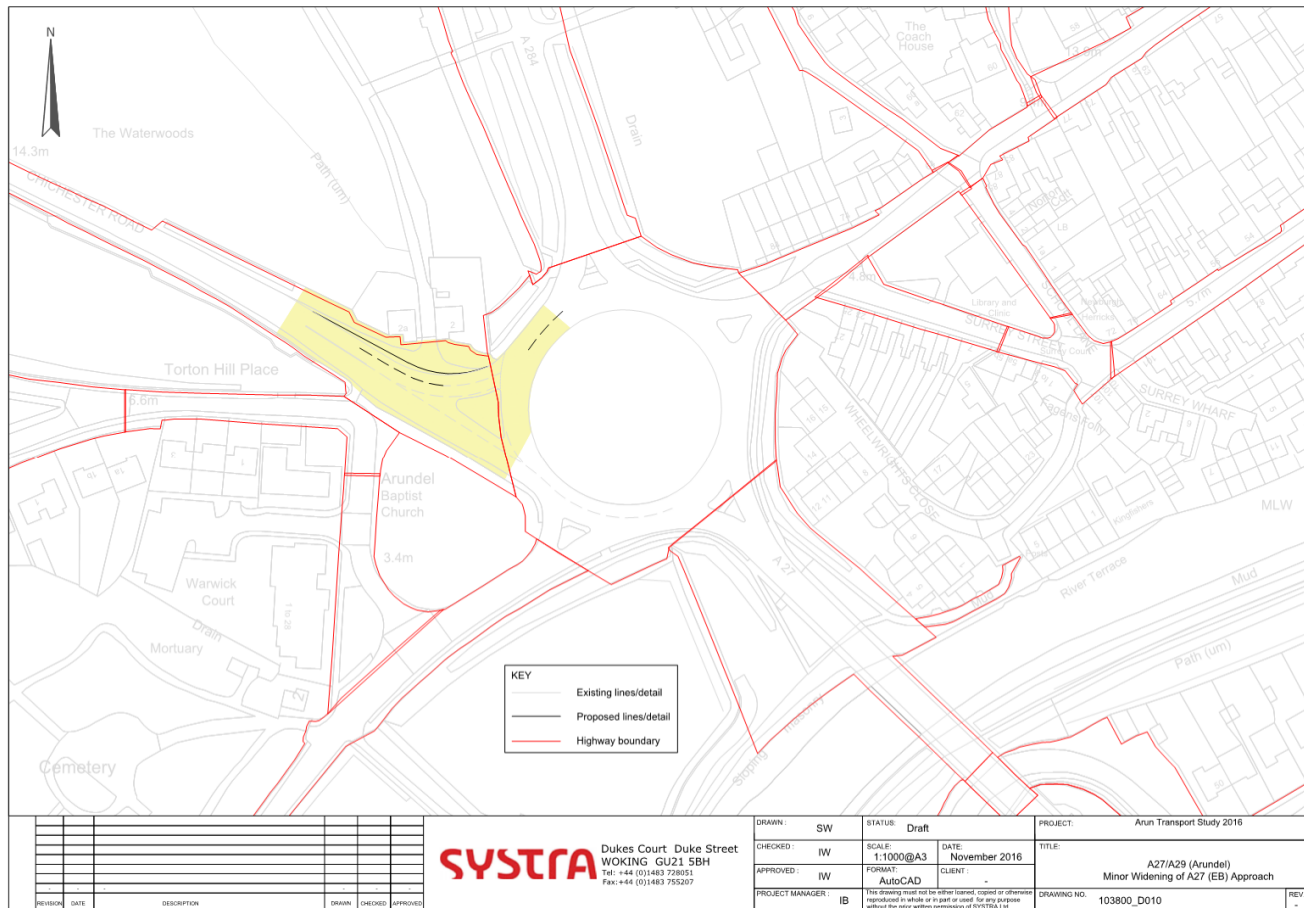
Table 6-120: 2031 do something no Cala junction modelling results (A27/A284 Ford Road / Arundel Bypass)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A284 Arundel Bypass	0.27	0.4	0.30	0.4
Maltravers Street	0.10	0.1	0.20	0.3
A27 S/E Arundel Bypass	0.91	8.6	0.85	5.1
Ford Road	0.55	1.2	0.34	0.5
A27 Chichester Road	0.80	3.8	0.91	8.2

Mitigation scheme

ADC has undertaken several studies to determine mitigation schemes. The Arun Transport Study Stage 3 Report mitigation scheme has been modelled and an extract showing this junction is in Figure 6.17. These results show that the junction is forecast to operate within capacity.

Figure 6.17: A27/A284 Ford Road / Arundel Bypass mitigation scheme (Arun Transport Study Stage 3 Report)



Source: Arun Transport Study Stage 3 Report

Table 6-121: 2031 do minimum junction modelling results (A27/A284 Ford Road / Arundel Bypass)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A284 Arundel Bypass	0.31	0.4	0.31	0.5
Maltravers Street	0.10	0.1	0.20	0.2
A27 S/E Arundel Bypass	0.91	8.9	0.82	4.4
Ford Road	0.53	1.1	0.33	0.5
A27 Chichester Road	0.73	2.7	0.83	4.6

Table 6-122: 2031 do something junction modelling results (A27/A284 Ford Road / Arundel Bypass)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A284 Arundel Bypass	0.28	0.4	0.31	0.4
Maltravers Street	0.10	0.1	0.20	0.3
A27 S/E Arundel Bypass	0.91	8.6	0.85	5.2
Ford Road	0.55	1.2	0.34	0.5
A27 Chichester Road	0.74	2.9	0.85	5.3

Table 6-123: 2031 do minimum No Cala junction modelling results (A27/A284 Ford Road / Arundel Bypass)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A284 Arundel Bypass	0.31	0.5	0.31	0.5
Maltravers Street	0.10	0.1	0.20	0.2
A27 S/E Arundel Bypass	0.92	9.1	0.82	4.3
Ford Road	0.52	1.1	0.33	0.5
A27 Chichester Road	0.73	2.7	0.83	4.6

Table 6-124: 2031 do something no Cala junction modelling results (A27/A284 Ford Road / Arundel Bypass)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A284 Arundel Bypass	0.27	0.4	0.30	0.4
Maltravers Street	0.10	0.1	0.20	0.3
A27 S/E Arundel Bypass	0.91	8.6	0.85	5.1
Ford Road	0.55	1.2	0.34	0.5
A27 Chichester Road	0.74	2.8	0.85	5.2

A27 / The Causeway Roundabout, Arundel

The roundabout junction has been modelled using Junctions 9. A traffic survey was undertaken at this junction in June 2015 that included collection of classified turning counts and vehicle queue length surveys and this was factored up to a base year of 2019 using TEMPro to be consistent with the other model forecast years. The turning count data was collected in 15 minute intervals which allows the DIRECT data entry methodology to be used. The use of DIRECT was agreed with WSCC.

The performance of the base model was considered to reflect the observed conditions and therefore no capacity adjustments were made to calibrate the model. The baseline modelling results are shown in Table 6-125 and the output file is included in Appendix Z. These results show that the junction is operating within capacity in the base scenario.

Table 6-125: 2019 base junction modelling results (A27/The Causeway Arundel)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
The Causeway N	0.24	0.3	0.58	1.3
A27 The Causeway S/E	0.75	3.2	0.80	4.0
A27 Arundel Bypass W	0.91	9.3	0.69	2.2

The strategic model outputs provide peak hour turning flows as an hourly figure. It was agreed with WSCC where an observed 15 minute interval profile was available that this should be applied to the forecast year flows, and the data entered using the DIRECT methodology.

The results from the 2031 do minimum and do something scenarios are shown in Table 6-126 to Table 6-129 and the output file is included in Appendix Z. These results show that the junction is forecast to operate with capacity.

Table 6-126: 2031 do minimum junction modelling results (A27/The Causeway Arundel)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
The Causeway N	0.16	0.2	0.50	1.0
A27 The Causeway S/E	0.74	2.9	0.61	1.6
A27 Arundel Bypass W	0.75	2.9	0.78	3.5

Table 6-127: 2031 do something junction modelling results (A27/The Causeway Arundel)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
The Causeway N	0.16	0.2	0.51	1.0
A27 The Causeway S/E	0.75	3.0	0.63	1.7
A27 Arundel Bypass W	0.76	3.2	0.79	3.6

Table 6-128: 2031 do minimum No Cala junction modelling results (A27/The Causeway Arundel)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
The Causeway N	0.16	0.2	0.50	1.0
A27 The Causeway S/E	0.74	2.9	0.61	1.6
A27 Arundel Bypass W	0.74	2.9	0.78	3.5

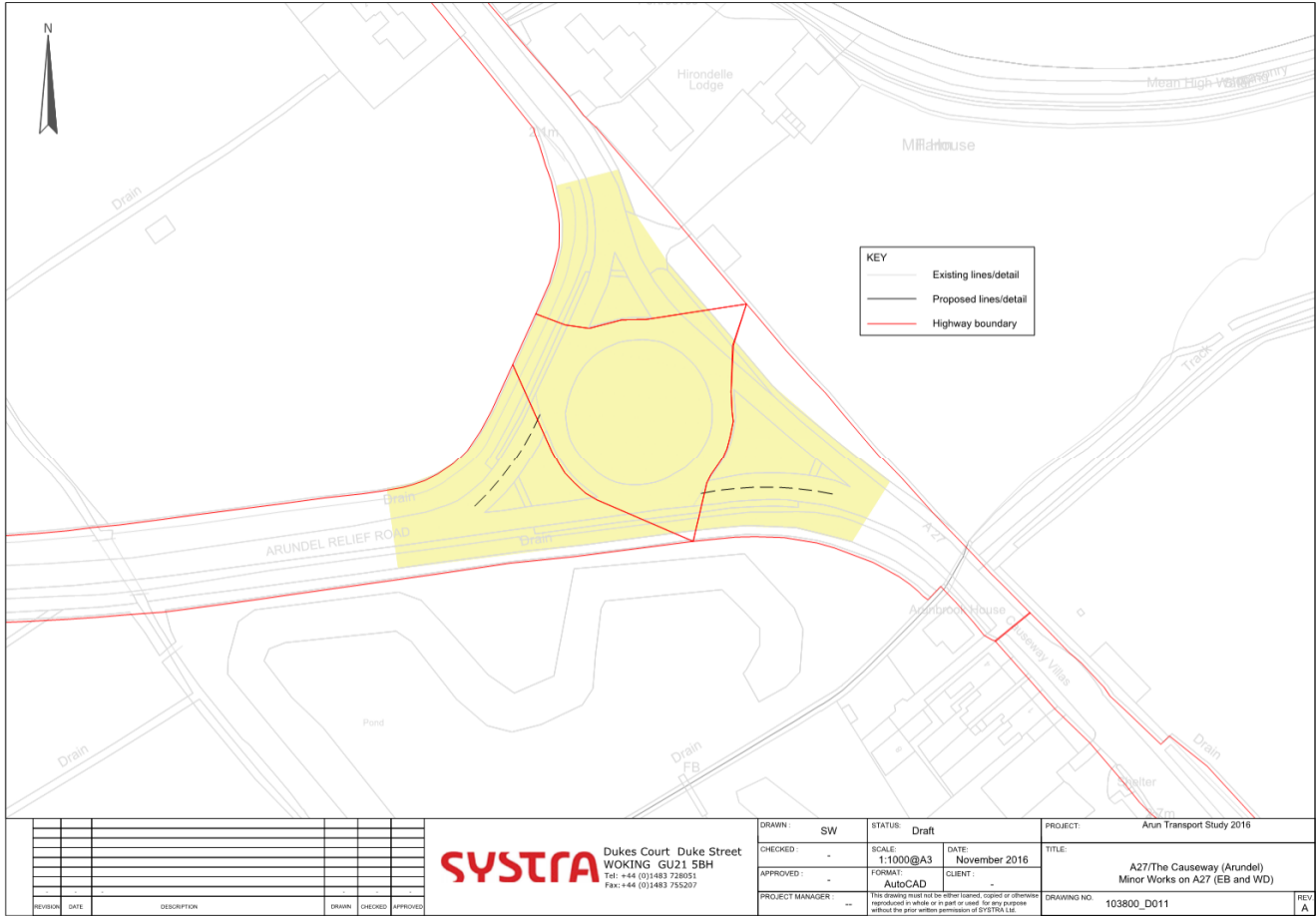
Table 6-129: 2031 do something no Cala junction modelling results (A27/The Causeway Arundel)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
The Causeway N	0.16	0.2	0.51	1.0
A27 The Causeway S/E	0.75	3.0	0.63	1.7
A27 Arundel Bypass W	0.76	3.2	0.79	3.6

Mitigation scheme

ADC has undertaken several studies to determine mitigation schemes. The Arun Transport Study Stage 3 Report mitigation scheme is shown in Figure 6.18 and includes relining of the roundabout. This does not impact the way that capacity is typically defined in a Junctions 9 roundabout model, and therefore the junction performance would be the same as reported above.

Figure 6.18: A27/A284 Ford Road / Arundel Bypass mitigation scheme (Arun Transport Study Stage 3 Report)



Source: Arun Transport Study Stage 3 Report

6.5 2038 assessment

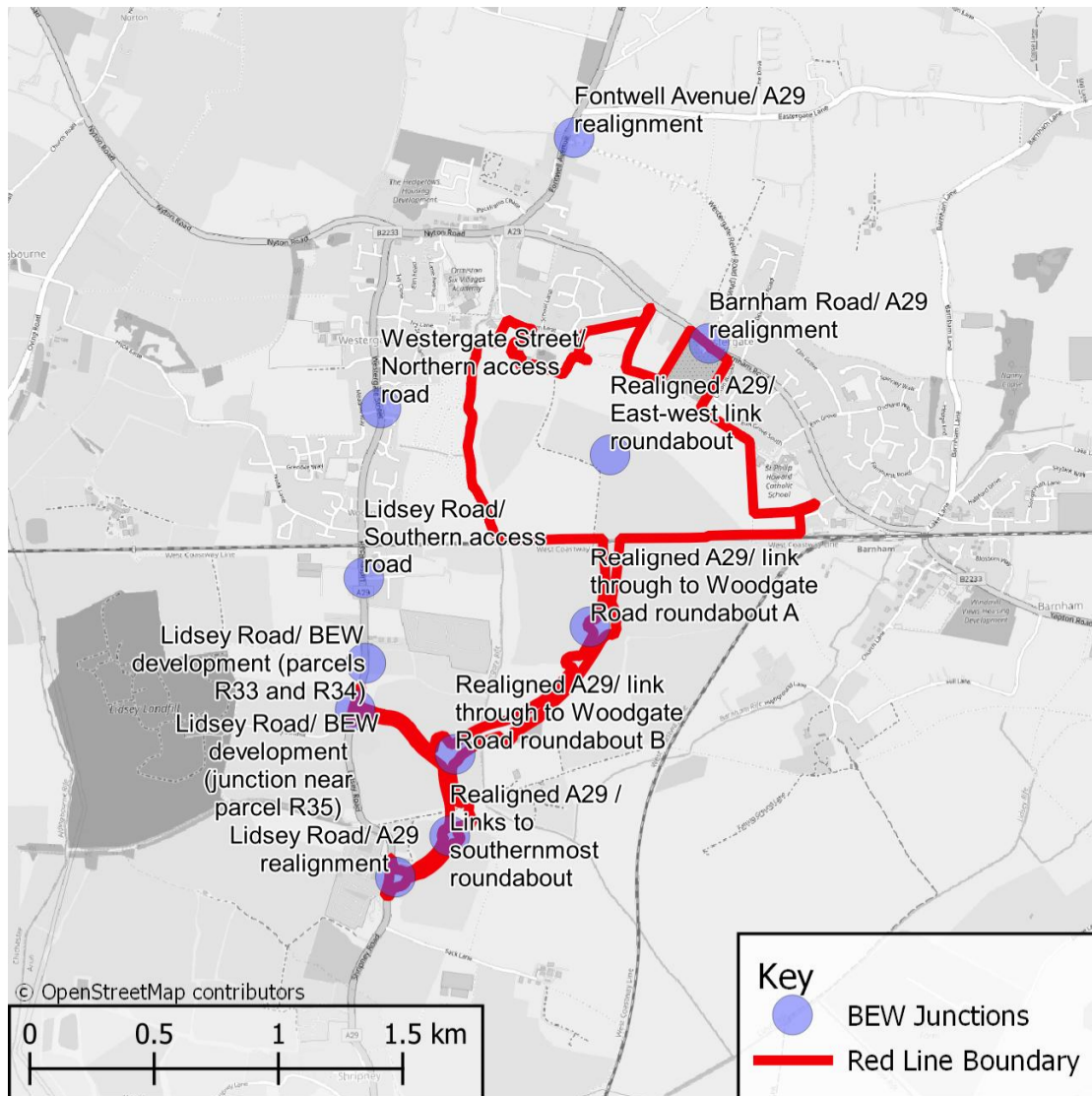
This focus of this assessment is to ensure that the realigned A29 has sufficient capacity to accommodate forecast year traffic flows. The northern section of the re-aligned A29 (north of the West Coastway railway line) is included in the 2031 do something scenario, and the entire length of the A29 is included in the 2038 do something scenario.

In order to robustly test the capacity of the junctions along the realigned A29, an additional 2,000 homes and 3FE school have been included in the 2038 do something scenario. Whilst the focus of the analysis is on the junctions along the realigned A29, the results from all of the junctions in the wider scope are included. It is noted however that the housing part of the outline planning application only includes homes north of the West Coastway railway line. New homes south of the West Coastway railway line will be applied for under separate applications which will be accompanied by separate Transport Assessments.

6.5.1.1 Realigned A29 and site allocation access junctions

The junctions considered in this section of the review are shown in Figure 6.19.

Figure 6.19: Realigned A29 and site allocation access junctions



Fontwell Avenue/ A29 Realignment

The roundabout junction has been modelled using Junctions 9. The Fontwell Avenue/ A29 Realignment will be a new roundabout junction and therefore only forecast year models have been developed for this. It was agreed with WSCC that as existing traffic profiles in the surrounding area tend to be or will trend towards being flat that the FLAT data entry methodology is appropriate.

The results from the 2038 do minimum and do something scenarios are shown in Table 6-130 to Table 6-131 and the output file is included in Appendix F. These results show that the junction is forecast to operate within capacity in all scenarios.

Table 6-130: 2038 do minimum junction modelling results (Fontwell Avenue/A29 Realignment)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A29 Fontwell Ave (N)	0.37	0.6	0.53	1.2
A29 Realignment	0.26	0.3	0.19	0.2
Fontwell Ave (S)	0.54	1.2	0.36	0.6

Table 6-131: 2038 do something junction modelling results (Fontwell Avenue/A29 Realignment)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A29 Fontwell Ave (N)	0.41	0.7	0.60	1.5
A29 Realignment	0.53	1.1	0.30	0.4
Fontwell Ave (S)	0.44	0.8	0.21	0.3

Barnham Road/ A29 Realignment

The roundabout junction has been modelled using Junctions 9. The Barnham Road/A29 Realignment will be a new roundabout junction and therefore only forecast year models have been developed for this. It was agreed with WSCC that as existing traffic profiles in the surrounding area tend to be or will trend towards being flat that the FLAT data entry methodology is appropriate.

The results from the 2038 do minimum and so something scenarios are shown in Table 6-132 and Table 6-133 and the output file is included in Appendix G. These results show that the junction is forecast to operate within capacity in all scenarios. The southern side of Barnham Road will only be built if development of the Site comes forward. Therefore, the four-arm arrangement is reported in the do something scenarios.

Table 6-132: 2038 do minimum junction modelling results (Barnham Road/A29 Realignment)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A29 Realignment	0.13	0.2	0.19	0.2
Barnham Road (E)	0.45	0.8	0.38	0.6
Barnham Road (W)	0.22	0.3	0.27	0.4

Table 6-133: 2038 do something junction modelling results (Barnham Road/A29 Realignment)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A29 Realignment	0.45	0.8	0.59	1.4
Barnham Road (E)	0.60	1.5	0.69	2.2
Spine Road	0.77	3.4	0.50	1.0
Barnham Road (W)	0.19	0.2	0.31	0.4

Realigned A29 / East-west link road Roundabout

The roundabout junction has been modelled using Junctions 9. The Realigned A29/ East-west link road will be a new roundabout junction and therefore only forecast year models have been developed for this. It was agreed with WSCC that as existing traffic profiles in the surrounding area tend to be or will trend towards being flat that the FLAT data entry methodology is appropriate.

The results from the 2038 do something scenario are shown in Table 6-134 and the output file is included in 0. These results show that the junction is forecast to operate within capacity.

Table 6-134: 2038 do something junction modelling results (Realigned A29/ East-west link road Roundabout)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Realigned A29 N	0.49	1.0	0.67	2.0
East Link	0.19	0.2	0.10	0.1
West Lnk	0.65	1.9	0.52	1.1
Realigned A29 S	0.16	0.2	0.12	0.1

Westergate Street/ Northern Access

This junction is the revised access to the Land at Westergate (Cala Homes) site. The transport assessment submitted as part of the refused Cala application showed that the site access junction with Westergate Street would be reconfigured as a signalised junction and therefore this has been modelled using LinSig V3.

As with the 2031 modelling, two staging plans have been considered. The results from the 2038 do minimum and do something scenarios are shown in Table 6-135 and Table 6-136 and the output file is included in Appendix I. These results show that if the junction is forecast to operate within capacity in all scenarios.

Table 6-135: 2038 do minimum junction modelling results (Westergate Street/Northern Access) for mitigation scheme

Pedestrian Stage demanded every cycle	AM Peak (88CT)		PM Peak (88CT)	
	DoS	MMQ	DoS	MMQ
Westergate Street North	70%	14	50%	8
Northern Access	67%	4	33%	2
Westergate Street South	85%	20	75%	15
Meadow Way	65%	3	54%	3
Overall PRC for junction	5.4%		20.2%	
Pedestrian Stage demanded every other cycle	AM Peak (120CT)		PM Peak (120CT)	
	DoS	MMQ	DoS	MMQ
Westergate Street North	75%	15	53%	8
Northern Access	48%	3	24%	1
Westergate Street South	90%	22	79%	16
Meadow Way	44%	3	37%	2
Overall PRC for junction	0.1%		14.2%	

Table 6-136: 2038 do something junction modelling results (Westergate Street/Northern Access) for mitigation scheme

Pedestrian Stage demanded every cycle	AM Peak (88CT)		PM Peak (88CT)	
	DoS	MMQ	DoS	MMQ
Westergate Street North	29%	4	42%	6
Northern Access	55%	5	25%	1
Westergate Street South	55%	9	41%	5
Meadow Way	35%	3	42%	2
Overall PRC for junction	62.5%		114.2%	
Pedestrian Stage demanded every other cycle	AM Peak (120CT)		PM Peak (120CT)	
	DoS	MMQ	DoS	MMQ
Westergate Street North	28%	3	42%	6
Northern Access	54%	3	24%	1
Westergate Street South	54%	8	37%	5
Meadow Way	32%	2	38%	2
Overall PRC for junction	66.5%		115.1%	

Realigned A29 / Link to Woodgate Roundabout A

The roundabout junction has been modelled using Junctions 9. The Realigned A29/Link to Woodgate Roundabout A will be a new roundabout junction and therefore only forecast year models have been developed for this. It was agreed with WSCC that as existing traffic profiles in the surrounding area tend to be or will trend towards being flat that the FLAT data entry methodology is appropriate.

The results from the 2038 do something scenarios are shown in Table 6-137 and the output file is included in 0. These results show that the junction is forecast to operate within capacity.

Table 6-137: 2038 do something junction modelling results (Realigned A29/Link to Woodgate Roundabout A)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Realigned A29 N	0.48	0.9	0.59	1.4
East Connection	0.22	0.3	0.11	0.1
Realigned A29 S	0.53	1.1	0.50	1.0
West Connection	0.08	0.1	0.06	0.1

Woodgate Road / Lidsey Road / Southern Access

The T-junction has been modelled using Junctions 9. The Woodgate Road/Lidsey Road/Southern Access will be a new T-junction and therefore only forecast year models have been developed for this. It was agreed with WSCC that as existing traffic profiles in the surrounding area tend to be or will trend towards being flat that the FLAT data entry methodology is appropriate.

The results from 2038 do minimum and 2038 do something scenarios are shown in Table 6-138 to Table 6-139 and the output file is included in 0. These results show that the junction is forecast to operate within capacity in all scenarios.

Table 6-138: 2038 do minimum junction modelling results (Woodgate Road/Lidsey Road/Southern Access) for mitigation scheme

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Site Access	0.36	0.5	0.17	0.2
Westergate Street (S)	0.06	0.1	0.13	0.3

Table 6-139: 2038 do something junction modelling results (Woodgate Road/Lidsey Road/Southern Access) for mitigation scheme

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Site Access	0.38	0.6	0.18	0.2
Westergate Street (S)	0.04	0.1	0.10	0.2

Lidsey Road / Site Access (parcels R33 and R34)

The T-junction has been modelled using Junctions 9. The Lidsey Road/Site Access will be a new T-junction for parcels R33 and R34 and therefore only forecast year models have been developed for this. It was agreed with WSCC that as existing traffic profiles in the surrounding area tend to be or will trend towards being flat that the FLAT data entry methodology is appropriate.

The results from the 2038 do something scenario are shown in Table 6-140 and the output file is included in Appendix CC. These results show that the junction is forecast to operate within capacity.

Table 6-140: 2038 do something junction modelling results (Lidsey Road/Site Access (parcels R33 and R34))

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Site Access Left	0.01	0.0	0.01	0.0
Site Access Right	0.05	0.1	0.02	0.0
Lidsey Road	0.01	0.0	0.02	0.0

Realigned A29/ Lidsey Road (Hanbury Link to Woodgate Roundabout B)

The roundabout junction has been modelled using Junctions 9. The Realigned A29/ Lidsey Road (Hanbury Link) will be a new roundabout junction and therefore only forecast year models have been developed for this. It was agreed with WSCC that as existing traffic profiles in the surrounding area tend to be or will trend towards being flat that the FLAT data entry methodology is appropriate.

The results from the 2038 do something scenarios are shown in Table 6-141 and the output file is included in 0. These results show that the junction is forecast to operate within capacity.

Table 6-141: 2038 do something junction modelling results (Realigned A29/ Lidsey Road (Hanbury Link))

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Realigned A29 N	0.52	1.1	0.52	1.1
Realigned A29 S	0.49	1.0	0.55	1.2
West Connection	0.05	0.1	0.04	0.0

Lidsey Road / Site Access (parcel R35)

The roundabout junction has been modelled using Junctions 9. The Lidsey Road/Site Access will be a new roundabout junction for parcel R35 and therefore only forecast year models have been developed for this. It was agreed with WSCC that as existing traffic profiles in the surrounding area tend to be or will trend towards being flat that the FLAT data entry methodology is appropriate.

The results from the 2038 do something scenarios are shown in Table 6-142 and the output file is included in 0. These results show that the junction is forecast to operate within capacity.

Table 6-142: 2038 do something junction modelling results (Lidsey Road/Site Access (parcel R35))

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Lidsey Road N	0.25	0.4	0.29	0.4
Site Access	0.07	0.1	0.02	0.0
Lidsey Road S	0.22	0.3	0.20	0.3

Realigned A29 / Links to southernmost roundabout

The roundabout junction has been modelled using Junctions 9. This will be a new roundabout junction and therefore only forecast year models have been developed for this. It was agreed with WSCC that as existing traffic profiles in the surrounding area tend to be or will trend towards being flat that the FLAT data entry methodology is appropriate.

The 2038 do something scenario modelling results are shown in Table 6-143, and the output file is included in 0. These results show that the junction is forecast to operate within capacity.

Table 6-143: 2038 do something junction modelling results (Realigned A29 / Links to southernmost roundabout)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Northern arm	0.63	1.7	0.71	2.4
Eastern arm	0.24	0.3	0.12	0.1
Southern arm	0.60	1.5	0.74	2.8
Western arm	0.19	0.2	0.18	0.2

Lidsey Road/A29 realignment

The roundabout junction has been modelled using Junctions 9. The Lidsey Road/A29 Alignment will be a new roundabout junction and therefore only forecast year models have been developed for this. It was agreed with WSCC that as existing traffic profiles in the surrounding area tend to be or will trend towards being flat that the FLAT data entry methodology is appropriate. The 2038 do something scenario modelling results are shown in Table 6-144, and the output file is included in Appendix J. These results show that the junction is forecast to operate within capacity.

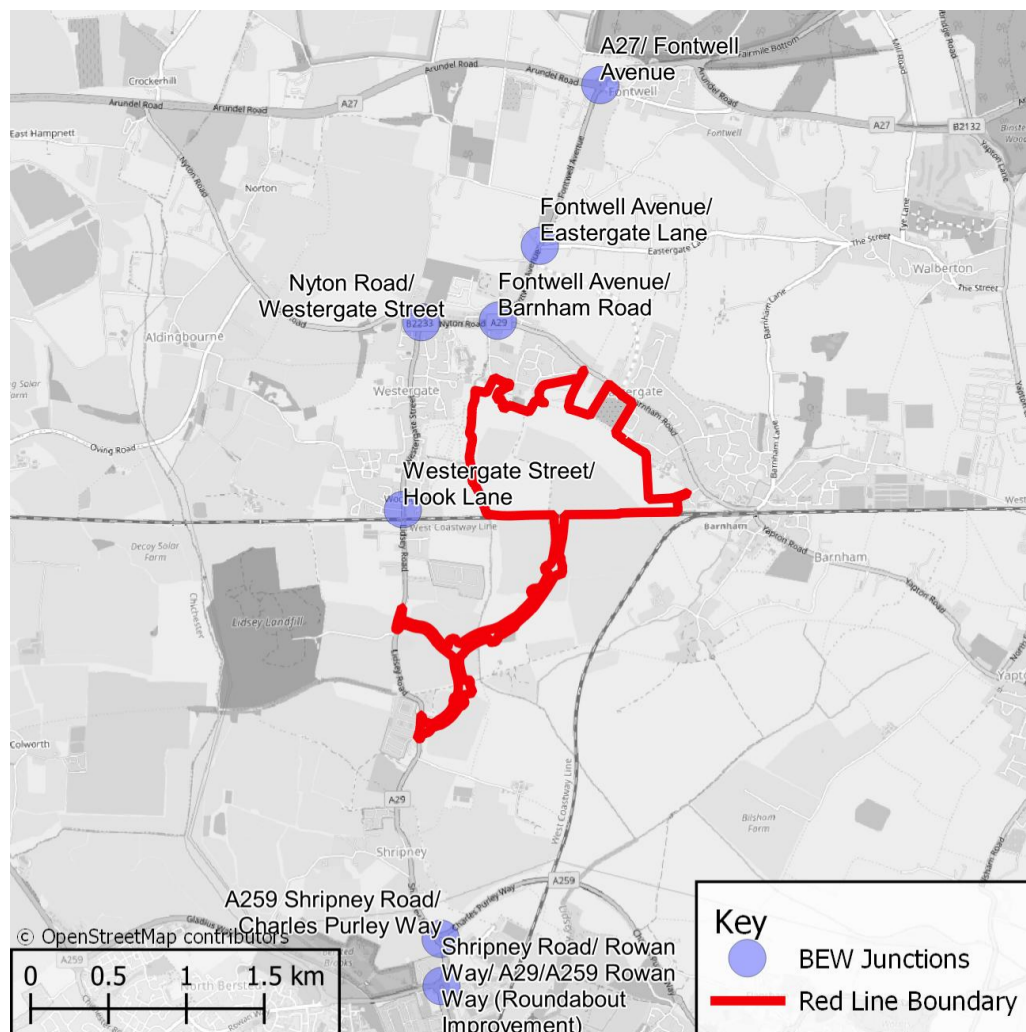
Table 6-144: 2038 do something junction modelling results (Lidsey Road/A29 Realignment)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Lidsey Road (N)	0.36	0.6	0.40	0.7
Realigned A29	0.77	3.4	0.76	3.1
Lidsey Road (S)	0.59	1.5	0.67	2.0

6.5.1.2 Existing A29 junctions

The junctions considered in this section of the review are shown in Figure 6.20.

Figure 6.20: Existing A29 and site allocation access junctions



A27/ Fontwell Avenue

The strategic model outputs provide peak hour turning flows as an hourly figure. It was agreed with WSCC where an observed 15 minute interval profile was available that this should be applied to the forecast year flows, and the data entered using the DIRECT methodology.

The results from the 2038 do minimum and do something scenarios are shown in Table 6-145 and Table 6-146 and the output file is included in Appendix K. These results show that the junction is forecast to operate over capacity in the forecast years and therefore mitigation is required.

Table 6-145: 2038 do minimum junction modelling results (A27/Fontwell Avenue)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A27 North	1.05	75.9	1.25	312.8
Arundel Road	0.98	5.9	0.34	0.5
A29 Fontwell Avenue	2.00	361.7	0.86	5.0
A27 Arundel Road W	0.60	1.6	0.99	26.7

Table 6-146: 2038 do something junction modelling results (A27/Fontwell Avenue)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A27 North	1.11	174.6	1.36	458.0
Arundel Road	1.06	7.4	0.30	0.4
A29 Fontwell Avenue	1.90	334.9	0.84	4.6
A27 Arundel Road W	0.63	1.7	1.07	79.8

Mitigation scheme

The Arun District Transport Study – Stage 3 (2016) includes a mitigation scheme for this junction, which includes signalling the roundabout on the A27 North and Arundel Road West. The results from this modelling shows that the mitigation scheme, 1b improves the performance of the roundabout, with reduction in the reported queue lengths.

Table 6-147: 2038 do minimum junction modelling results (A27/Fontwell Avenue) with mitigation

	AM Peak		PM Peak	
	DoS	Queue	DoS	Queue
A27 North	116%	109	110%	69
Arundel Road	26%	0	18%	0
A29 Fontwell Avenue	97%	12	69%	5
A27 Arundel Road W Left	112%	89	112%	148
A27 Arundel Road W Ahead	63%	6	57%	7
Overall PRC for junction	-29%		-24%	

Table 6-148: 2038 do something junction modelling results (A27/Fontwell Avenue) with mitigation

	AM Peak		PM Peak	
	DoS	Queue	DoS	Queue
A27 North	169%	277	111%	78
Arundel Road	22%	0	19%	0
A29 Fontwell Avenue	78%	7	70%	5
A27 Arundel Road W Left	94%	17	125%	241
A27 Arundel Road W Ahead	66%	8	83%	13
Overall PRC for junction	-88%		-39%	

Fontwell Avenue / Eastergate Lane

The strategic model outputs provide peak hour turning flows as an hourly figure. It was agreed with WSCC where an observed 15 minute interval profile was available that this should be applied to the forecast year flows, and the data entered using the DIRECT methodology.

The results from the 2038 do minimum and do something scenarios are shown in Table 6-149 to Table 6-150 and the output file is included in Appendix L. These results show that the junction is forecast to operate within capacity in all scenarios.

Table 6-149: 2038 do minimum junction modelling results (Fontwell Avenue/Eastergate Lane)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Eastergate Lane Left	0.28	0.4	0.27	0.4
Eastergate Lane Right	0.00	0.0	0.00	0.0
Fontwell Avenue North Right	0.00	0.0	0.00	0.0
Northfield Farmhouse	0.04	0.0	0.00	0.0
Fontwell Avenue South Right	0.11	0.1	0.23	0.4

Table 6-150: 2038 do something junction modelling results (Fontwell Avenue/Eastergate Lane)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Eastergate Lane Left	0.03	0.0	0.09	0.1
Eastergate Lane Right	0.00	0.0	0.00	0.0
Fontwell Avenue North Right	0.00	0.0	0.00	0.0
Northfield Farmhouse	0.16	0.2	0.02	0.0
Fontwell Avenue South Right	0.02	0.0	0.06	0.1

Fontwell Avenue / Barnham Road

The strategic model outputs provide peak hour turning flows as an hourly figure. It was agreed with WSCC where an observed 15 minute interval profile was available that this should be applied to the forecast year flows, and the data entered using the DIRECT methodology.

The results from the 2038 do minimum and do something scenarios are shown in Table 6-151 and Table 6-152 and the output file is included in Appendix M. These results show that the junction is forecast to operate with what is considered to be an acceptable LoS in all scenarios.

Table 6-151: 2038 do minimum junction modelling results (Fontwell Avenue/ Barnham Road)

	AM Peak			PM Peak		
	LoS	Delay (s)	Queue (PCU)	LoS	Delay (s)	Queue (PCU)
Fontwell Avenue	C	15.74	3.5	D	25.31	5.6
Barnham Road	A	9.56	1.5	A	6.5	0.8
Nyton Road	C	18.37	5.4	A	7.69	2.3

Table 6-152: 2038 do something junction modelling results (Fontwell Avenue/Barnham Road)

	AM Peak			PM Peak		
	LoS	Delay (s)	Queue (PCU)	LoS	Delay (s)	Queue (PCU)
Fontwell Avenue	A	4.96	0.4	A	7.15	0.7
Barnham Road	A	6.3	1.2	A	4.71	0.7
Nyton Road	A	7.06	1.1	A	5.63	1.1

Nyton Road / Westergate Street

The strategic model outputs provide peak hour turning flows as an hourly figure. It was agreed with WSCC where an observed 15 minute interval profile was available that this should be applied to the forecast year flows, and the data entered using the DIRECT methodology.

The results from the 2038 do minimum and do something scenarios are shown in Table 6-153 and Table 6-154 and the output file is included in Appendix N. These results show that the junction is forecast to operate within capacity in all of the scenarios.

Table 6-153: 2038 do minimum junction modelling results (Nyton Road/Westergate Street)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
North Junction				
Nyton Road West Left	0.60	1.5	0.80	3.4
Nyton Road West Right	0.00	0.0	0.00	0.0
Nyton Road East	0.76	2.9	0.29	0.4
West Junction				
Nyton Road South Left	0.51	1.0	0.34	0.5
Nyton Road South Right	0.02	0.0	0.01	0.0
Nyton Road East	0.01	0.0	0.01	0.0
Local Access	0.01	0.0	0.01	0.0
Nyton Road West	0.23	0.5	0.38	0.9
South Junction				
Nyton Road North Left	0.00	0.0	0.00	0.0
Nyton Road North Right	0.31	0.4	0.49	0.9
Westergate North	0.00	0.0	0.00	0.0

Table 6-154: 2038 do something junction modelling results (Nyton Road/Westergate Street)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
North Junction				
Nyton Road West Left	0.47	0.9	0.83	4.1
Nyton Road West Right	0.00	0.0	0.00	0.0
Nyton Road East	0.92	7.6	0.47	0.9
West Junction				
Nyton Road South Left	0.67	1.9	0.37	0.6
Nyton Road South Right	0.02	0.0	0.01	0.0
Nyton Road East	0.01	0.0	0.01	0.0
Local Access	0.01	0.0	0.02	0.0
Nyton Road West	0.27	0.6	0.56	2.0
South Junction				
Nyton Road North Left	0.00	0.0	0.00	0.0
Nyton Road North Right	0.22	0.3	0.43	0.7
Westergate North	0.00	0.0	0.00	0.0

Westergate Street/ Hook Lane

The strategic model outputs provide peak hour turning flows as an hourly figure. It was agreed with WSCC where an observed 15 minute interval profile was available that this should be applied to the forecast year flows, and the data entered using the DIRECT methodology.

The results from the 2038 do minimum and do something scenarios are shown in Table 6-155 to Table 6-156 and the output file is included in Appendix O. These results show that in the AM peak hour the junction is forecast to operate within capacity in all of the scenarios. In the PM peak hour, Hook Lane operates within capacity, except in the 2038 do something scenario.

It is noted from the model output file that the RFC of 1.02 is in a single 15 minute period, where capacity is exceeded by 3 PCUs only. There is over 100 PCUs of capacity shown by the model to be available at other times within the hour, and therefore it is suggested that no mitigation scheme is required as road users will adapt their behaviour to avoid the busiest time within the hour in such cases.

Table 6-155: 2038 do minimum junction modelling results (Westergate Street/Hook Lane)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Hook Lane	0.51	1.0	0.92	5.6
Westergate Street	0.18	0.6	0.16	0.5

Table 6-156: 2038 do something junction modelling results (Westergate Street/Hook Lane)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Hook Lane	0.55	1.2	1.02	11.4
Westergate Street	0.15	0.2	0.10	0.2

Shripney Road / Charles Purley Way

The strategic model outputs provide peak hour turning flows as an hourly figure. It was agreed with WSCC where an observed 15 minute interval profile was available that this should be applied to the forecast year flows, and the data entered using the DIRECT methodology.

The results from 2038 do minimum and do something scenarios are shown in Table 6-157 and Table 6-158 and the output file is included in Appendix P. These results show that the junction (existing geometry) is forecast to operate over capacity in both peak hours and therefore mitigation is required.

Table 6-157: 2038 do minimum junction modelling results (Shripney Road/Charles Purley Way)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A259 Felpham Relief Road	1.04	25.7	0.98	11.5
David Purley Memorial	0.65	1.8	1.09	27.1
A29 Shripney Road South	0.99	17.5	1.14	66.8
A29 Shripney Road North	0.51	1.1	0.71	2.4

Table 6-158: 2038 do something junction modelling results (Shripney Road/Charles Purley Way)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A259 Felpham Relief Road	1.13	33.1	1.28	53.6
David Purley Memorial	0.73	2.5	1.39	68.8
A29 Shripney Road South	1.07	41.1	1.30	173.5
A29 Shripney Road North	0.69	2.3	0.83	4.7

Mitigation scheme

The results from this modelling shows that the mitigation scheme improves the performance of the roundabout in the AM peak hour. In the PM peak hour A259 Felpham Relief Road and A29 Shripney Road South now operate with spare capacity and it is considered that therefore there is an overall improvement to the operation of the junction compared to the without mitigation scenario.

Table 6-159: 2038 do minimum junction modelling results (Shripney Road/Charles Purley Way) for mitigation scheme

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A259 Felpham Relief Road	0.62	1.7	0.56	1.2
David Purley Memorial	0.62	1.6	1.12	30.3
A29 Shripney Road South	0.58	1.4	0.66	1.9
Saltbox Road	0.14	0.2	0.37	0.6
A29 Shripney Road North	0.63	1.7	0.99	16.7

Table 6-160: 2038 do something junction modelling results (Shripney Road/Charles Purley Way) for mitigation scheme

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A259 Felpham Relief Road	0.63	1.7	0.66	1.9
David Purley Memorial	0.69	2.1	1.47	77.4
A29 Shripney Road South	0.62	1.7	0.75	2.9
Saltbox Road	0.17	0.2	0.63	1.6
A29 Shripney Road North	0.84	5.0	1.21	77.4

The results from this modelling of the mitigation scheme shows the following:

- There is a significant improvement in the performance of the A259 Felpham Relief Road and A29 Shripney Road South arms of the junction in all scenarios as a result of the mitigation scheme.
- The junction is forecast to operate within capacity in the AM peak in the 2038 do minimum and do something scenarios.
- The junction is forecast to operate over capacity on the David Purley Memorial and A29 Shripney Road North arms of the junction in the PM peak in the 2038 do something scenarios.

It is observed that the traffic flows from the David Purley Memorial arm increase significantly from those recorded in the 2019 survey as a result of the traffic generated by the Oldlands Farm site. A comparison

between the scenarios is shown below, and this indicates that the change in RFC on the David Purley Memorial arm is considered to be due to the additional traffic generated by the Oldlands Farm site, and therefore not attributable to the scale of development proposed in the Southern Consortium's current outline planning application for 1,250 homes.

Table 6-161: PM peak hour flows (PCUs) exiting the David Purley Memorial Arm of the junction

	2019	2031 do minimum	2031 do something	2038 do minimum	2038 do something
PCUs (in hour)	62	536	537	543	544

Review of the 2038 do something modelling results also shows that whilst the RFC exceeds 1 during some time periods within the hour, the tables below demonstrate that overall there is spare highway capacity.

Table 6-162: 2038 do something junction modelling results (Shripney Road/Charles Purley Way): 15 minute results for demand, capacity and RFC for the David Purley Memorial arm of the junction

	PM Peak			
	Total demand (PCU/TS)	Capacity (PCU/TS)	Spare capacity (PCU/TS)	RFC
17:00 to 17:15	237	161.70	-75.3	1.47
17:15 to 17:30	122	161.43	39.43	0.76
17:30 to 17:45	100	182.6	82.6	0.55
17:45 to 18:00	85	191.25	106.25	0.44

Table 6-163: 2038 do something junction modelling results (Shripney Road/Charles Purley Way): 15 minute results for demand, capacity and RFC for the A29 Shripney Road North arm of the junction

	PM Peak			
	Total demand (PCU/TS)	Capacity (PCU/TS)	Spare capacity (PCU/TS)	RFC
17:00 to 17:15	352	345.77	-6.23	1.02
17:15 to 17:30	333	387.80	54.8	0.86
17:30 to 17:45	398	329.38	-68.62	1.21
17:45 to 18:00	235	441.03	206.03	0.53

It is again noted that the scope of the planning application is for 1,250 homes and therefore whilst the 2038 do something modelling results show the A29 Shripney Road arm to be operating over capacity, the focus of the review of the impact of these should be on the 2031 forecast year modelling results. The additional 2,000 homes south of the West Coastway railway line would be the subject of a future planning application and assessment at that time. Therefore additional mitigation (if required) would be addressed as part of a subsequent planning application.

In summary, the A29/A259 Charles Purley Way/Oldlands Farm/Saltbox junction modelling shows that:

- The junction is forecast to operate within capacity in the 2031 do minimum and do something scenarios in both the AM and PM peak hours, with the exception of the David Purley Memorial arm of the junction in the PM peak hour. This change in RFC on the David Purley Memorial arm is considered to be due to the additional traffic generated by the Oldlands Farm site, and therefore not attributable to the scale of development proposed in the Southern Consortium's outline planning application for 1,250 homes.
- The junction is forecast to operate within capacity in the AM peak in the 2038 do minimum and do something scenarios.

- The junction is forecast to operate over capacity on the David Purley Memorial and A29 Shripney Road North arms of the junction in the PM peak in the 2038 do something scenarios. Review of the 2038 do something modelling results also shows that whilst the RFC exceeds 1 during some time periods within the hour, overall there is spare highway capacity.
- There is a significant improvement in the performance of the A259 Felpham Relief Road and A29 Shripney Road South arms of the junction in all scenarios as a result of the mitigation scheme.

Shripney Road / Rowan Way

The strategic model outputs provide peak hour turning flows as an hourly figure. It was agreed with WSCC where an observed 15 minute interval profile was available that this should be applied to the forecast year flows, and the data entered using the DIRECT methodology.

The results from the 2038 do minimum and do something scenarios are shown in Table 6-164 to Table 6-165 and the output file is included in Appendix Q . These results show that the junction is forecast to operate within capacity in all of the forecast year scenarios.

Table 6-164: 2038 do minimum junction modelling results (Shripney Road/ Rowan Way)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A29 Shripney Road North	0.78	3.6	0.88	6.6
Steyning Way	0.26	0.4	0.76	3.0
A29 Shripney Road South	0.70	2.3	0.75	2.8
Rowan Way	0.80	3.8	0.91	7.7

Table 6-165: 2038 do something junction modelling results (Shripney Road/ Rowan Way)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A29 Shripney Road North	0.81	4.1	0.95	15.1
Steyning Way	0.27	0.4	0.85	4.8
A29 Shripney Road South	0.71	2.4	0.77	3.1
Rowan Way	0.77	3.3	0.91	7.7

Mitigation scheme

The Arun District Council Stage 3 Study includes a mitigation scheme to provide highway improvements to the existing roundabout in the form of increased flare lanes and road widths. The results from this modelling shows that the mitigation scheme improves the performance of the roundabout in the AM peak hour. In the PM peak hour A29 Shripney Road North and South now operates with spare capacity, however Steyning Way operates over capacity in the 2038 do something scenario. This is during a single 15 minute period and there is spare capacity within the other 45 minutes of the hour.

Table 6-166: 2038 do minimum junction modelling results (Shripney Road/ Rowan Way)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A29 Shripney Road North	0.66	1.9	0.74	2.8
Steyning Way	0.31	0.5	0.94	7.9
A29 Shripney Road South	0.57	1.3	0.59	1.4
Rowan Way	0.59	1.4	0.67	2.0

Table 6-167: 2038 do something junction modelling results (Shripney Road/ Rowan Way)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A29 Shripney Road North	0.68	2.2	0.80	4.0
Steyning Way	0.32	0.5	1.08	18.5
A29 Shripney Road South	0.57	1.3	0.60	1.5
Rowan Way	0.57	1.3	0.66	1.9

The results from this modelling of the mitigation scheme shows that the RFC on the Steyning Way arm of the junction increases in all of the scenarios, however it is forecast to only operate over capacity in the 2038 do something PM peak hour. This is during a single 15 minute period and there is spare capacity within the other 45 minutes of the hour (highlighted in Table 6-168).

Table 6-168: 2038 do something junction modelling results (Shripney Road/ Rowan Way): 15 minute results for demand, capacity and RFC for the Steyning Way arm of the junction

	PM Peak			
	Total demand (PCU/TS)	Capacity (PCU/TS)	Spare capacity (PCU/TS)	RFC
17:00 to 17:15	153	141.77	-11.23	1.08
17:15 to 17:30	90	141.22	51.22	0.64
17:30 to 17:45	106	140.99	34.99	0.75
17:45 to 18:00	80	190.04	110.04	0.42

Whilst the RFC on the Steyning Way arm of the junction increases in the 2038 do something scenario, it is considered there is spare capacity across the hour to accommodate the traffic, and there would be a reduction in the total overall delay to drivers using the junction after the mitigation scheme is in place.

It is noted again that the scope of the planning application is for 1,250 homes and therefore the focus of the review of the impact of these should be on the 2031 forecast year modelling results. The additional 2,000 homes south of the West Coastway railway line are considered a sensitivity test for the purpose of this TA and would be the subject of a future planning application, therefore additional mitigation (if required) would be addressed as part of a subsequent planning application.

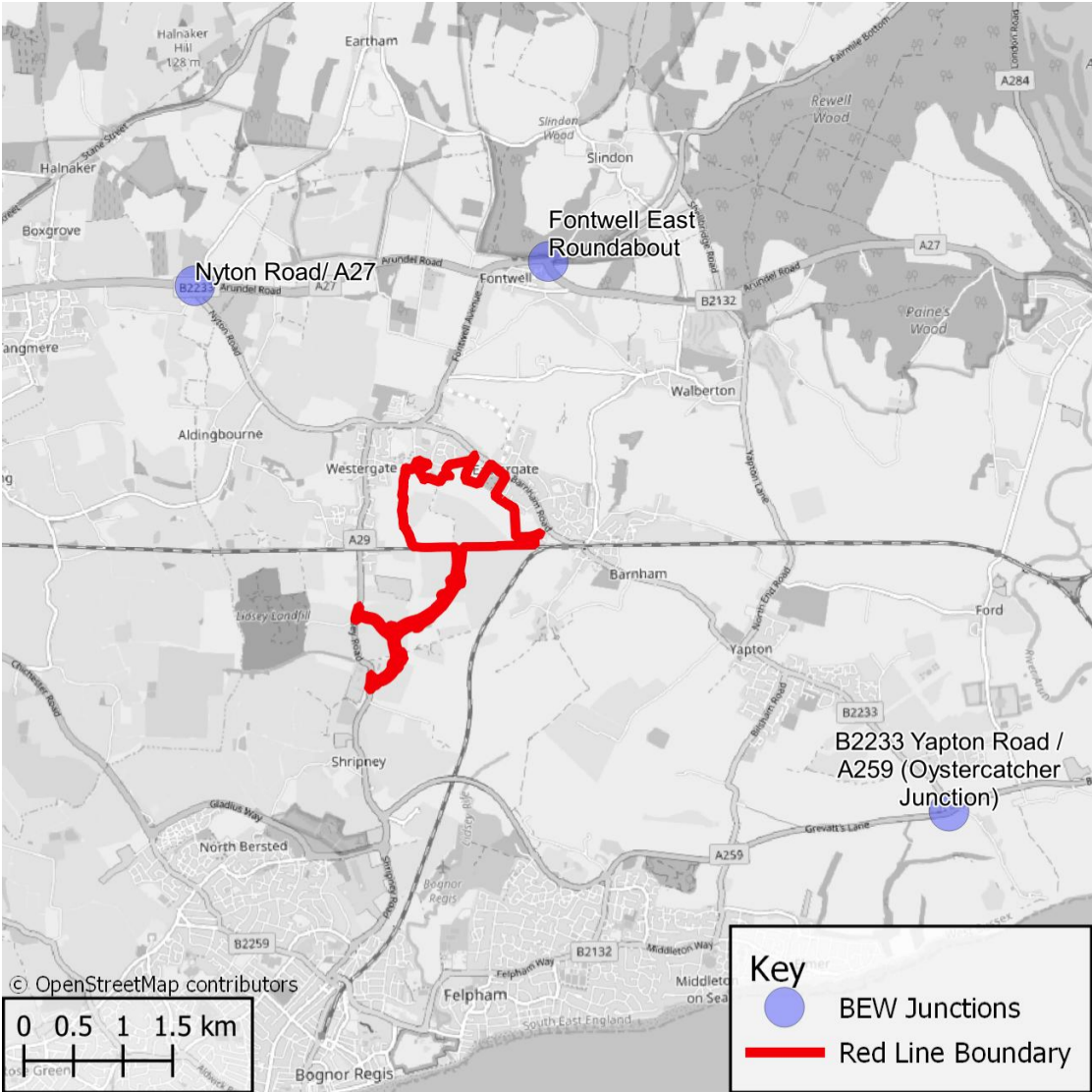
In summary, the A29/A259 Rowan Way/ Steyning Way junction modelling shows that:

- The existing junction layout is forecast to operate within capacity in all of the forecast year scenarios. Therefore, based on this it is considered the impact of the proposed development does not require further mitigation.
- The results from this modelling of the mitigation scheme shows that the junction is forecast to operate within capacity in the 2031 do minimum and do something scenarios.
- The A29 Shripney Road North and South, and Rowan Way arms of the junction are forecast to operate with additional spare capacity in all of the modelling scenarios, and whilst The RFC on the Steyning Way arm of the junction increases in the 2038 do something scenario, it is considered there is spare capacity across the hour to accommodate the traffic, and there would be a reduction in the total overall delay to drivers using the junction after the mitigation scheme is in place.

6.5.1.3 Apportionment Study Junctions

The junctions considered in this section of the review are shown in Figure 6.21.

Figure 6.21: Apportionment study junctions



Nyton Road/ A27

The strategic model outputs provide peak hour turning flows as an hourly figure. It was agreed with WSCC where an observed 15 minute interval profile was available that this should be applied to the forecast year flows, and the data entered using the DIRECT methodology.

The results from the 2038 do minimum and do something scenarios are shown in Table 6-169 to Table 6-170 and the output file is included in Appendix R. These results show that the junction is forecast to operate within capacity and the queue length reported could be accommodated within the right turn lane capacity that is available.

Table 6-169: 2038 do minimum junction modelling results (Nyton Road/A27)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Nyton Road	0.00	0	0.00	0
A27 Arundel Road (W)	0.84	3.5	0.86	4.7

Table 6-170: 2038 do something junction modelling results (Nyton Road/A27)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Nyton Road	0.00	0	0.00	0
A27 Arundel Road (W)	0.92	5.0	0.92	6.8

A27 / A29 (Fontwell Eastern roundabout)

The strategic model outputs provide peak hour turning flows as an hourly figure. The FLAT data entry technique was used to model the junction. The results from the 2038 do minimum do something scenarios are shown in Table 6-171 and Table 6-172 and the output file is included in Appendix S. These results show that the junction is forecast to operate within capacity.

Table 6-171: 2038 do minimum junction modelling results (Fontwell Eastern Roundabout)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A29 Farmille Bottom	0.60	1.6	0.83	5.3
A27 South (Arundel Road)	0.88	7.9	0.63	1.9
A27 West	0.70	2.6	0.78	4.0

Table 6-172: 2038 do something junction modelling results (Fontwell Eastern Roundabout)

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A29 Farmille Bottom	0.62	1.8	0.97	19.2
A27 South (Arundel Road)	0.95	18.8	0.62	1.9
A27 West	0.75	3.3	0.82	4.9

Mitigation scheme

ADC has undertaken several studies to determine mitigation schemes. The Arun Transport Study Stage 3 Report and the Enterprise Bognor Regis Transport Review (2017) both reference the same mitigation scheme at the Fontwell East Roundabout. This junction has been modelled using LinSig and the results for the forecast years are presented in Table 6-173 and Table 6-174. The model output file is included in Appendix S. The results from this modelling shows the junction is forecast to operate within capacity.

Table 6-173: 2038 do minimum junction modelling results (Fontwell Eastern Roundabout) for mitigation scheme

	AM Peak		PM Peak	
	DoS	MMQ	DoS	MMQ
A29 Farmille Bottom	68%	5	85%	10
A27 South (Arundel Road)	90%	20	82%	15
A27 West	86%	17	84%	18
Overall PRC for junction	-0.4%		5.5%	

Table 6-174: 2038 do something junction modelling results (Fontwell Eastern Roundabout) for mitigation scheme

	AM Peak		PM Peak	
	DoS	MMQ	DoS	MMQ
A29 Farmille Bottom	70%	6	97%	19
A27 South (Arundel Road)	91%	20	80%	14
A27 West	88%	18	96%	29
Overall PRC for junction	-1.2%		-8.2%	

B2233 Yapton Road / A259 Crookthorn Lane / Grevatts Lane (Oystercatcher Junction)

The strategic model outputs provide peak hour turning flows as an hourly figure. It was agreed with WSCC where an observed 15 minute interval profile was available that this should be applied to the forecast year flows, and the data entered using the DIRECT methodology.

The results from the 2038 do minimum and do something scenarios are shown in Table 6-175 and Table 6-176 and the output file is included in Appendix T. These results show that the junction operates over capacity in both peak hours and therefore mitigation is required.

Table 6-175: 2038 do minimum junction modelling results (B2233 Yapton Road/A259 (Oystercatcher Junction))

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Yapton Road Left	**	**	**	**
Yapton Road Right	**	**	**	**
A259 Crookthorn Lane (E)	0.69	2.3	0.86	7.5

** operates significantly over capacity.

Table 6-176: 2038 do something junction modelling results (B2233 Yapton Road/A259 (Oystercatcher Junction))

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Yapton Road Left	**	**	**	**
Yapton Road Right	**	**	**	**
A259 Crookthorn Lane (E)	0.80	4.3	0.89	10.1

** operates significantly over capacity.

Mitigation scheme

There is a mitigation scheme for this junction that is presented in the WSCC Comet Corner and Oystercatcher report (December 2019). An extract showing this junction is in Figure 6.13. The mitigation scheme includes a junction redesign to realign the Yapton Road and provide a new roundabout junction. These results from the junction modelling show that the junction is forecast to operate within capacity.

Table 6-177: 2038 do minimum junction modelling results (B2233 Yapton Road/A259 (Oystercatcher Junction))

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Yapton Road	0.40	0.7	0.53	1.2
A259 East	0.72	2.6	0.78	3.6
Climping Street	0.11	0.1	0.27	0.4
A259 West	0.60	1.6	0.67	2.1