

To Southampton City Council

Technical Note

From Steer

Cc

- Eastleigh Borough Council
- blocwork (Eastleigh) LLP and Southampton International Airport Limited (SIAL)
- MSA

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Project Navigator Quarter

Project No. 24733101

J07 – Stoneham Way / Wide Ln / Wessex Ln and Wide Lane / Mansbridge Rd Model Update

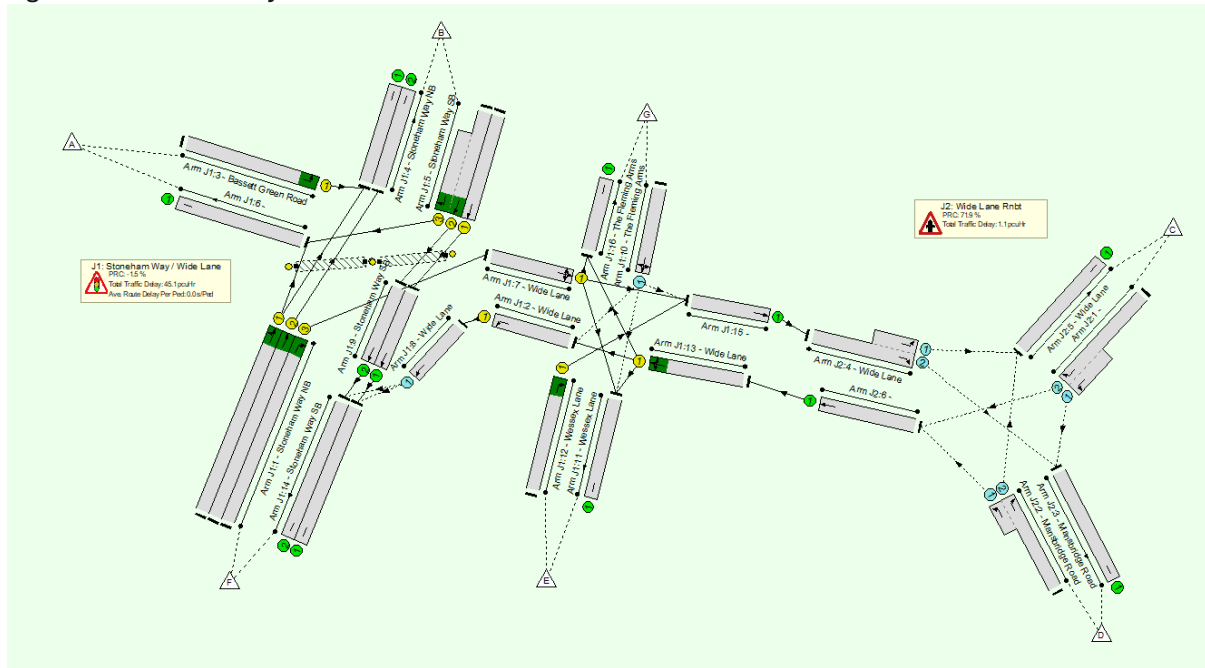
Introduction

- 1.1 This technical note provides an update to the LinSig v3 modelling undertaken of the Stoneham Way / Wide Lane traffic signals and Mansbridge Road roundabout (J07) for the Navigator Quarter planning submission (Ref: O/25/99506).
- 1.2 Previous modelling of this (and other junctions) in the study area were reported upon in a Modelling Technical Note dated 12th December 2025.
- 1.3 Following a review of the previously issued technical note, Southampton City Council (SCC) raised issues around the effects of external exit blocking to the model area not being reflected in the traffic modelling assessment.
- 1.4 Following a meeting on the 18 December 2025 with SCC representatives, it was agreed that the LinSig model would be updated to reflect the following key exit blocking features that occur in the area:
 - **AM Peak Hour** – SCC noted that traffic heading towards the City Centre backs up along Stoneham Way to the south of the modelled area and queues propagate back towards the junction and cause additional westbound queuing along Wide Lane and Mansbridge Road.
 - **PM Peak Hour** – SCC noted that traffic heading away from the City Centre creates slow moving queues eastbound along Mansbridge Road / Swaythling Road that propagate back through the roundabout and are seen to reduce the capacity of the right turn from Stoneham Way into Wide Lane.

Model Details

- 1.5 The fundamental structure of the model has not been changed from that reported on previously. As before, the J07 model is a multi-junction network as shown in Figure 1.

Figure 1: J07 Network Layout



1.6 As before, the model represents a 2025 base year and the peak hours modelled remain as follows:

- AM Peak – 07:30-08:30.
- PM Peak – 16:00-17:00.

Changes made to previous model

1.7 To reflect the noted exit blocking that is occurring external to the model, it was agreed that saturation flows (at signalised stop lines) and maximum flow while giving way values (at the roundabout) would be adjusted on affected approaches in the model to reflect those conditions. During the meeting with SCC it was agreed upon the following stop lines to be adjusted:

- In the **AM peak** model:
 - Westbound movement at the Wide Lane/ Wessex Lane signals (J1:13).
 - Westbound left turn movement from Mansbridge Road at the roundabout (J2:2 Lane 1).
- In the **PM peak** model:
 - Southbound left turn movement from Wide Lane into Mansbridge Road at the roundabout (J2:1 Lane 1).
 - Northbound right turn movement from Stoneham Way into Wide Lane at the Stoneham Way/ Wide Lane/ Bassett Green Road signals (J1:1 Lane 3).
 - Eastbound movement at the Wide Lane/ Wessex Lane signals (J1:7).

1.8 Following further review of observed queue length and Google traffic data, additional saturation flow reductions were noted to be required as set out below:

- In the **AM peak** model additional congestion factors as illustrated in **Error! Reference source not found.** and set out below:
 - Northbound right turn movement from Stoneham Way into Wide Lane at the Stoneham Way/ Wide Lane/ Bassett Green Road signals (J1:1 Lane 3) to improve degree of saturation flow validation on this movement.

- Southbound right turn movement from Wide Lane into Wide Lane west (J2:1 Lane 2) because this approach was also affected by the westbound external exit blocking.
- Eastbound right turn movement from Wide Lane into Mansbridge Road at the roundabout (J2:4 Lane 2) to improve queue length validation on this movement.
- Eastbound movement at the Wide Lane/ Wessex Lane signals (J1:7) to improve degree of saturation flow validation on this movement.

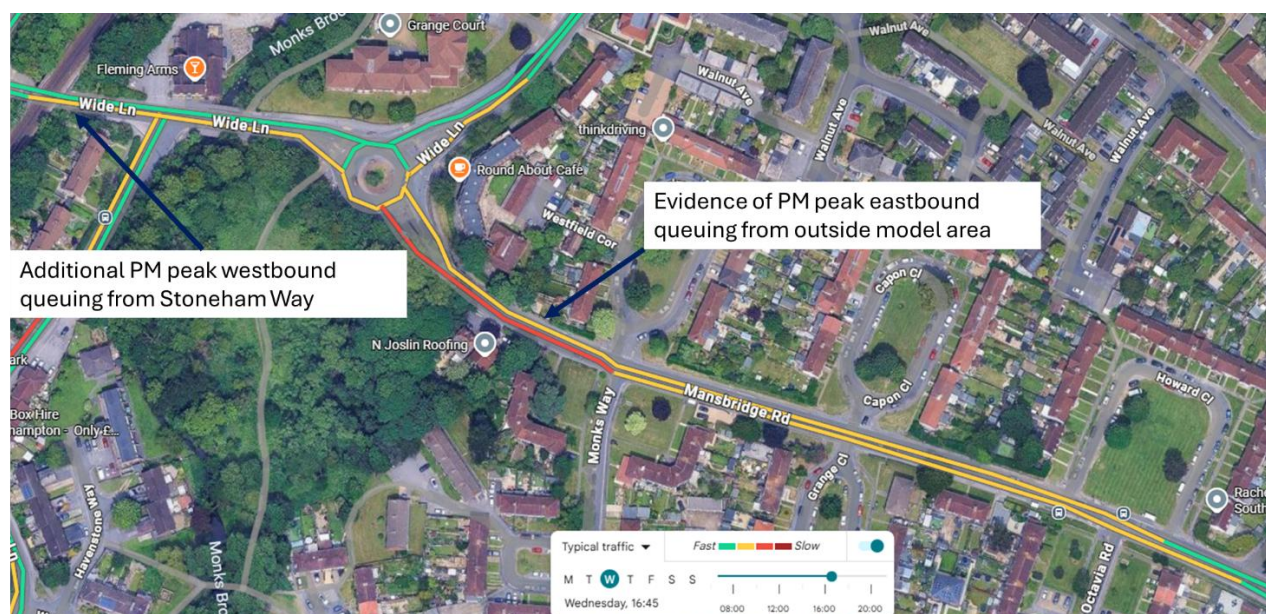
Figure 2: AM Peak Google Traffic Typical Conditions



- In the **PM peak** model additional congestion factors as illustrated Figure 3 and set out below:
 - Westbound left turn movement from Mansbridge Road at the roundabout (J2:2 Lane 1) to reflect slow moving queues westbound on Wide Lane.
 - Eastbound right turn movement from Wide Lane into Mansbridge Road (J2:4 Lane 2) at the roundabout to reflect slow moving queues eastbound.

1.9 It was necessary to produce separate LinSig files for the AM and PM peak hours to enable variable saturation flows and max flow values between time periods, given the levels of queuing vary by time of day.

Figure 3: PM Peak Google Traffic Typical Conditions



1.10 The saturation flow and maximum flow while giving way values applied are summarised in Table 1.

Table 1: Junction saturation flows and maximum flows

Approach	AM Peak Sat flow / max flow value (PCU/hr)		PM Peak Sat flow / max flow value (PCU/hr)	
	Old	New	Old	New
Stoneham Way / Wessex Lane				
Stoneham Way northbound right turn (J1:1 Lane 3)	1827	1600	1827	1600
Wide Lane westbound (J1:13)	1839	1620	1839	1839
Wide Lane eastbound (J1:7)	1920	1400	1920	1400
Mansbridge Road roundabout				
Wide Lane north left turn (J2:1 Lane 1)	1000	1000	1000	500
Wide Lane north right turn (J2:1 Lane 2)	1000	250	1000	1000
Mansbridge Rd left turn (J2:2 Lane 1)	1000	400	1000	370
Wide Lane west right turn (J2:4 lane 2)	1000	430	1000	650

Base Model Re-Validation

Validation Criteria

- 1.11 For validation purposes, comparison of the modelling results were undertaken against observed queue data and Degree of Saturation (DoS), where observed.
- 1.12 As before the following criteria was used to indicate model validation:
- Average modelled queue (in PCU) for the peak period within 2 PCU of the average observed queue, where the average observed queue is 10 PCU or less;
 - Average modelled queue (in PCU) for the peak period within 20% of the average observed queue, where the average observed queue is greater than 10 PCU; and
 - DoS for the peak period within 10% of the average observed DoS.
- 1.13 Whilst the validation criteria are unchanged from the previous technical note – the observed queue length measure at the roundabout has been modified from the previous version as it was identified that the previous calculation was using the average rather than maximum queue length observed at each 5-minute interval during each peak hour. By utilising this alternative measure the observed survey data better aligned with SCC's expectation of queuing in the area and is also more comparable to the Mean Max Queue (MMQ) that LinSig outputs.
- 1.14 The following tables summarise the validation results for this junction (AM and PM peak, respectively).

Table 2: Updated Queue Validation Results – J07 AM Model

Lane	Observed (PCUs)	Modelled (PCUs)	Difference	%age Difference	Validates?
Stoneham Way / Wessex Lane					
Stoneham Way SB Ahead	23.1	25.1	2	9%	YES
Stoneham Way SB Right Ahead	9.6	8.1	-1	-15%	YES
Bassett Green Road Left	6.1	5.9	0	-3%	YES
Stoneham Way NB Ahead Left	12.7	12.2	0	-4%	YES
Stoneham Way NB Ahead	11.4	11.8	0	4%	YES
Stoneham Way NB Right	11.1	9.0	-2	-19%	YES
Wessex Lane Right	5.9	3.9	-2	-33%	YES
Wide Lane Ahead Left Right	13.5	14.7	1	9%	YES
Wide Lane Right Ahead Left	0.8	1.7	1	113%	YES
Wide Lane Left	0.1	0.5	0	317%	YES
Mansbridge Rd Roundabout					
Wide Lane N Right Left	2.1	1.2	-1	-44%	YES

Lane	Observed (PCUs)	Modelled (PCUs)	Difference	%age Difference	Validates?
Mansbridge Road Right Left	14.5	12.5	-2	-14%	YES
Wide Lane W Right Left	7.9	6.2	-2	-22%	YES

Table 3: Updated Queue Validation Results – J07 PM Model

Lane	Observed (PCUs)	Modelled (PCUs)	Difference	%age Difference	Validates?
Stoneham Way / Wessex Lane					
Stoneham Way SB Ahead	14.4	19.5	5	36%	NO
Stoneham Way SB Right Ahead	9.7	6.8	-3	-30%	NO
Bassett Green Road Left	14.6	12.5	-2	-14%	YES
Stoneham Way NB Ahead Left	9.8	10.5	1	7%	YES
Stoneham Way NB Ahead	12.0	11.2	-1	-7%	YES
Stoneham Way NB Right	11.8	11.2	-1	-5%	YES
Wessex Lane Right	3.8	3.0	-1	-21%	YES
Wide Lane Ahead Left Right	13.6	13.9	0	2%	YES
Wide Lane Right Ahead Left	0.0	2.1	2	n/a	YES
Wide Lane Left	0.0	0.3	0	n/a	YES
Mansbridge Rd Roundabout					
Wide Lane N Right Left	3.8	3.3	0	-12%	YES
Mansbridge Road Right Left	4.4	3.7	-1	-16%	YES
Wide Lane W Right Left	1.8	1.9	0	4%	YES

1.15 Table 2 and Table 3 illustrate the models reflect queuing in the model area well – with all queue lengths in the AM peak meeting the validation criteria. In the PM peak there are two locations that do not meet the queuing criteria:

- Stoneham Way southbound ahead movement – the model is overestimating this queue, but validates to DoS so this is deemed to still be a robust representation of on-street conditions.
- Stoneham Way southbound right turn movement – the model is underestimating this queue, but validates to DoS so this is deemed to still be a robust representation of on-street conditions.

Table 4: Updated DoS Validation Results – J07 AM Model

Lane	Observed (%)	Modelled (%)	Difference	Validates?
Stoneham Way SB Ahead	82	80	-2	YES
Stoneham Way SB Right Ahead	70	71	1	YES
Bassett Green Road Left	63	47	-16	NO
Stoneham Way NB Ahead Left	50	50	1	YES
Stoneham Way NB Ahead	40	48	8	YES
Stoneham Way NB Right	84	80	-5	YES
Wessex Lane Right	64	66	2	YES
Wide Lane Ahead Left Right	77	79	2	YES
Wide Lane Right Ahead Left	38	35	-3	YES

Table 5: Updated DoS Validation Results – J07 PM Model

Lane	Observed (%)	Modelled (%)	Difference	Validates?
Stoneham Way SB Ahead	68	75	7	YES
Stoneham Way SB Right Ahead	68	59	-8	YES
Bassett Green Road Left	85	78	-7	YES
Stoneham Way NB Ahead Left	56	48	-7	YES
Stoneham Way NB Ahead	50	49	-1	YES
Stoneham Way NB Right	83	85	-9	YES
Wessex Lane Right	70	62	-7	YES
Wide Lane Ahead Left Right	74	83	9	YES
Wide Lane Right Ahead Left	40	57	-11	YES

1.16 The above tables illustrate the models reflect junction degrees of saturation in the model area well – with all DoS measurements in the PM peak meeting the validation criteria. In the AM peak there is one location that does not meet the DoS criteria:

- Bassett Green Road is slightly underestimating DoS, but this approach is not critical and no Navigator Quarter development traffic is associated with this approach in the Do-something assessments.

Updated Modelling Results

1.17 Changes made in the base model revalidation have been retained in all future year scenarios. The updated results are presented in Table 6.

Table 6: Updated LinSig Results – J07 AM Model – Stoneham Way / Wide Lane / Wessex Lane and Wide Lane / Mansbridge Road

AM Peak Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
Stoneham Way / Wessex Lane				
2025 Baseline	Stoneham Way NB Ahead Left	50.2	2.6	12.2
	Stoneham Way NB Ahead	47.7	2.5	11.8
	Stoneham Way NB Right	79.6	4.8	9
	Wide Lane Left	47.1	0.5	0.5
	Bassett Green Road Left	46.5	2.6	5.9
	Stoneham Way SB Ahead	79.5	5.9	25.1
	Stoneham Way SB Right Ahead	71.4	4.9	8.1
	Wide Lane Right Ahead Left	34.7	1	1.7
	Wide Lane Ahead	30.9	0.3	8.8
	The Fleming Arms Right Ahead Left	0	0	0
	Wessex Lane Right	65.9	2.3	3.9
	Wide Lane Ahead Left Right	78.5	6.1	14.7
Mansbridge Rd Roundabout				
2025 Baseline	Wide Lane Right Left	71.9	1.2	1.2
	Mansbridge Road Right Left	99.7	12.5	12.5
	Mansbridge Road	15.8	0.1	0.1
	Wide Lane Right Left	80.7	2.7	6.2
Stoneham Way / Wessex Lane				
2028 Baseline	Stoneham Way NB Ahead Left	50.8	2.7	12.4
	Stoneham Way NB Ahead	48.3	2.6	12
	Stoneham Way NB Right	88.2	6.5	11.2
	Wide Lane Left	44.3	0.4	0.4
	Bassett Green Road Left	47.2	2.6	6
	Stoneham Way SB Ahead	79.9	6	25.2
	Stoneham Way SB Right Ahead	72.4	5	8.3

AM Peak Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
	Wide Lane Right Ahead Left	40.7	1.7	2.9
	Wide Lane Ahead	31.5	0.3	8.9
	The Fleming Arms Right Ahead Left	0	0	0
	Wessex Lane Right	61.3	1.9	3.2
	Wide Lane Ahead Left Right	72.5	5.3	13.9
Mansbridge Rd Roundabout				
2028 Baseline	Wide Lane Right Left	72.8	1.3	1.3
	Mansbridge Road Right Left	104	24.2	56.3
	Mansbridge Road	16.3	0.1	0.1
	Wide Lane Right Left	76.7	2	4.6
Stoneham Way / Wessex Lane				
2028 Baseline + Proposed Development	Stoneham Way NB Ahead Left	52.8	3	13.3
	Stoneham Way NB Ahead	50.3	2.9	12.8
	Stoneham Way NB Right	88.2	6.9	12.3
	Wide Lane Left	47.1	0.5	0.5
	Bassett Green Road Left	42.5	2.4	5.8
	Stoneham Way SB Ahead	79.2	6.1	24.6
	Stoneham Way SB Right Ahead	69.8	5	8.3
	Wide Lane Right Ahead Left	44	1.7	3
	Wide Lane Ahead	31.5	0.3	9.6
	The Fleming Arms Right Ahead Left	0	0	0
	Wessex Lane Right	62.1	2	3.3
	Wide Lane Ahead Left Right	78.1	6	14.9
Mansbridge Rd Roundabout				
2028 Baseline + Proposed Development	Wide Lane Right Left	75.4	1.5	1.5
	Mansbridge Road Right Left	106	30	61.6
	Mansbridge Road	16.5	0.1	0.1

AM Peak Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
	Wide Lane Right Left	91.3	4.6	7.8
Stoneham Way / Wessex Lane				
2036 Baseline	Stoneham Way NB Ahead Left	56.2	3.4	14.6
	Stoneham Way NB Ahead	53.8	3.3	14.3
	Stoneham Way NB Right	83.5	5.9	11.2
	Wide Lane Left	48.8	0.5	0.5
	Bassett Green Road Left	43.3	2.5	6
	Stoneham Way SB Ahead	84.3	7.5	28.3
	Stoneham Way SB Right Ahead	72.3	5.4	9.1
	Wide Lane Right Ahead Left	42.6	1.5	2.6
	Wide Lane Ahead	32.3	0.4	10.4
	The Fleming Arms Right Ahead Left	0	0	0
	Wessex Lane Right	64.5	2.1	3.5
	Wide Lane Ahead Left Right	80.7	6.4	15.5
Mansbridge Rd Roundabout				
2036 Baseline	Mansbridge Road Right Left	90.4	4.1	6.3
	Wide Lane Right Left	114	58.6	88.1
	Mansbridge Road	19.3	0.1	0.1
	Wide Lane Right Left	83.9	3.2	6
Stoneham Way / Wessex Lane				
2036 Baseline + Proposed Development	Stoneham Way NB Ahead Left	57.8	3.7	15.3
	Stoneham Way NB Ahead	55.3	3.6	14.9
	Stoneham Way NB Right	87.4	7	13.1
	Wide Lane Left	51.1	0.5	0.6
	Bassett Green Road Left	40.7	2.4	5.8
	Stoneham Way SB Ahead	88.8	9.4	32

AM Peak Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
	Stoneham Way SB Right Ahead	69.5	5.2	8.8
	Wide Lane Right Ahead Left	46.5	1.6	3.6
	Wide Lane Ahead	32.5	0.5	10.7
	The Fleming Arms Right Ahead Left	0	0	0
	Wessex Lane Right	65.3	2.1	3.6
	Wide Lane Ahead Left Right	85.2	7.4	16.5
Mansbridge Rd Roundabout				
2036 Baseline + Proposed Development	Wide Lane Right Left	92.8	5.1	8.7
	Mansbridge Road Right Left	116	65	93.2
	Mansbridge Road	19.5	0.1	0.1
	Wide Lane Right Left	91.8	5.3	8.5

- 1.18 During the AM peak hour, in the 2025 Baseline the Mansbridge Road approach to the roundabout is operating at capacity. It should be noted however that this is due to external traffic queues from traffic heading towards the City Centre via Stoneham Way, that block back towards the roundabout and constrain the amount of demand that can pass through the area.
- 1.19 In the 2028 Baseline scenario, background traffic growth results in an approximate 3% increase in traffic demand through the junctions, which results in the Mansbridge Road roundabout exceeding the available capacity – with a junction DoS of 104%.
- 1.20 In the 2028 ‘with development’ scenario, the development traffic represents a further 2% increase in traffic levels compared to 2025 and given the external exit blocking is assumed to still be present this results in a maximum DoS of 106% at the Mansbridge Road roundabout.
- 1.21 By 2036 background traffic is forecast to be approximately 11% higher than in 2025 so the 2036 Baseline is seen to operate with a maximum DoS of 114% rising to 116% in the ‘with development’ scenario.
- 1.22 The above results illustrate that the background traffic growth is the main contributing factor to the exceedance of available capacity at the Mansbridge Road roundabout and in both the 2028 and 2036 Baseline scenarios pushes the Mansbridge Road roundabout over capacity. The development traffic only represents a further 2% increase, so its impact is modest by comparison.
- 1.23 The Stoneham Way / Wessex Lane traffic signals operate within capacity under all scenarios.
- 1.24 It should also be noted that this represents a worst-case assessment of junction performance because:
- The reduced saturation flows applied to the model to represent the effects of external queues are likely to be overly pessimistic in the future scenarios as it does not reflect the

fact drivers will accept smaller gaps in traffic flow at the roundabout in response to the increase in slow moving queues through the junction

- Traffic will reroute away from the area in response to the increased delays.
- Rather than wait in the additional queues, drivers will retime their journeys to avoid the “peak of the peak”.

Table 7: Updated LinSig Results – J07 PM Model – Stoneham Way / Wide Lane / Wessex Lane and Wide Lane / Mansbridge Road

PM Peak Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
Stoneham Way / Wessex Lane				
2025 Baseline	Stoneham Way NB Ahead Left	48.1	2.7	10.5
	Stoneham Way NB Ahead	48.8	2.8	11.2
	Stoneham Way NB Right	84.9	5.9	11.2
	Wide Lane Left	36.2	0.3	0.3
	Bassett Green Road Left	77.6	5.6	12.5
	Stoneham Way SB Ahead	74.7	5.2	19.5
	Stoneham Way SB Right Ahead	59.3	3.7	6.8
	Wide Lane Right Ahead Left	40.1	1	2
	Wide Lane Ahead	19	0.1	0.1
	The Fleming Arms Right Ahead Left	0.7	0	0
	Wessex Lane Right	62.3	1.8	3
	Wide Lane Ahead Left Right	83.4	6.6	13.9
Mansbridge Rd Roundabout				
2025 Baseline	Wide Lane Right Left	62.5	0.9	3.3
	Mansbridge Road Right Left	89.6	3.7	3.7
	Mansbridge Road	21.5	0.1	0.1
	Wide Lane Right Left	38.1	0.3	1.9
Stoneham Way / Wessex Lane				
2028 Baseline	Stoneham Way NB Ahead Left	49.6	2.8	11
	Stoneham Way NB Ahead	50.2	3	11.5
	Stoneham Way NB Right	89.7	7.4	13.2
	Wide Lane Left	49.3	0.5	0.5

PM Peak Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
	Bassett Green Road Left	76	5.4	12.4
	Stoneham Way SB Ahead	76.2	5.5	20.1
	Stoneham Way SB Right Ahead	59.1	3.7	6.8
	Wide Lane Right Ahead Left	45.7	1.6	3.1
	Wide Lane Ahead	28.1	0.3	7.7
	The Fleming Arms Right Ahead Left	0	0	0
	Wessex Lane Right	73.6	2.3	3.5
	Wide Lane Ahead Left Right	75.3	5.4	12.6
Mansbridge Rd Roundabout				
2028 Baseline	Wide Lane Right Left	49.9	0.5	0.5
	Mansbridge Road Right Left	115	55	80.5
	Mansbridge Road	17.8	0.1	0.1
	Wide Lane Right Left	37.5	0.3	1.4
Stoneham Way / Wessex Lane				
2028 Baseline + Proposed Development	Stoneham Way NB Ahead Left	49.6	2.8	11
	Stoneham Way NB Ahead	50.2	3	11.5
	Stoneham Way NB Right	90.7	7.8	13.8
	Wide Lane Left	49.4	0.5	0.5
	Bassett Green Road Left	76.2	5.5	12.4
	Stoneham Way SB Ahead	77	5.7	20.4
	Stoneham Way SB Right Ahead	60.6	3.8	7.1
	Wide Lane Right Ahead Left	46.3	1.7	3.2
	Wide Lane Ahead	28.2	0.3	7.7
	The Fleming Arms Right Ahead Left	0	0	0
	Wessex Lane Right	74.6	2.4	3.6
	Wide Lane Ahead Left Right	75.7	5.5	12.8

PM Peak Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
Mansbridge Rd Roundabout				
2028 Baseline + Proposed Development	Wide Lane Right Left	50.6	0.5	0.5
	Mansbridge Road Right Left	117	63.8	88.2
	Mansbridge Road	17.3	0.1	0.1
	Wide Lane Right Left	34.3	0.3	0.8
Stoneham Way / Wessex Lane				
2036 Baseline	Stoneham Way NB Ahead Left	53.9	3.3	12.3
	Stoneham Way NB Ahead	54.5	3.5	12.9
	Stoneham Way NB Right	92.9	8.9	15.7
	Wide Lane Left	52.8	0.6	0.6
	Bassett Green Road Left	75.2	5.4	12.8
	Stoneham Way SB Ahead	78.2	6	20.8
	Stoneham Way SB Right Ahead	61.3	4.1	7
	Wide Lane Right Ahead Left	49.4	1.8	4.1
	Wide Lane Ahead	28.8	0.3	8.3
	The Fleming Arms Right Ahead Left	0	0	0
	Wessex Lane Right	77.5	2.7	3.9
	Wide Lane Ahead Left Right	81.5	6.3	13.7
Mansbridge Rd Roundabout				
2036 Baseline	Mansbridge Road Right Left	63.1	0.9	2.6
	Wide Lane Right Left	127	95.6	127
	Mansbridge Road	21	0.1	0.1
	Wide Lane Right Left	41.2	0.4	1.5
Stoneham Way / Wessex Lane				
2036 Baseline + Proposed Development	Stoneham Way NB Ahead Left	53.9	3.3	12.3
	Stoneham Way NB Ahead	54.5	3.5	12.9
	Stoneham Way NB Right	94.1	9.6	16.4
	Wide Lane Left	53	0.6	0.6

PM Peak Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
	Bassett Green Road Left	75.4	5.5	12.8
	Stoneham Way SB Ahead	79	6.1	21.3
	Stoneham Way SB Right Ahead	62.9	4.2	7.4
	Wide Lane Right Ahead Left	50.1	1.9	4.2
	Wide Lane Ahead	28.9	0.3	8.3
	The Fleming Arms Right Ahead Left	0	0	0
	Wessex Lane Right	78.4	2.7	4
	Wide Lane Ahead Left Right	81.9	6.4	13.8
Mansbridge Rd Roundabout				
2036 Baseline + Proposed Development	Wide Lane Right Left	63.2	0.9	1.6
	Mansbridge Road Right Left	129	103	137
	Mansbridge Road	20.5	0.1	0.1
	Wide Lane Right Left	38.1	0.3	0.5

- 1.25 During the PM peak hour, in the 2025 Baseline, the Mansbridge Road roundabout is operating at a DoS of 90%. It should be noted however that this is due to external traffic queues from traffic heading away from the city centre via Mansbridge Road that block back towards the roundabout and constrain the amount of demand that can pass through the area.
- 1.26 In the 2028 Baseline scenario, background traffic growth results in an approximate 6% increase in traffic demand through the junctions, which results in the Mansbridge Road roundabout exceeding the available capacity – with a junction DoS of 115%.
- 1.27 In the 2028 ‘with development’ scenario, the development traffic represents a further 2% increase in traffic levels compared to 2025 and given the external exit blocking is assumed to still be present this results in a maximum DoS of 117% at the Mansbridge Road roundabout.
- 1.28 By 2036 background traffic is forecast to be approximately 14% higher than in 2025 so the 2036 Baseline is seen to operate with a maximum DoS of 127% rising to 129% in the ‘with development’ scenario.
- 1.29 The above results illustrate that the background traffic growth is the main contributing factor to the exceedance of available capacity at the Mansbridge Road roundabout and in both the 2028 and 2036 Baseline scenarios pushes the Mansbridge Road roundabout over capacity. The development traffic only represents a further 2% increase, so its impact is modest by comparison.

- 1.30 The Stoneham Way / Wessex Lane traffic signals operate within capacity under all PM peak scenarios.

Conclusion

- 1.31 Following the review of external exit blocking in the vicinity of the model, saturation flow adjustments on affected lane approaches have resulted in an improved level of model validation and the evidence of this is presented in this technical note.
- 1.32 The updates made to the 2025 Baseline LinSig modelling for Stoneham Way / Wide Lane / Wessex Lane signalised junction and Mansbridge Road roundabout accurately reflect the reduced traffic throughput at the junctions due to external traffic queues.
- 1.33 Based upon the revised analysis, background traffic growth in 2028 and 2036 is seen to exceed the available network capacity. This is **not** as a direct result of either the Stoneham Way / Wide Lane / Wessex Lane signalised junction or Mansbridge Road roundabout having insufficient capacity within their current layout, but rather it is the external, slow-moving queues that propagate through the junctions from other locations towards the city centre or Swaythling Road.

Development trips only represent a 2% increase through these junctions. This compares to an 11-14% increase due to background traffic growth assumptions. As such it can be seen that the Navigator Quarter development has a significantly lower impact on these junctions than wider growth across the city.

Mitigation

- 1.34 Whilst the effects of Navigator Quarter traffic are low, a potential mitigation option for the Mansbridge Road roundabout was discussed. A “keep clear” marking could be introduced to help smooth traffic flows through the roundabout when queues are blocking back to this point.
- 1.35 SCC officers indicated that this measure would cost in the region of £1,000-2,000. The Applicant is prepared for a cost of this order to be assigned to the improvement from the Navigator Quarter’s Sustainable Transport Fund/ S106. This would be on a ‘without prejudice basis’ in regard to what the future modelling results may show, given this is addressing an existing congestion issue at the junction without the development.