

To blocwork (Eastleigh) LLP and Southampton International Airport Limited (SIAL)

From Steer

Date 27 November 2025

Project Navigator Quarter

Technical Note

Project No. 24733101

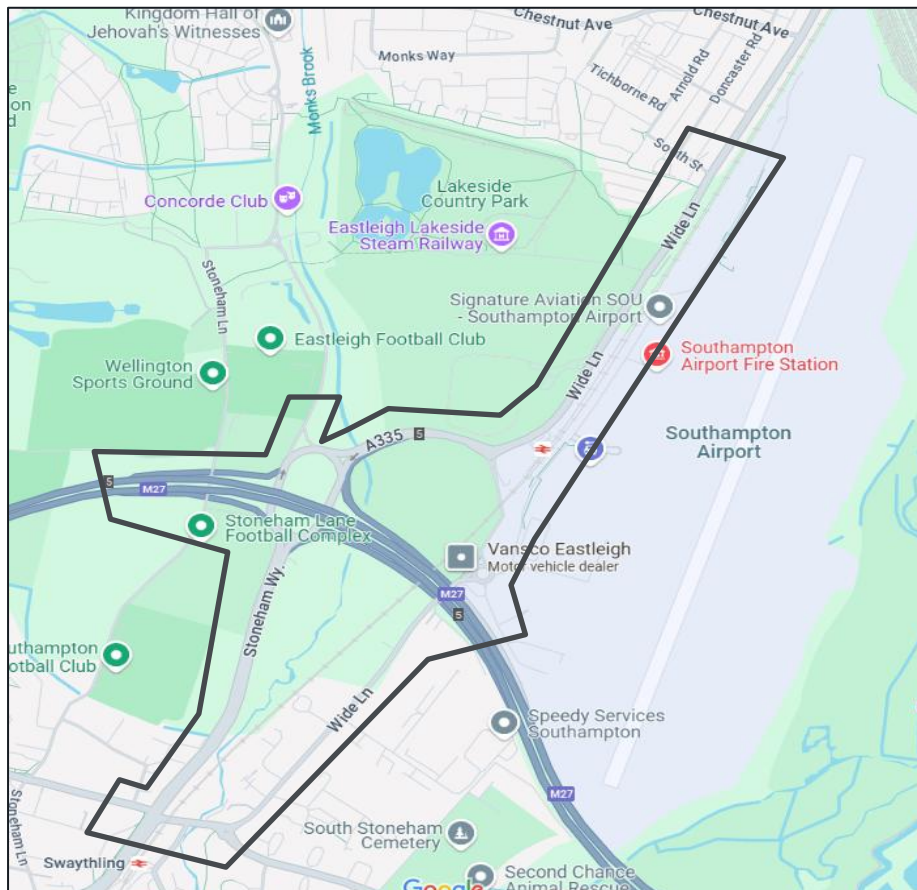
Highways Modelling Technical Note

1 Introduction

This technical note presents the transport modelling analysis for the Navigator Quarter study area, utilising Junctions 9 (J9) and LinSig v3 models, associated with the Navigator Quarter planning submission (Ref: O/25/99506).

- 1.1 The Base J9 and LinSig models have been developed to provide a robust representation of the base year (2023 and 2025) traffic conditions in the Study Area (shown in **Figure 1-1**). This note describes the base models, and the validation process to ascertain the appropriateness of the models for assessment of the highway impacts of the Navigation Quarter development proposals. It also presents the methodology and findings of the junction capacity modelling results for the future year scenarios with and without the Proposed Development.

Figure 1-1: Study Area



- 1.2 The forecast trip generation and distribution assumptions are detailed in the originally submitted Navigator Quarter Southampton - Transport Assessment (TA) (June 2025).
- 1.3 The structure of this note is detailed as follows:
- Section 2: Presents the base modelling approach;
 - Section 3: Describes the data sources and collection methods;
 - Section 4: Summarises the results of the model validation for each junction;
 - Section 5: Presents the Proposed Development forecast scenarios and summarises the model outputs; and
 - Section 6: Summarise key findings and provides recommendations for next steps.
- 1.4 This technical note is an updated version of original note included in Appendix Y of the original June 2025 TA submission. It should also be read in conjunction with the accompanying response tracker response to statutory consultation comments.
- 1.5 The key updates that have been included in this updated note are as follows:
1. Spitfire and Wide Lane roundabouts - additional scenarios run in the model validation exercise (with previous scenarios retained for comparison) to reflect the request from HCC in their response received (8 August 2025) for assessments to be run using lane simulation mode. In the full modelling assessment and future year scenarios the previous assessments have been substituted with the updated assessment results.
 2. M27 J5 - updated assessments to reflect comments from the National Highways email response from Patrick Blake dated 12 September 2025. The comments that have been addressed as part of the model re-runs are shown in **Table 1-1**.
 3. SCC - The original technical note concluded that for the Wide Lane/ Mount Park junction practical capacity would be exceeded on the northern Wide Lane arm in the 2028 Proposed Development scenario and subsequent scenarios. SCC in their response (dated 29 August 2025) advised that mitigation could be considered and this has been explored as an extension to the PM peak cycle time.
 4. Updated mitigation options have been explored and assessed for the Spitfire and Wide Lane Roundabouts, with the latest proposals included in this note.

Table 1-1: Summary of National Highways Modelling comments

National Highways Comment	Steer Proposed Action
Lane 1/1 which uses RR67 to estimate saturation flow has no radius specified for the ahead movement even though vehicles proceeding ahead would be passing through the same bend as those turning left. Please check and correct as appropriate.	Updated in model re-run
All internal lanes with signal-controlled upstream feeds should be set to 'Ignore Random Delay'.	Reviewed all internal lanes and updated in model re-run
The give-way parameters for lane 4/2 include a Maximum Flow of 1439 PCUs/hr which seems high for single lane entry to a roundabout (and also happens to be the same as the default setting for give-way behaviour as opposed right turn situations). Please check if this is correct. Also, it would be helpful if the rationale for the setting of give-way parameters were explained in the modelling technical note.	Reviewed all give way parameters in model and updated accordingly

2 Base Modelling Approach

Modelling Software

- 2.1 Each junction has been modelled separately using J9 and LinSig v3 – these are industry standard local junction modelling software packages.
- 2.2 J9 incorporates both PICADY and ARCADY software packages, which are used to assess the performance of non-signalised priority junctions and non-signalised roundabouts, respectively.

Model Extents

- 2.3 Due to availability of traffic survey data, junctions within the study area have been developed to represent either a 2023 or 2025 base year, as detailed in **Table 2-1**. This technical note covers the five junction models with a 2023 base year, as summarised in **Table 2-1**.

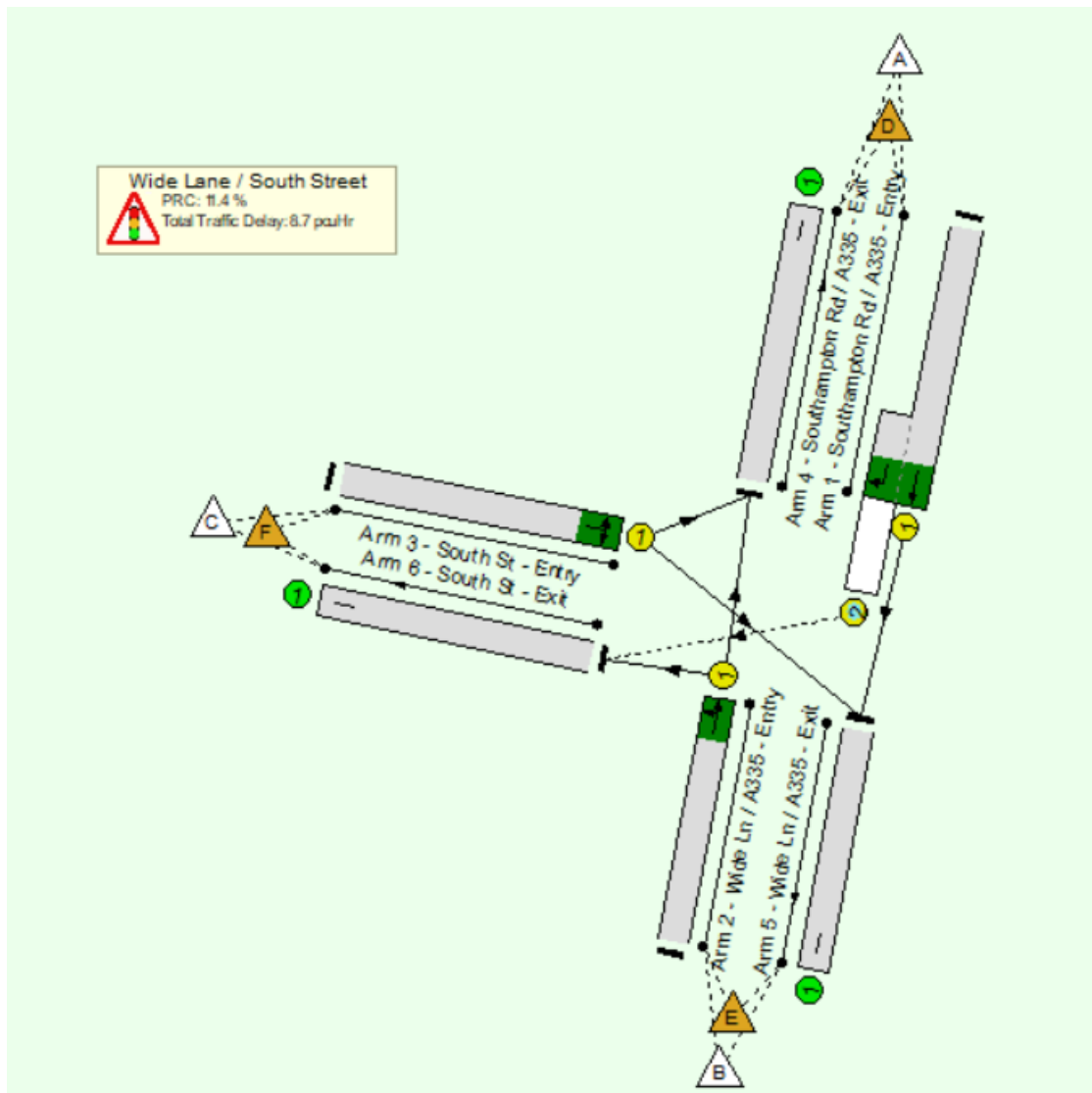
Table 2-1: Junction Model Summary

Steer ID	Location	Software	Base Year
J01	Wide Lane / South Street	LinSig	2023
J02	Wide Lane / Southampton Airport Parkway	LinSig	2023
J03	A335 / Wide Lane	J9	2023
J04	Spitfire Roundabout	J9	2023
J05	Wide Lane / Mountpark	LinSig	2023
J06	M27 J5	LinSig	2025
J07	Stoneham Way / Wide Ln / Wessex Ln and Wide Lane / Mansbridge Rd	LinSig	2025

J01 – Wide Lane / South Street

- 2.4 The J01 model includes the following approaches:
- Southampton Road / A335
 - Wide Lane / A335
 - South Street
- 2.5 The network layout of the J01 model is shown in **Figure 2-1**.

Figure 2-1: J01 model – network layout



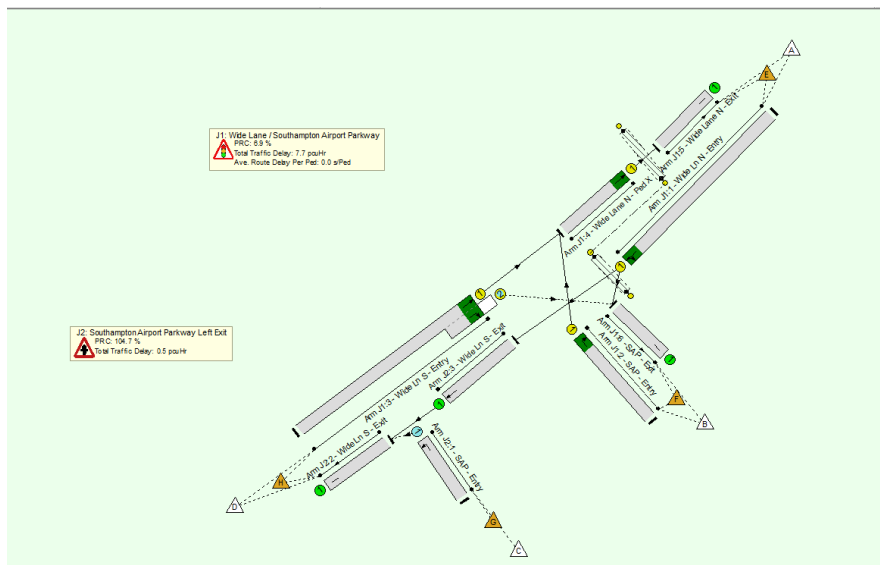
J02 – Wide Lane / Southampton Airport Parkway

2.6 The J02 model includes the following approaches:

- Wide Lane (N)
- Southampton Airport Parkway – Right Turn Only (Signalised)
- Southampton Airport Parkway – Left Turn Only (Priority)
- Wide Lane (S)

2.7 The network layout of the J02 model is shown in **Figure 2-2**.

Figure 2-2: J02 model – network layout



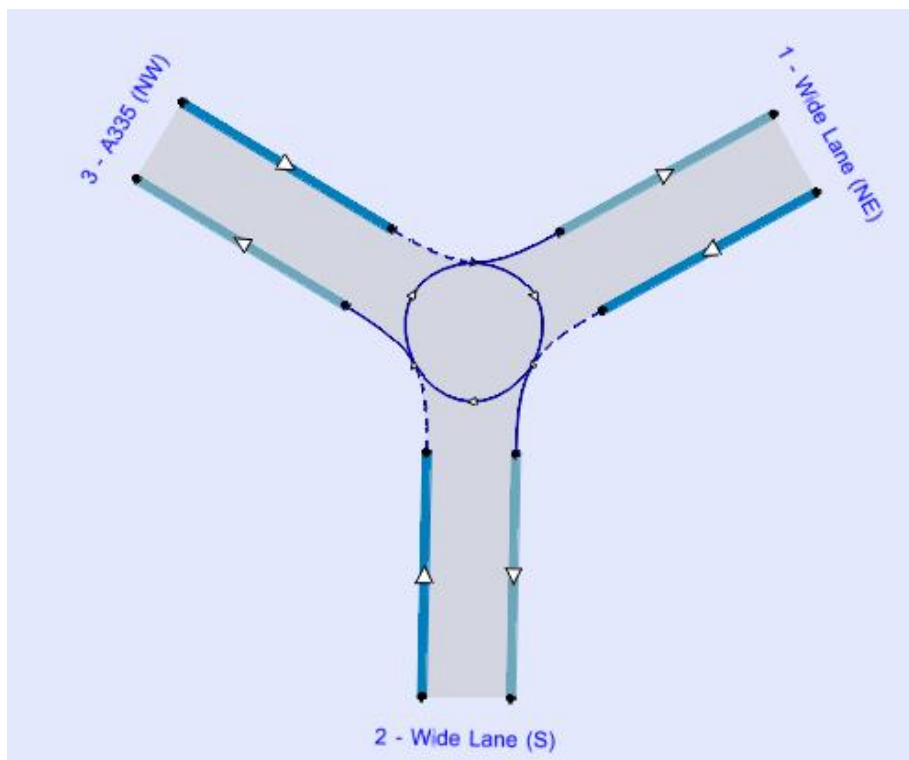
J03 – A335 / Wide Lane

2.8 The J03 model includes the following approaches:

- Wide Lane (E)
- Wide Lane (S)
- A335

2.9 The network layout of the J03 model is shown in **Figure 2-3**.

Figure 2-3: J03 model – network layout



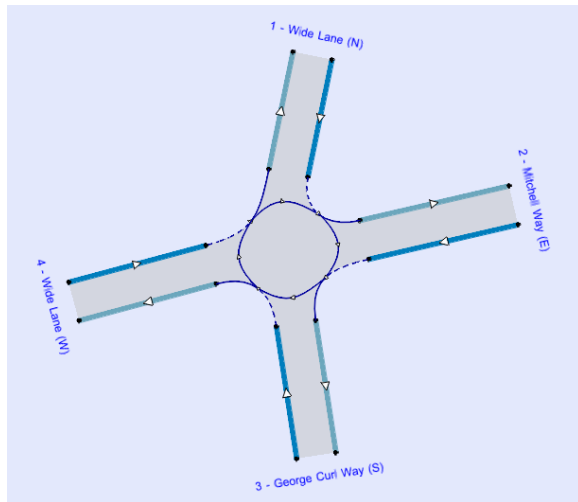
J04 – Spitfire Roundabout

2.10 The J04 model includes the following approaches:

- Wide Lane (N)
- Mitchell Way
- George Curl Way
- Wide Lane (W)

2.11 The network layout of the J04 model is shown in **Figure 2-4**.

Figure 2-4: J04 model – network layout



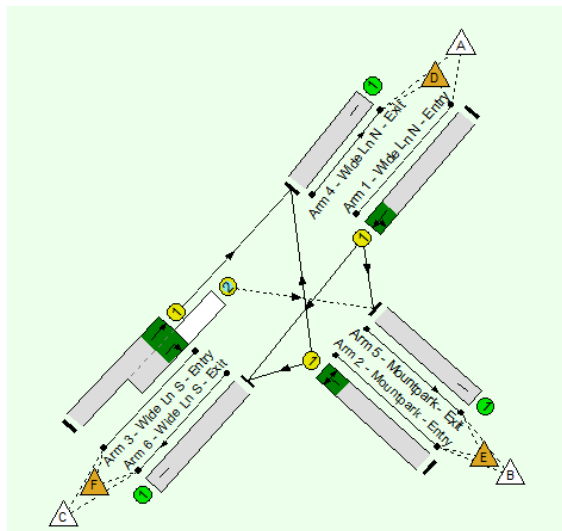
J05 – Wide Lane / Mountpark

2.12 The J05 model includes the following approaches:

- Wide Lane (N)
- Mountpark
- Wide Lane (S)

2.13 The network layout of the J05 model is shown in **Figure 2-5**.

Figure 2-5: J05 model – network layout



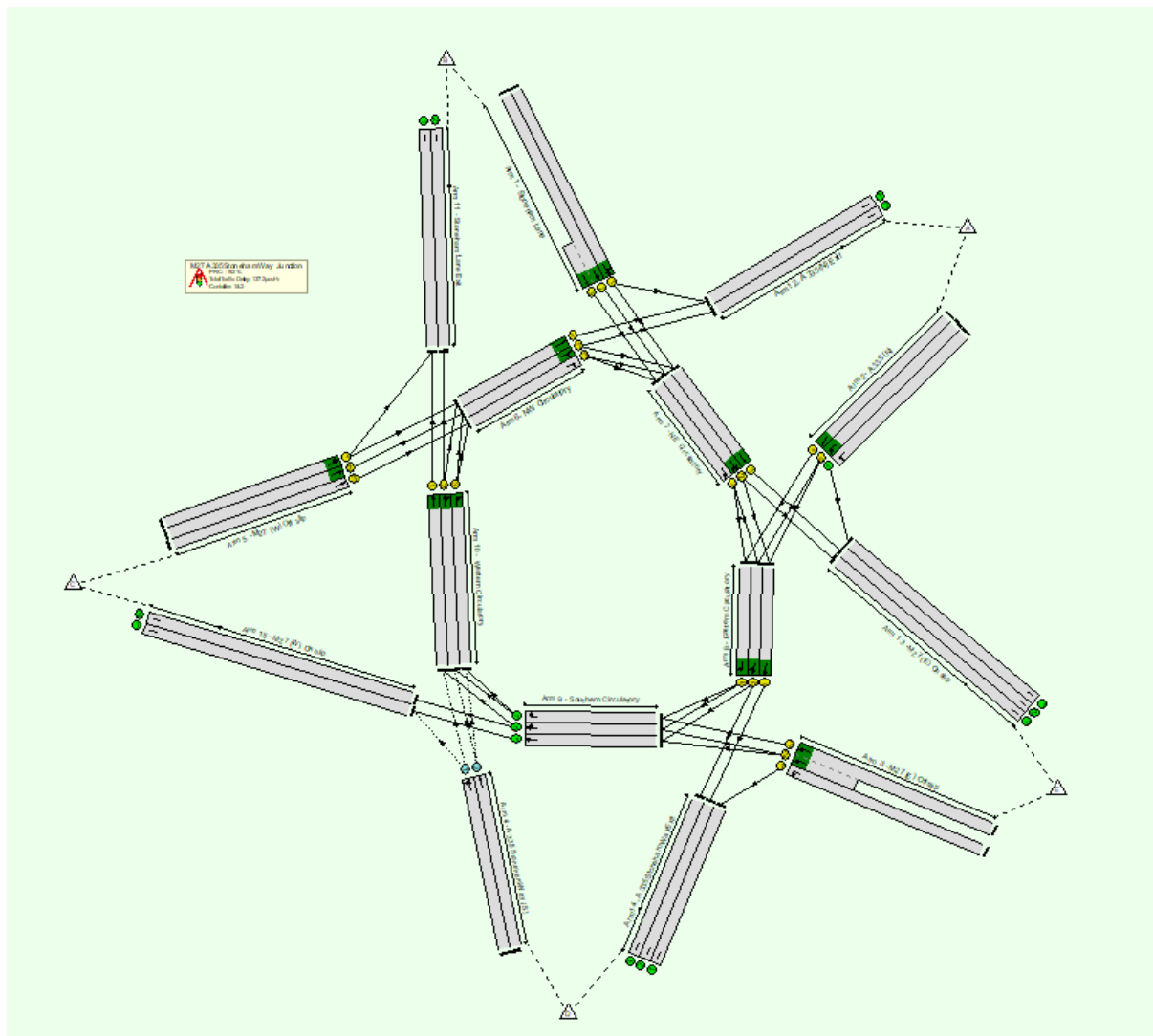
J06 – M27 J5

2.14 The J06 model includes the following approaches:

- Stoneham Lane
- A335 (N)
- M27 (E) Off-slip
- A335 Stoneham Way (S)
- M27 (W) Off-slip

2.15 The network layout of the J06 model is shown in **Figure 2-5**.

Figure 2-6: J06 model – network layout



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

2.16 The J07 model is a multi-junction network including the Stoneham Way / Wide Lane / Wessex Lane signalised junction (J1) and the Wide Lane / Mansbridge Road roundabout (J2). J1 has the following approaches:

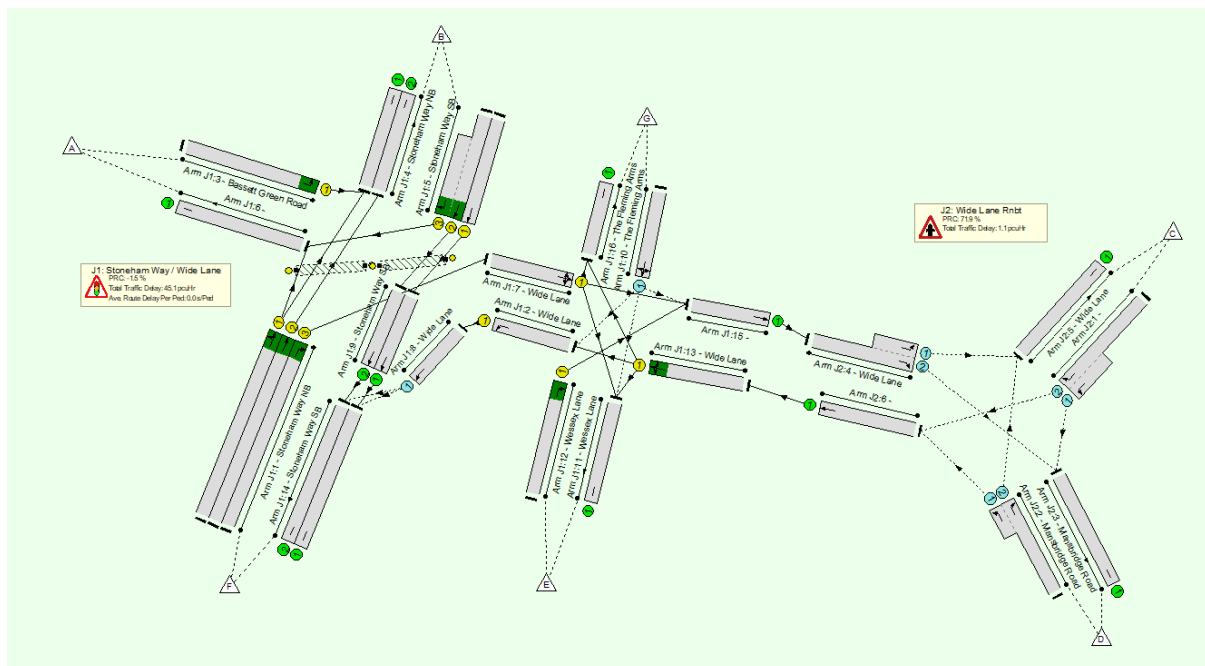
- Bassett Green Road
- Stoneham Way (N)
- Stoneham Way (S)
- Wessex Lane
- The Fleming Arms access
- Wide Lane (External)
- Wide Lane EB (Internal)
- Wide Lane WB (Internal)

J2 has the following approaches:

- Wide Lane N
- Mansbridge Road
- Wide Lane W

2.17 The network layout of the J07 model is shown in **Figure 2-5**.

Figure 2-7: J06 model – network layout



Time Periods Modelled

2.18 Given the close proximity of junctions within the study area, it was deemed appropriate to identify consistent network peak time periods across all junctions. The time periods modelled were based on the peak hours for the entire network determined by the ATC hourly data. However, at the request of Hampshire CC, junction turning counts were also analysed.

2.19 A comparison of flows at each junction between the network peaks and the individual junction peaks was undertaken using the GEH statistic. The GEH statistic is a standard measure used in transport modelling to compare traffic flows. It accounts for both absolute and relative differences, making it more robust than simple percentage comparisons. A GEH value below 5 is generally considered a good match.

2.20 The formula for the GEH Statistic is:

$$GEH = \sqrt{\frac{2(M - C)^2}{M + C}}$$

2.21 Where M is the hourly traffic volume from the junction peak hour and C is the traffic volume from the network-wide peak hour

2.22 As shown in **Table 2-2**, the GEH statistic has been used to compare traffic flows at each junction and time period.

Table 2-2: GEH Summary

Junction	GEH AM	GEH PM
A335/ South Street	2	0
A335 Wide Lane/ Airport Parkway	1	0
A335/Wide Lane	1	0
Spitfire Roundabout	2	0
Wide Lane/ Mount Park	6	2

2.23 The analysis shows that GEH values are mostly below 5, indicating that the differences in flows between the network peak and the individual junction peak are statistically insignificant.

2.24 This confirms that 08:00-09:00 remains a suitable and representative AM peak hour for network-wide analysis. However, for Wide Lane/ Mount Park, the AM peak hour flows will be taken for 07:30-08:30 as this is the only junction where the GEH exceeds 5.

Therefore, the time periods were modelled are as follows:

- Network peak:
 - AM Peak – 08:00-09:00
 - PM Peak – 17:00-18:00
- J05 – Wide Lane / Mountpark peak:
 - AM Peak – 07:30-08:30
 - PM Peak – 17:00-18:00

2.25 As part of the 2025 model update, a similar peak hour analysis was undertaken. This determined the peak hours for the J06 and J07 models to be as follows:

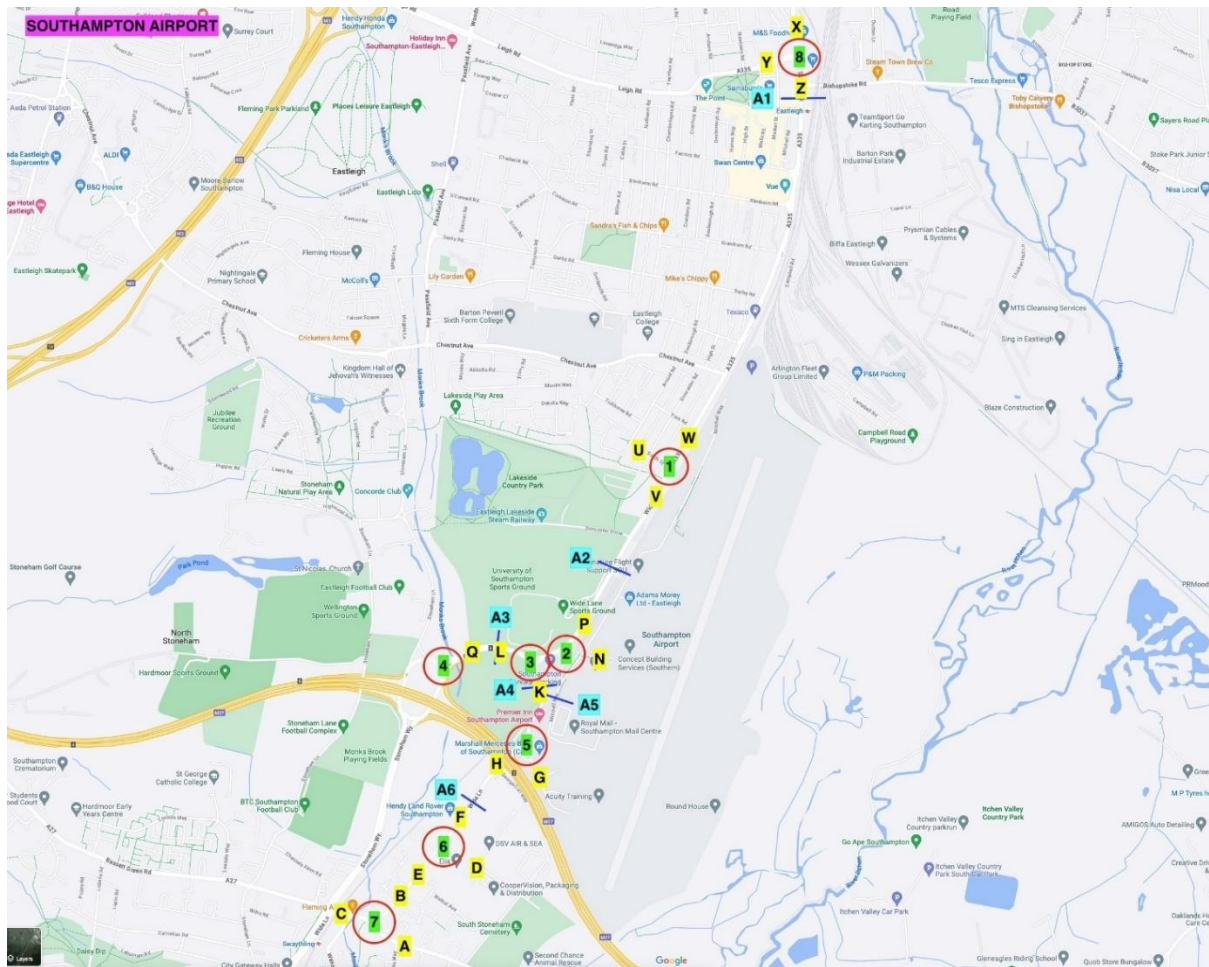
- Network peak:
 - AM Peak – 07:30-08:30
 - PM Peak – 16:00-17:00

3 Data Collection

Traffic Surveys

- 3.1 For the 2023 models, traffic flow inputs were sourced from the traffic surveys conducted in June 2023. Manual Classified Counts (MCC) were carried out on 29th June 2023 coinciding with queue length surveys and Automatic Traffic Counts (ATC). ATC surveys were conducted from 28/06/23 to 04/07/23.
- 3.2 MCC and queue length data were collected over a 6-hour period (07:00-10:00 and 16:00-19:00) at the following junctions (also shown in **Figure 3.1**):
- Site 1 – Wide Lane / South Street
 - Site 2 – Wide Lane / Southampton Airport Parkway
 - Site 3 – A335 / Wide Lane
 - Site 4 – M27 Roundabout / Wide Lane
 - Site 5 – Spitfire Roundabout
 - Site 6 – Wide Lane / Mountpark
 - Site 7 – Wide Lane/ Mansbridge Road Roundabout
 - Site 8 – Wide Lane / Romsey Road / Bishopstoke Road
- 3.3 Sites 4, 6 and 8 were not analysed as part of the modelling exercise. This is because Site 4 and 6 will be resurveyed in 2025 due to incomplete datasets in 2023 and Site 8 was agreed unnecessary to be modelled given its distance from the development area.
- 3.4 ATC data was collected over a 24-hour period at the following locations (also shown in **Figure 3.1**).
- A1 – A335 Station Hill
 - A2 – A335 Wide Lane (South of Doncaster Drove)
 - A3 – A335 east of M27 Junction 5.
 - A4 – Wide Lane south of Wide Lane roundabout.
 - A5 – Mitchell Way (north of the Royal Mail car park).
 - A6 – Wide Lane (north of Mountpark).

Figure 3-1: 2023 MCC and ATC Location Plan



- 3.5 For the 2025 models, traffic flow inputs were sourced from the traffic surveys conducted in February 2025. MCC's were carried out on 13th February 2025 coinciding with queue length surveys and Automatic Traffic Counts (ATC). ATC surveys were conducted from 08/02/25 to 14/02/25.
- 3.6 MCC and queue length data were collected over a 6-hour period (07:00-10:00 and 16:00-19:00) at the following junctions:
- Site 1&2 – Stoneham Way/Wide Lane/Wessex Lane/Bassett Green Rd (new survey location)
 - Site 3 – Wide Lane/Mansbridge Road Roundabout (update of 2023 survey)
 - Site 4 – M27 J5 (Stoneham Interchange) (new survey of full junction).
- 3.7 ATC and Radar data was collected over a 24-hour period at the following locations:
- ATC1 – A335 Station Hill
 - ATC2 – A335 Wide Lane (South of Doncaster Drove)
 - ATC4 – Wide Lane south of Wide Lane Roundabout.
 - ATC5 – Mitchell Way
 - ATC6 – Wide Lane (north of Mount Park)
 - ATC7 – Wide Lane (south of Walnut Avenue).
 - ATC8 – Mansbridge Road (east of Mansbridge Roundabout)
 - RAD3 – A335 (east of M27 J5)
 - RAD9 – A335 Stoneham Way (south of A27/ Wide Lane junction)
 - RAD10 – A335 Stoneham Way (north of A27/ Wide Lane junction)

Signal Data

3.8 Timing sheets, stage timings and signal layout drawing files were provided by Hampshire CC and Southampton CC for the five signalised junctions within the study area:

- J01 – Wide Lane / South Street
- J02 – Wide Lane / Southampton Airport Parkway (SAP)
- J05 – Wide Lane / Mountpark
- J06 – M27 J5
- J07 – Stoneham Way / Wide Lane / Wessex Lane

4 Base Model Validation

Validation Criteria

- 4.1 The local junction models were developed to evaluate the queue lengths, delays and Degree of Saturation/ Ratio of Flow to Capacity (DoS/RFC) at all junctions. DoS/RFC is a quantitative analysis of the level of congestion on the network and is used as the primary indicator of the operational performance of a junction. Generally, when a junction reaches 90 percent DoS/RFC it is considered to be at practical capacity and when it reaches 100 percent, at theoretical capacity.
- 4.2 The relationship between queues and DoS/RFC is such that queues begin to increase significantly at high DoS (>85%) and so become sensitive to increases in traffic flow or reductions in the traffic capacity provided. It is important to note that when junctions exceed their theoretical capacity (100 percent DoS/ RFC) queues and delays increase at an exponential (non-linear) rate.
- 4.3 The queues are presented in terms of the average maximum queue in PCUs (passenger car units) from the surveys and the Mean Max Queue (MMQ) in PCUs in LinSig.
- 4.4 For validation purposes, comparisons of the modelling results were undertaken against observed queue data and DoS, where observed.
- 4.5 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

2023 Base Model Validation Results

4.6 The results of the queue comparison and the other model results are presented in the tables in the following narrative for each model.

J01 – Wide Lane / South Street

4.7 The tables below summarise the validation results for this junction. See **Appendix A** for full results.

Table 4-1: Summary of Queue Validation Results – J01 AM Model

Lane	Observed (PCUs)	Modelled (PCUs)	Difference	Difference (%)	Validates?
A335 Southampton Road	10	7	-3	-30%	NO
A335 Wide Lane	26	21	-5	-18%	YES
South Street	7	6	-1	-15%	YES

Table 4-2: Summary of Queue Validation Results – J01 PM Model

Lane	Observed (PCUs)	Modelled (PCUs)	Difference	%age Difference	Validates?
A335 Southampton Road	9	10	1	12%	YES
A335 Wide Lane	13	13	0	2%	YES
South Street	8	3	-5	-68%	NO

Table 4-3: Summary of DoS Validation Results – J01 AM Model

Lane	Observed (%)	Modelled (%)	Difference	Validates?
A335 Southampton Road	-	47	-	-
A335 Wide Lane	79	83	4	YES
South Street	-	89	-	-

Table 4-4: Summary of DoS Validation Results – J01 PM Model

Lane	Observed (%)	Modelled (%)	Difference	Validates?
A335 Southampton Road	-	65	-	-
A335 Wide Lane	71	75	4	YES
South Street	-	63	-	-

- 4.8 The queue results presented in the previous tables show a good level of validation between the observed and modelled queues in both time periods. The modelled queues on A335 Southampton Road in the AM and on South Street in the PM are the only instances where the queue does not validate against the observed. However, this is a minor difference in both cases. Only the A335 Wide Lane approach had observed DoS values, and these validated well against the modelled values.

J02 – Wide Lane / Southampton Airport Parkway

- 4.9 The tables below/overleaf summarise the validation results for this junction. See **Appendix B** for full results.

Table 4-5: Summary of Queue Validation Results – J02 AM Model

Lane	Observed (PCUs)	Modelled (PCUs)	Difference	%age Difference	Validates?
Wide Lane N	-	10	-	-	-
SAP Right	2	1	-1	-71%	YES
SAP Left	2	0	-2	-96%	YES
Wide Lane S	-	16	-	-	-

Table 4-6: Summary of Queue Validation Results – J02 PM Model

Lane	Observed (PCUs)	Modelled (PCUs)	Difference	%age Difference	Validates ?
Wide Lane N	-	14	-	-	-
SAP Right	2*	1	-1	-50%	YES
SAP Left	4	0	-4	-93%	NO
Wide Lane S	-	6	-	-	-

*based on spot checks following video data review

Table 4-7: Summary of DoS Validation Results – J02 AM Model

Lane	Observed (%)	Modelled (%)	Difference	Validates?
Wide Lane N	-	60	-	-
SAP Right	19	9	-10	YES
SAP Left	-	14	-	-
Wide Lane S	80	81	2	YES

Table 4-8: Summary of DoS Validation Results – J02 PM Model

Lane	Observed (%)	Modelled (%)	Difference	Validates?
Wide Lane N	-	71	-	-
SAP Right	24	14	-10	YES
SAP Left	-	38	-	-
Wide Lane S	64	59	-5	YES

- 4.10 The queue results presented in the tables above show a good level of validation between the observed and modelled queues in the AM. However, the PM shows that the modelled and observed queue lengths differ on the Southampton Airport (SAP) left arm.
- 4.11 Only the SAP Right and Wide Lane South approach had observed DoS values, and these validated well against the modelled values.

J03 – A335 / Wide Lane Roundabout

- 4.12 The tables below summarise the validation results for this junction. See **Appendix C** for full results

Table 4-9: Summary of Queue Validation Results – J03 AM Model

Lane	Observed (PCUs)	Modelled (PCUs)	Difference	%age Difference	Validates?
A335 Wide Lane 1	1	0.5	-1	-60%	YES
A335 Wide Lane 2	3	3.7	1	23%	YES
Wide Lane - Lane 1	1	1.2	1	140%	YES
Wide Lane - Lane 2	1	1.3	1	95%	YES
A335 Lane 1	17*	14.1	-3	-17%	YES
A335 Lane 2	2	2.5	1	30%	YES

*based on spot checks following video data review

Table 4-10: Summary of Queue Validation Results – J03 PM Model

Lane	Observed (PCUs)	Modelled (PCUs)	Difference	%age Difference	Validates ?
A335 Wide Lane 1	1	0.7	0	5%	YES
A335 Wide Lane 2	10*	11.5	1.5	15%	YES
Wide Lane - Lane 1	2	3.3	1	52%	YES
Wide Lane - Lane 2	2	0.5	-1	-70%	YES
A335 Lane 1	1	2.5	2	400%	NO
A335 Lane 2	1	1.5	1	200%	YES

*based on spot checks following video data review

4.13 The queue results presented in the tables above show a good level of validation between the observed and modelled queues in both time periods. The modelled queue on A335 Lane 1 in the AM and Wide Lane 2 in the PM are the only instances where the queue differs greatly against the observed.

4.14 As requested by HCC, the base models were re-run using lane simulation mode within Junctions 9 software. The validation results of these runs are shown below. See **Appendix D** for full results.

Table 4-11: Summary of Queue Validation Results – J03 AM Model (Lane-Simulation mode)

Lane	Observed (PCUs)	Modelled (PCUs)	Difference	%age Difference	Validates?
A335 Wide Lane 1	1	0.5	-1	-60%	YES
A335 Wide Lane 2	3	5.0	2	67%	NO
Wide Lane - Lane 1	1	1.3	1	160%	YES
Wide Lane - Lane 2	1	2.5	2	275%	YES
A335 Lane 1	17*	20.1	3	18%	YES
A335 Lane 2	2	3.2	1	67%	YES

*based on spot checks following video data review

Table 4-12: Summary of Queue Validation Results – J03 PM Model (Lane Simulation Mode)

Lane	Observed (PCUs)	Modelled (PCUs)	Difference	%age Difference	Validates ?
A335 Wide Lane 1	1	0.7	0	5%	YES
A335 Wide Lane 2	10*	15.0	5	50%	NO
Wide Lane - Lane 1	2	2.7	1	25%	YES
Wide Lane - Lane 2	2	0.8	-1	-52%	YES
A335 Lane 1	1	3.2	3	540%	NO
A335 Lane 2	1	2.0	2	300%	YES

*based on spot checks following video data review

4.15 The queue results presented in the tables above show a good level of validation between the observed and modelled queues in both time periods. The modelled queue on A335 Wide Lane 2 in the AM and PM are the only instances where the queue differs greatly against the observed.

J04 – Spitfire Roundabout

- 4.16 The tables as follows summarise the validation results for this junction. See **Appendix E** for full results.

Table 4-13: Summary of Queue Validation Results – J05 AM Model

Lane	Observed (PCUs)	Modelled (PCUs)	Difference	Difference (%)	Validates?
Wide Lane (N) Lane 1	0	1.0	-1	N/A	YES
Wide Lane (N) Lane 2	0	1.0	-1	N/A	YES
Mitchell Way (E) Lane 1	0	0.1	0	N/A	YES
Mitchell Way (E) Lane 2	0	0.1	0	N/A	YES
George Curl Way (S) Lane 1	0	0.1	0	20%	YES
George Curl Way (S) Lane 2	0	0.1	0	20%	YES
Wide Lane (W) Lane 1	1	0.9	0	2%	YES
Wide Lane (W) Lane 2	0	0.9	-1	0%	YES

Table 4-14: Summary of Queue Validation Results – J05 PM Model

Lane	Observed (PCUs)	Modelled (PCUs)	Difference	%age Difference	Validates?
Wide Lane (N) Lane 1	0	1.1	-1	0%	YES
Wide Lane (N) Lane 2	1	1.1	0	20%	YES
Mitchell Way (E) Lane 1	0	0.2	0	20%	YES
Mitchell Way (E) Lane 2	0	0.2	0	20%	YES
George Curl Way (S) Lane 1	0	0.2	0	-4%	YES
George Curl Way (S) Lane 2	0	0.2	0	-4%	YES
Wide Lane (W) Lane 1	0	0.5	-1	0%	YES
Wide Lane (W) Lane 2	0	0.5	0	100%	YES

- 4.17 The queue results presented in the tables above show a good level of validation between the observed and modelled queues for both time periods.
- 4.18 As requested by HCC, the base models were re-run using lane simulation mode within Junctions 9 software. The validation results of these runs are shown overleaf.

Table 4-15: Summary of Queue Validation Results – J05 AM Model (Lane Simulation Mode)

Lane	Observed (PCUs)	Modelled (PCUs)	Difference	Difference (%)	Validates?
Wide Lane (N) Lane 1	0	0.8	-1	0%	YES
Wide Lane (N) Lane 2	0	1.1	-1	0%	YES
Mitchell Way (E) Lane 1	0	0.1	0	0%	YES
Mitchell Way (E) Lane 2	0	0.2	0	0%	YES
George Curl Way (S) Lane 1	0	0.1	0	20%	YES
George Curl Way (S) Lane 2	0	0.0	0	-100%	YES
Wide Lane (W) Lane 1	1	2.1	-1	156%	YES
Wide Lane (W) Lane 2	0	0.3	0	0%	YES

Table 4-16: Summary of Queue Validation Results – J05 PM Model (Lane Simulation Mode)

Lane	Observed (PCUs)	Modelled (PCUs)	Difference	%age Difference	Validates?
Wide Lane (N) Lane 1	0	0.3	0	0%	YES
Wide Lane (N) Lane 2	1	4.1	-3	347%	NO
Mitchell Way (E) Lane 1	0	0.1	0	-60%	YES
Mitchell Way (E) Lane 2	0	0.2	0	30%	YES
George Curl Way (S) Lane 1	0	0.3	0	28%	YES
George Curl Way (S) Lane 2	0	0.0	0	-84%	YES
Wide Lane (W) Lane 1	0	0.8	-1	0%	YES
Wide Lane (W) Lane 2	0	0.2	0	-40%	YES

- 4.19 The queue results presented in the tables above show a good level of validation between the observed and modelled queues for both time periods.

J05 – Wide Lane / Mountpark

- 4.20 The tables below summarise the validation results for this junction. See **Appendix F** for full results

Table 4-17: Summary of Queue Validation Results – J06 AM Model

Lane	Observed (PCUs)	Modelled (PCUs)	Difference	%age Difference	Validates ?
Wide Lane N	9	5	-4	-48%	NO
Mountpark	2	1	-1	-32%	YES
Wide Lane S	11	9	-2	-15%	YES

Table 4-18: Summary of Queue Validation Results – J06 PM Model

Lane	Observed (PCUs)	Modelled (PCUs)	Difference	%age Difference	Validates ?
Wide Lane	11	11	0	-1%	YES
Mountpark	2	2	0	21%	YES
Wide Lane S	2	4	2	96%	YES

- 4.21 The queue results presented in the tables above show a good level of validation between the observed and modelled queues at both junctions. The modelled queue on Wide Lane N in the AM is the only instance where the queue does not validate against the observed. However, this is a minor difference in one time period and does validate well in the PM.

2025 Base Model Validation Results

J06 - M27 J5

- 4.22 Following National Highways' review of the original modelling note submission in June 2025, Steer have amended the modelling parameters as outlined in **Table 1-1**. The tables below summarise the validation results for this junction with these modifications applied. See **Appendix G** for results.

Table 4-19: Summary of Queue Validation Results – J06 AM Model

Lane	Observed (PCUs)	Modelled (PCUs)	Difference	%age Difference	Validates ?
A335 (N) Ahead	12	9.2	-3	-23%	NO
A335 (N) Ahead	8	8.5	1	9%	YES
Stoneham Lane Ahead Left	12	10.2	-2	-15%	YES
Stoneham Lane Ahead	10	6.6	-3	-33%	NO
Stoneham Lane Ahead	3	6.6	3	107%	NO
M27 (W) Off slip Ahead	8	7.2	0	-5%	YES
M27 (W) Off slip Ahead	5	2.8	-2	-42%	YES
M27 (W) Off slip Ahead	9	9.3	0	2%	YES
M27 (E) Off slip Ahead	10	7.6	-2	-23%	NO
M27 (E) Off slip Ahead	8	7.6	0	-4%	YES
NE Circulatory Ahead	9	6.8	-2	-24%	NO
NE Circulatory Ahead Ahead2	8	5.5	-2	-28%	NO
NE Circulatory Ahead	3	6.8	3	101%	NO
NW Circulatory Ahead	12	11.8	0	2%	YES
NW Circulatory Right Ahead	7	11.4	4	54%	NO

NW Circulatory Right	3	6.7	4	120%	NO
Western Circulatory Ahead	12	9.1	-3	-25%	NO
Western Circulatory Right Ahead	8	9.6	1	14%	YES
Western Circulatory Right	7	8	1	18%	YES
Eastern Circulatory Ahead	11	4.8	-6	-55%	NO
Eastern Circulatory Right Ahead	9	4.4	-5	-52%	NO
Eastern Circulatory Right	4	2.8	-2	-37%	YES
A335 Stoneham Way (S) Ahead Left	31	17.8	-13	-43%	NO
A335 Stoneham Way (S) Ahead	27	14.2	-13	-48%	NO

Table 4-20: Summary of Queue Validation Results – J06 PM Model

Lane	Observed (PCUs)	Modelled (PCUs)	Difference	%age Difference	Validates ?
A335 (N) Ahead	8	8.5	0	6%	YES
A335 (N) Ahead	10	7.3	-3	-26%	NO
Stoneham Lane Ahead Left	13	10.1	-3	-24%	NO
Stoneham Lane Ahead	10	5.6	-5	-45%	NO
Stoneham Lane Ahead	4	5.6	2	52%	YES
M27 (W) Off slip Ahead	6	5.5	0	-7%	YES
M27 (W) Off slip Ahead	3	4.8	2	60%	YES
M27 (W) Off slip Ahead	7	12	5	64%	NO
M27 (E) Off slip Ahead	8	4.3	-3	-43%	NO
M27 (E) Off slip Ahead	5	4.3	-1	-21%	YES
NE Circulatory Ahead	9	10.5	2	23%	YES
NE Circulatory Ahead Ahead2	5	1.7	-3	-62%	NO
NE Circulatory Ahead	2	5.1	3	163%	NO
NW Circulatory Ahead	11	7.5	-3	-29%	NO
NW Circulatory Right Ahead	11	10	-1	-11%	YES
NW Circulatory Right	6	2.7	-3	-53%	NO

Western Circulatory Ahead	4	5.2	1	20%	YES
Western Circulatory Right Ahead	6	5.4	0	-4%	YES
Western Circulatory Right	6	5.8	0	-6%	YES
Eastern Circulatory Ahead	7	4.1	-3	-40%	NO
Eastern Circulatory Right Ahead	7	7.5	1	14%	YES
Eastern Circulatory Right	6	6.1	0	-2%	YES
A335 Stoneham Way (S) Ahead Left	17	17.2	0	0%	YES
A335 Stoneham Way (S) Ahead	22	26.9	5	21%	NO

- 4.23 The queue results presented in the tables above show a good level of validation between the observed and modelled queues at both junctions. In some cases, the queues do not validate on certain arms but the queues generally remain within a maximum of 5 PCUs except for A335 Stoneham Way (S) in the AM.
- 4.24 For A335 Stoneham Way, the queues validate well in the PM. However, with the same parameters in the AM, the modelled queues are lower than the observed albeit the lane usage pattern is very similar. This implies that vehicle behaviour may be more aggressive in the AM.
- 4.25 Saturation flows used in the model have been applied from the saturation flows survey information where available. Where this data is not available, saturation flows have been calculated using RR67 within LinSig.
- 4.26 The give-way parameters on Stoneham Way have been calibrated based on the queue length data received and achieving a DoS of less than 100% after using the default values set out in the LinSig user guide.
- 4.27 Bonus greens have been applied to some signalised lanes in the model to account for Underutilised Green Time (UGT). UGT has been calculated as part of the signal times survey

Table 4-21: Summary of DoS Validation Results – J06 AM Model

Lane	Observed (%)	Modelled (%)	Difference	Validates?
A335 (N) Ahead	86%	84%	-2%	YES
A335 (N) Ahead	74%	81%	6%	YES
Stoneham Lane Ahead Left	80%	79%	-1%	YES
Stoneham Lane Ahead	66%	70%	4%	YES
Stoneham Lane Ahead	27%	70%	43%	NO
M27 (W) Off slip Ahead	78%	70%	-8%	YES
M27 (W) Off slip Ahead	No Data	32%	0%	YES
M27 (W) Off slip Ahead	88%	83%	-5%	YES
M27 (E) Off slip Ahead	78%	79%	2%	YES
M27 (E) Off slip Ahead	70%	79%	10%	YES

NE Circulatory Ahead	48%	50%	1%	YES
NE Circulatory Ahead Ahead2	40%	46%	6%	YES
NE Circulatory Ahead	No Data	25%	0%	YES
NW Circulatory Ahead	73%	70%	-3%	YES
NW Circulatory Right Ahead	49%	57%	8%	YES
NW Circulatory Right	47%	37%	-10%	YES
Western Circulatory Ahead	58%	53%	-5%	YES
Western Circulatory Right Ahead	52%	57%	5%	YES
Western Circulatory Right	44%	50%	5%	YES
Eastern Circulatory Ahead	79%	82%	3%	YES
Eastern Circulatory Right Ahead	76%	73%	-4%	YES
Eastern Circulatory Right	86%	50%	0%	YES

Table 4-22: Summary of DoS Validation Results – J06 PM Model

Lane	Observed (%)	Modelled (%)	Difference	Validates?
A335 (N) Ahead	73%	83%	10%	NO
A335 (N) Ahead	85%	76%	-9%	YES
Stoneham Lane Ahead Left	85%	76%	-10%	YES
Stoneham Lane Ahead	69%	59%	-9%	YES
Stoneham Lane Ahead	42%	59%	17%	NO
M27 (W) Off slip Ahead	74%	73%	-1%	YES
M27 (W) Off slip Ahead	No Data	68%	0%	YES
M27 (W) Off slip Ahead	91%	96%	5%	YES
M27 (E) Off slip Ahead	70%	57%	-13%	NO
M27 (E) Off slip Ahead	57%	57%	1%	YES
NE Circulatory Ahead	65%	63%	-2%	YES
NE Circulatory Ahead Ahead2	40%	47%	7%	YES
NE Circulatory Ahead	No Data	21%	0%	YES
NW Circulatory Ahead	68%	63%	-5%	YES
NW Circulatory Right Ahead	59%	65%	6%	YES
NW Circulatory Right	51%	44%	-7%	YES
Western Circulatory Ahead	44%	36%	-8%	YES
Western Circulatory Right Ahead	49%	44%	-5%	YES
Western Circulatory Right	48%	53%	5%	YES
Eastern Circulatory Ahead	72%	61%	-11%	NO
Eastern Circulatory Right Ahead	66%	59%	-7%	YES
Eastern Circulatory Right	No Data	38%	0%	YES

- 4.28 The DoS results presented in the tables above show a very good level of validation between the observed and modelled DoS in both time periods, with only arm (Stoneham Way Ahead) exceeding 15% difference – this is attributed to the fact that this lane is a right turn flare. However, generally where the DoS difference exceeds 10%, the modelled queue data validates well. Therefore, this model can be considered fit for purpose in testing future scenarios.

J07 – Stoneham Way / Wide Lane / Wessex Lane and Wide Lane / Mansbridge Road

- 4.29 The tables below/overleaf summarise the validation results for this junction. See **Appendix H** for full results

Table 4-23: Summary of 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	6.3	8.1	2	30%	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	12.2	1	7%	YES
Stoneham Way NB Right	11.1	11.8	1	7%	YES
Wessex Lane Right	5.9	3.9	-2	-33%	YES
Wide Lane Ahead Left Right	13.5	13.6	0	1%	YES
Wide Lane Right Ahead Left	0.8	1.4	1	75%	YES
Wide Lane Left	0.1	0.5	0	317%	YES
Mansbridge Roundabout					
Wide Lane N Right Left	0.2	0.1	0	-40%	YES
Mansbridge Road Right Left	1.5	0.3	-1	-81%	YES
Wide Lane W Right Left	1.9	0.1	-2	-95%	YES

Table 4-24: Summary of 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	5.9	6.8	1	16%	YES
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	10.5	-2	-13%	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	1.6	2	0%	YES
Wide Lane Left	0.0	0.3	0	0%	YES
Mansbridge Roundabout					
Wide Lane N Right Left	0.5	0.2	0	-60%	YES
Mansbridge Road Right Left	0.6	0.2	0	-68%	YES
Wide Lane W Right Left	0.1	0.1	0	20%	YES

Table 4-25: Summary of 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
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	70	-15	NO
Wessex Lane Right	64	66	2	YES
Wide Lane Ahead Left Right	77	69	-8	YES
Wide Lane Right Ahead Left	38	25	-13	NO
Wide Lane Left	-	47	-	-

Table 4-26: Summary of 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
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	74	-9	YES
Wessex Lane Right	70	62	-7	YES
Wide Lane Ahead Left Right	74	83	9	YES
Wide Lane Right Ahead Left	40	29	-11	NO
Wide Lane Left	-	36	-	-

4.30 The queue results presented in the tables above show a good level of validation between the observed and modelled queues in the AM. However, the PM shows that the modelled and observed queue lengths differ on the Stoneham Way SB arm.

4.31 The DoS results presented in the tables above show a good level of validation between the observed and modelled DoS in both time periods, with no arm exceeding 15% difference. However, where the DoS difference exceeds 10%, the modelled queue data validates well. Therefore, this model can be considered fit for purpose in testing future scenarios.

Results Summary

- 4.32 The tables overleaf show the queue, and DoS results for each approach for all of the junctions, across both time periods. Full results can be found in Appendices A-I.

Table 4-27: Summary of base model results – J01 Model – Wide Lane/ South Street

Lane	AM Queue (PCUs)	AM DoS (%)	PM Queue (PCUs)	PM DoS (%)
A335 Southampton Road	7	47	10	65
A335 Wide Lane	21	83	13	75
South Street	6	89	3	63

Table 4-28: Summary of base model results – J02 Model – Wide Lane/ Southampton Airport Parkway

Lane	AM Queue (PCUs)	AM DoS (%)	PM Queue (PCUs)	PM DoS (%)
Wide Lane N	10	60	14	71
SAP Right	1	9	1	14
SAP Left	0	14	0	38
Wide Lane S	16	81	6	59

Table 4-29: Summary of base model results – J03 Model – A335/ Wide Lane (without Lane Simulation Mode)

Lane	AM Queue (PCUs)	AM RFC (%)	PM Queue (PCUs)	PM RFC (%)
A335 Wide Lane 1	0.5	32	0.7	41
A335 Wide Lane 2	3.7	77	11.5	95
Wide Lane - Lane 1	1.2	54	3.3	77
Wide Lane - Lane 2	1.3	57	0.5	36
A335 Lane 1	14.1	96	2.5	71
A335 Lane 2	2.5	71	1.5	59

- 4.33 The results summary for the same junction when using Lane Simulation mode is shown below/ overleaf.

Table 4-30: Summary of base model results – J03 Model – A335/ Wide Lane (Lane Simulation Mode)

Lane	AM Queue (PCUs)	AM RFC (%)	PM Queue (PCUs)	PM RFC (%)
A335 Wide Lane 1	0.5	33	0.7	42
A335 Wide Lane 2	5	78	15	96
Wide Lane - Lane 1	1.3	54	2.7	75
Wide Lane - Lane 2	2.5	69	0.8	42
A335 Lane 1	20.1	100	3.2	74
A335 Lane 2	3.2	73	2	64

Table 4-31: Summary of base model results – J04 Model – Spitfire Roundabout (without Lane Simulation Mode)

Lane	AM Queue (PCUs)	AM RFC (%)	PM Queue (PCUs)	PM RFC (%)
Wide Lane (N) Lane 1	1.0	54	1.1	57
Wide Lane (N) Lane 2	1.0	54	1.1	57
Mitchell Way (E) Lane 1	0.1	11	0.2	14
Mitchell Way (E) Lane 2	0.1	11	0.2	14
George Curl Way (S) Lane 1	0.1	6	0.2	16
George Curl Way (S) Lane 2	0.1	6	0.2	16
Wide Lane (W) Lane 1	0.9	50	0.5	35
Wide Lane (W) Lane 2	0.9	50	0.5	35

4.34 The results summary for the same junction when using Lane Simulation mode are as follows.

Table 4-32: Summary of base model results – J04 Model – Spitfire Roundabout (Lane Simulation Mode)

Lane	AM Queue (PCUs)	AM RFC (%)	PM Queue (PCUs)	PM RFC (%)
Wide Lane (N) Lane 1	0.8	41.5	0.3	20.7
Wide Lane (N) Lane 2	1.1	47.8	4.1	73.7
Mitchell Way (E) Lane 1	0.2	5.2	0.1	5.9
Mitchell Way (E) Lane 2	0.0	12	0.2	17.1
George Curl Way (S) Lane 1	0.0	8.1	0.3	20.6
George Curl Way (S) Lane 2	0.0	2.1	0.1	4.4
Wide Lane (W) Lane 1	0.2	65.1	0.8	45.1
Wide Lane (W) Lane 2	0.0	16.9	0.2	12.5

Table 4-33: Summary of base model results – J05 Model – Wide Lane/ Mount Park

Lane	AM Queue (PCUs)	AM DoS (%)	PM Queue (PCUs)	PM DoS (%)
Wide Lane N	5	38	11	72
Mountpark	1	44	2	64
Wide Lane S	9	66	4	41

Table 4-34: Summary of base model results – J06 Model – M27 J5

Lane	AM Queue (PCUs)	AM DoS (%)	PM Queue (PCUs)	PM DoS (%)
Stoneham Lane Ahead Left	10.2	79	10.1	76%
Stoneham Lane Ahead	6.6	70	5.6	59%
A335 (N) Left	0.1	20	0.2	31%
A335 (N) Ahead	9.2	84	8.5	83%
A335 (N) Ahead	8.5	81	7.3	76%
M27 (E) Off slip Left	0.3	41	0.2	31%
M27 (E) Off slip Ahead	7.6	79	4.3	57%

Lane	AM Queue (PCUs)	AM DoS (%)	PM Queue (PCUs)	PM DoS (%)
A335 Stoneham Way (S) Ahead Left	17.8	98	17.2	94
A335 Stoneham Way (S) Ahead	14.2	97	26.9	98
M27 (W) Off slip Ahead Left	7.2	70	5.5	73
M27 (W) Off slip Ahead	2.8	32	4.8	68
M27 (W) Off slip Ahead	9.3	83	12	96
NW Circulatory Ahead	11.8	70	7.5	63
NW Circulatory Right Ahead	11.4	57	10	65
NW Circulatory Right	6.7	37	2.7	44
NE Circulatory Ahead	6.8	50	10.5	63
NE Circulatory Ahead Ahead2	5.5	46	1.7	47
NE Circulatory Ahead	6.8	25	5.1	21
Eastern Circulatory Ahead	4.8	82	4.1	61
Eastern Circulatory Right Ahead	4.4	73	7.5	59
Eastern Circulatory Right	2.8	50	6.1	38
Southern Circulatory Ahead	0	7	0	7
Southern Circulatory Right Ahead	0.4	43	0.2	32
Southern Circulatory Right	0.2	26	0.1	18
Western Circulatory Ahead	9.1	53	5.2	36
Western Circulatory Right Ahead	9.6	57	5.4	44
Western Circulatory Right	8	50	5.8	53
Stoneham Lane Ahead Left	10.2	79	10.1	76
Stoneham Lane Ahead	6.6	70	5.6	59

Table 4-35: Summary of base model results – J07 Model – Stoneham Way / Wide Lane / Wessex Lane and Wide Lane / Mansbridge Road

Lane	AM Queue (PCUs)	AM DoS (%)	PM Queue (PCUs)	PM DoS (%)
Stoneham Way NB Ahead Left	12.4	50.8	10.5	48.1
Stoneham Way NB Ahead	12	48.3	11.2	48.8

Lane	AM Queue (PCUs)	AM DoS (%)	PM Queue (PCUs)	PM DoS (%)
Stoneham Way NB Right	9.5	77.3	9.8	74.3
Wide Lane Left	0.5	45.8	0.3	36.2
Bassett Green Road Left	6	47.2	12.5	77.6
Stoneham Way SB Ahead	25.2	79.9	19.5	74.7
Stoneham Way SB Right Ahead	8.3	72.4	6.8	59.3
Wide Lane Right Ahead Left	2.4	29.7	1.6	29.3
Wide Lane Ahead	10.3	32.5	0.1	19
The Fleming Arms Right Ahead Left	0	0	0	0.7
Wessex Lane Right	3.2	61.3	3	62.3
Wide Lane Ahead Left Right	13.5	65.9	13.9	83.4
Wide Lane Right Left	0.1	21.5	0.2	26.2
Mansbridge Road Right Left	0.4	42	0.2	23.9
Mansbridge Road	0.1	16.3	0.1	21.5

- 4.35 The DoS results show that most junctions are currently operating below their practical capacity except for J03 A335 / Wide Lane roundabout. In particular, the A335 Lane 1 (western arm) is operating at its theoretical capacity in the AM (100% RFC). It was noted through site observations that queuing can extend back towards the M27 roundabout and is mostly caused by the blocking back from J02 – Wide Lane/ Southampton Airport Parkway. The A335 Wide Lane 2 (western arm) is over practical capacity in the PM (96% RFC), and this has a knock-on effect on the traffic turning left out of Southampton Airport Parkway heading towards the M27.

The 2025 models also show that most arms operate below their practical capacity. However, there are a few arms from M27 J5 model that operate close to theoretical capacity such as the A335 Stoneham Way (S) Ahead left and ahead in both the AM and PM peaks.

5 Forecast Modelling

Scenarios

- 5.1 Using the validated base local junction models as the basis for the future year forecast modelling, five future demand scenarios were tested. The modelled scenarios are summarised in
- 5.2 **Table 5-1** overleaf.

Table 5-1: Forecast modelled scenarios

Scenario	Demand	Network
2025 Baseline**	Uplifted base flows to current year	Same as base (except for J05 model*)
2028 Baseline	Uplifted base flows to future 2028 flows	Same as base (except for J05 model*)
2028 Baseline + Proposed Development	Uplifted base flows to future 2028 flows + development trips	Same as base (except for J05 model*)
2036 Baseline	Uplifted base flows to future 2036 flows	Same as base (except for J05 model*)
2036 Baseline + Proposed Development	Uplifted base flows to future 2036 flows + development trips	Same as base (except for J05 model*)

* As requested by Hampshire CC, J05 future models include the priority junction for access to the coffee drive through

** Only applies to 2023 models

2023 Model Forecast Results

J01 – Wide Lane / South Street

5.3 The junction capacity assessment results for this junction are shown in the tables below. See **Appendix A** for the full output results.

Table 5-2: Forecast Results – J01 AM Model – Wide Lane/ South Street

Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
2025 Baseline	A335 Southampton Road	49	1.5	7.6
	A335 Wide Lane	87	6.0	24.2
	South Street	80	3.2	4.8
2028 Baseline	A335 Southampton Road	51	1.6	8.1
	A335 Wide Lane	90	7.3	27.2
	South Street	81	3.3	5.0
2028 Baseline + Proposed Development	A335 Southampton Road	54	1.7	8.8
	A335 Wide Lane	91	8.0	28.8
	South Street	82	3.5	5.2

Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
2036 Baseline	A335 Southampton Road	55	1.8	8.9
	A335 Wide Lane	97	14.4	40.1
	South Street	86	4.0	5.8
2036 Baseline + Proposed Development	A335 Southampton Road	58	2.0	9.9
	A335 Wide Lane	98	17.3	44.0
	South Street	87	4.1	5.9

Table 5-3: Forecast Results – J01 PM Model -Wide Lane/ South Street

Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
2025 Baseline	A335 Southampton Road	66	2.5	10.5
	A335 Wide Lane	77	3.7	14.4
	South Street	65	1.7	2.7
2028 Baseline	A335 Southampton Road	69	2.7	11.4
	A335 Wide Lane	81	4.2	15.8
	South Street	66	1.8	2.8
2028 Baseline + Proposed Development	A335 Southampton Road	69	2.8	11.5
	A335 Wide Lane	84	4.8	17.6
	South Street	66	1.8	2.8
2036 Baseline	A335 Southampton Road	74	3.2	13.0
	A335 Wide Lane	88	6.2	20.8
	South Street	70	2.0	3.1
2036 Baseline + Proposed Development	A335 Southampton Road	74	3.3	13.4
	A335 Wide Lane	91	7.4	22.9
	South Street	70	2.0	3.1

5.4 The results show that even by 2028 Baseline, the junction will be at practical capacity in the AM period on the A335 Wide Lane south arm, regardless of the Proposed Development trips. The junction will also be approaching practical capacity in the 2036 Baseline and the additional Proposed Development trips, will not significantly exacerbate the capacity issues.

J02 – Wide Lane / Southampton Airport Parkway

5.5 The junction capacity assessment results for this junction are shown in the tables below. See **Appendix B** – full output files.

Table 5-4: Forecast Results – J02 AM Model – Wide Lane/ Southampton Airport Parkway

Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
2025 Baseline	Wide Lane N	58	1.8	9.0
	SAP Right	13	0.3	0.6
	SAP Left	15	0.1	0.1
	Wide Lane S	80	3.0	13.1
2028 Baseline	Wide Lane N	59	1.9	9.6
	SAP Right	13	0.3	0.6
	SAP Left	15	0.1	0.1
	Wide Lane S	83	3.6	15.4
2028 Baseline + Proposed Development	Wide Lane N	62	2.2	10.6
	SAP Right	13	0.3	0.6
	SAP Left	16	0.1	0.1
	Wide Lane S	84	3.9	16.2
2036 Baseline	Wide Lane N	64	2.3	11.1
	SAP Right	13	0.3	0.7
	SAP Left	17	0.1	0.1
	Wide Lane S	90	5.6	22.1
2036 Baseline + Proposed Development	Wide Lane N	67	2.5	12
	SAP Right	13	0.3	0.7
	SAP Left	17	0.1	0.1
	Wide Lane S	91	6.3	23.6

Table 5-5: Forecast Results – J02 PM Model - Wide Lane/ Southampton Airport Parkway

Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
2025 Baseline	Wide Lane N	69	2.5	12.4
	SAP Right	19	0.5	0.9
	SAP Left	38	0.3	0.3
	Wide Lane S	58	1.2	4.8
2028 Baseline	Wide Lane N	71	2.8	13.2
	SAP Right	19	0.5	1.0
	SAP Left	40	0.3	0.3
	Wide Lane S	61	1.4	5.3
	Wide Lane N	72	2.9	13.6

Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
2028 Baseline + Proposed Development	SAP Right	19	0.5	1.0
	SAP Left	41	0.3	0.3
	Wide Lane S	63	1.5	5.6
2036 Baseline	Wide Lane N	76	3.4	15.6
	SAP Right	20	0.5	1
	SAP Left	44	0.4	0.4
	Wide Lane S	66	1.8	6.9
2036 Baseline + Proposed Development	Wide Lane N	77	3.5	15.8
	SAP Right	20	0.5	1.0
	SAP Left	44	0.4	0.4
	Wide Lane S	69	2.0	7.3

- 5.6 The results show that by the 2036 Baseline, the junction will be at practical capacity in the AM period regardless of the Proposed Development trips. This is due to the traffic on Wide Lane south. This is significant because the resultant queues, will block back onto the A335 / Wide Lane roundabout, having a knock-on impact on congestion at that junction.

J03 – A335 / Wide Lane Roundabout

- 5.7 The junction capacity assessment results for this junction are shown in the tables below. These results are based on the re-assessment using Lane Simulation mode as requested by HCC. The full output files are included in **Appendix D**.

Table 5-6: Forecast Results – J03 AM Model – A335/ Wide Lane Roundabout

Scenario	Lane	RFC	Delay (s)	Queue (PCU)
2025 Baseline	1/1 - Wide Lane (NE)	0.33	7.08	0.5
	1/2 - Wide Lane (NE)	0.78	28.37	5
	2/1 - Wide Lane (S)	0.54	11.11	1.3
	2/2 - Wide Lane (S)	0.69	15.00	2.5
	3/1 - A335 (NW)	1.00	85.35	20.1
	3/2 - A335 (NW)	0.73	16.96	3.2
2028 Baseline	1/1 - Wide Lane (NE)	0.38	8.09	0.6
	1/2 - Wide Lane (NE)	0.86	41.88	8.5
	2/1 - Wide Lane (S)	0.64	15.69	2.3
	2/2 - Wide Lane (S)	0.76	18.46	3
	3/1 - A335 (NW)	1.06	139.97	34.9
	3/2 - A335 (NW)	0.86	38.49	8.6

Scenario	Lane	RFC	Delay (s)	Queue (PCU)
2028 Baseline + Proposed Development	1/1 - Wide Lane (NE)	0.47	9.86	0.9
	1/2 - Wide Lane (NE)	0.93	62.19	11.9
	2/1 - Wide Lane (S)	0.84	30.56	5.6
	2/2 - Wide Lane (S)	0.79	20.46	3.4
	3/1 - A335 (NW)	1.06	125.41	34.1
	3/2 - A335 (NW)	1.18	308.82	80.1
2036 Baseline	1/1 - Wide Lane (NE)	0.44	9.20	0.8
	1/2 - Wide Lane (NE)	0.93	62.71	11.3
	2/1 - Wide Lane (S)	0.76	21.90	3.6
	2/2 - Wide Lane (S)	0.86	33.05	6.6
	3/1 - A335 (NW)	1.15	251.44	65.7
	3/2 - A335 (NW)	1.04	113.24	28.3
2036 Baseline + Proposed Development	1/1 - Wide Lane (NE)	0.51	10.73	1.3
	1/2 - Wide Lane (NE)	0.95	79.50	15.5
	2/1 - Wide Lane (S)	0.96	65.71	14.2
	2/2 - Wide Lane (S)	0.88	36.05	7
	3/1 - A335 (NW)	1.14	251.97	64.1
	3/2 - A335 (NW)	1.35	704.24	165.8

Table 5-7: Forecast Results – J03 PM Model – A335/ Wide Lane Roundabout

Scenario	Lane	RFC	Delay (s)	Queue (PCU)
2025 Baseline	1/1 - Wide Lane (NE)	0.42	7.88	0.7
	1/2 - Wide Lane (NE)	0.96	69.27	15
	2/1 - Wide Lane (S)	0.75	17.71	2.7
	2/2 - Wide Lane (S)	0.42	8.34	0.8
	3/1 - A335 (NW)	0.74	18.03	3.2
	3/2 - A335 (NW)	0.64	11.69	2
2028 Baseline	1/1 - Wide Lane (NE)	0.48	9.10	0.9
	1/2 - Wide Lane (NE)	1.05	119.22	28.6
	2/1 - Wide Lane (S)	0.86	35.62	6.9

Scenario	Lane	RFC	Delay (s)	Queue (PCU)
2028 Baseline + Proposed Development	2/2 - Wide Lane (S)	0.49	10.26	1.1
	3/1 - A335 (NW)	0.79	20.46	4.2
	3/2 - A335 (NW)	0.73	16.30	2.9
	1/1 - Wide Lane (NE)	0.53	10.76	1.1
	1/2 - Wide Lane (NE)	1.10	196.79	48.3
	2/1 - Wide Lane (S)	1.16	305.34	67.5
	2/2 - Wide Lane (S)	0.53	10.53	1.2
	3/1 - A335 (NW)	0.81	23.29	4.8
	3/2 - A335 (NW)	0.92	48.53	11.5
2036 Baseline	1/1 - Wide Lane (NE)	0.51	10.37	1.1
	1/2 - Wide Lane (NE)	1.13	221.80	56.5
	2/1 - Wide Lane (S)	1.02	110.80	24.6
	2/2 - Wide Lane (S)	0.57	11.70	1.5
	3/1 - A335 (NW)	0.86	31.28	6.9
	3/2 - A335 (NW)	0.84	25.00	5.1
2036 Baseline + Proposed Development	1/1 - Wide Lane (NE)	0.57	12.58	1.2
	1/2 - Wide Lane (NE)	1.21	375.27	77
	2/1 - Wide Lane (S)	1.31	656.76	140.6
	2/2 - Wide Lane (S)	0.62	13.44	1.8
	3/1 - A335 (NW)	0.90	35.47	8.2
	3/2 - A335 (NW)	1.04	122.17	32.9

5.8 The results show that even in the 2025 Baseline, the junction will be approaching/ at theoretical capacity in both peak periods – 1.0 RFC on A335 NW arm in AM peak and 0.96 RFC on Wide Lane NE arm in PM peak. In both the 2028 and 2036 Baseline scenarios the junction will also exceed theoretical capacity (>1.00 RFC's). In the 2036 Baseline the queue on the northwestern arm is c 373m which extends back almost as far to the M27 J5 central junction circulation lanes. The addition of Navigator trips in the 2028 and 2036 Baseline + Proposed Development scenarios exacerbate this and means queues extend into the M27 J5 central circulation.

5.9 As the junction is over theoretical capacity, associated queues on the impacted arms are therefore increasing exponentially, which then rise further as a result of the Proposed Development in the 2028 and 2036 Baseline + Proposed Development scenarios.

[Please note – Steer is currently discussing the feasibility of potential mitigation options for the Wide Lane junction with HCC, with further details to follow subsequently].

J04 – Spitfire Roundabout

5.10 The junction capacity assessment results for this junction are shown in the tables below and overleaf. These results are based on the re-assessment using Lane Simulation mode as requested by HCC.

Table 5-8: Forecast Results – J05 AM Model – Spitfire Roundabout

Scenario	Lane	RFC	Delay (s)	Queue (PCU)
Future Base 2025	1/1 - Wide Lane (N)	0.56	11.27	1.6
	1/2 – Wide Lane (N)	0.60	12.25	1.5
	2/1 - Mitchell Way (E)	0.09	5.48	0.2
	2/2 – Mitchell Way (E)	0.19	5.74	0.3
	3/1 - George Curl Way (S)	0.12	5.95	0.1
	3/2 – George Curl Way (S)	0.03	5.98	0.1
	4/1 - Wide Lane (W)	0.83	21.08	4.8
	4/2 – Wide Lane (W)	0.23	5.37	0.4
Future Base 2028	1/1 - Wide Lane (N)	0.63	14.64	2.1
	1/2 – Wide Lane (N)	0.66	14.04	1.8
	2/1 - Mitchell Way (E)	0.12	5.46	0.2
	2/2 – Mitchell Way (E)	0.25	6.48	0.4
	3/1 - George Curl Way (S)	0.11	6.19	0.2
	3/2 – George Curl Way (S)	0.03	6.65	0
	4/1 - Wide Lane (W)	0.85	25.14	5.7
	4/2 – Wide Lane (W)	0.29	5.70	0.5
Proposed 2028	1/1 - Wide Lane (N)	1.06	169.48	39.9
	1/2 – Wide Lane (N)	0.68	18.01	2.1
	2/1 - Mitchell Way (E)	0.15	5.46	0.2
	2/2 – Mitchell Way (E)	0.47	10.67	1.3
	3/1 - George Curl Way (S)	0.13	6.93	0.2
	3/2 – George Curl Way (S)	0.04	7.02	0.1
	4/1 - Wide Lane (W)	0.92	41.19	9
	4/2 – Wide Lane (W)	0.42	7.66	0.8
Future Base 2036	1/1 - Wide Lane (N)	0.80	28.47	4.4
	1/2 – Wide Lane (N)	0.69	15.98	2.6

Scenario	Lane	RFC	Delay (s)	Queue (PCU)
	2/1 - Mitchell Way (E)	0.18	5.87	0.3
	2/2 - Mitchell Way (E)	0.39	7.83	0.6
	3/1 - George Curl Way (S)	0.14	6.93	0.2
	3/2 - George Curl Way (S)	0.04	6.92	0.1
	4/1 - Wide Lane (W)	0.94	49.04	12
	4/2 - Wide Lane (W)	0.37	6.66	0.7
Proposed 2036	1/1 - Wide Lane (N)	1.22	443.34	90.2
	1/2 - Wide Lane (N)	0.73	19.24	3.6
	2/1 - Mitchell Way (E)	0.22	5.92	0.3
	2/2 - Mitchell Way (E)	0.57	12.81	1.5
	3/1 - George Curl Way (S)	0.15	8.29	0.2
	3/2 - George Curl Way (S)	0.04	7.89	0.1
	4/1 - Wide Lane (W)	1.43	857.66	213.7
	4/2 - Wide Lane (W)	0.13	5.18	0.1

Table 5-9: Forecast Results – J05 PM Model – Spitfire Roundabout

Scenario	Lane	RFC	Delay (s)	Queue (PCU)
Future Base 2025	1/1 - Wide Lane (N)	0.28	7.37	0.5
	1/2 - Wide Lane (N)	0.93	48.58	9.1
	2/1 - Mitchell Way (E)	0.09	5.32	0.2
	2/2 - Mitchell Way (E)	0.26	6.16	0.4
	3/1 - George Curl Way (S)	0.27	9.17	0.5
	3/2 - George Curl Way (S)	0.06	6.45	0.1
	4/1 - Wide Lane (W)	0.59	9.87	1.6
	4/2 - Wide Lane (W)	0.19	5.41	0.3
Future Base 2028	1/1 - Wide Lane (N)	0.34	7.62	0.5
	1/2 - Wide Lane (N)	0.98	75.18	17.1
	2/1 - Mitchell Way (E)	0.13	5.37	0.2
	2/2 - Mitchell Way (E)	0.35	7.17	0.6
	3/1 - George Curl Way (S)	0.30	9.66	0.5

Scenario	Lane	RFC	Delay (s)	Queue (PCU)
Proposed 2028	3/2 – George Curl Way (S)	0.06	6.91	0.1
	4/1 - Wide Lane (W)	0.61	11.22	1.5
	4/2 – Wide Lane (W)	0.24	5.89	0.4
	1/1 - Wide Lane (N)	0.56	14.52	1.6
	1/2 – Wide Lane (N)	1.00	83.20	19.2
	2/1 - Mitchell Way (E)	0.22	5.77	0.3
	2/2 – Mitchell Way (E)	0.69	14.66	2.1
	3/1 - George Curl Way (S)	0.38	13.09	0.7
	3/2 – George Curl Way (S)	0.08	8.97	0.1
Future Base 2036	4/1 - Wide Lane (W)	0.68	14.23	2.1
	4/2 – Wide Lane (W)	0.30	7.07	0.5
	1/1 - Wide Lane (N)	0.44	9.05	0.8
	1/2 – Wide Lane (N)	1.06	154.44	36.6
	2/1 - Mitchell Way (E)	0.19	5.69	0.3
	2/2 – Mitchell Way (E)	0.50	9.17	1
	3/1 - George Curl Way (S)	0.36	11.59	0.6
	3/2 – George Curl Way (S)	0.07	7.71	0.1
	4/1 - Wide Lane (W)	0.68	13.95	2.1
Proposed 2036	4/2 – Wide Lane (W)	0.35	7.07	0.6
	1/1 - Wide Lane (N)	0.67	17.51	3.0
	1/2 – Wide Lane (N)	1.07	155.11	36.7
	2/1 - Mitchell Way (E)	0.28	6.38	0.4
	2/2 – Mitchell Way (E)	0.82	26.60	5.0
	3/1 - George Curl Way (S)	0.44	17.05	1.0
	3/2 – George Curl Way (S)	0.09	10.33	0.1
	4/1 - Wide Lane (W)	1.12	205.66	49.3
	4/2 – Wide Lane (W)	0.06	5.81	0.1

5.11 The results show that the Spitfire Roundabout will be over practical capacity (0.94 RFC) on the Wide Lane western arm during the 2036 Baseline AM period (without development).

5.12 The addition of Navigator Quarter development trips (2036 Proposed Development scenario) exacerbates this if there is no mitigation at the junction:

- Increases the RFC to 1.22 in the AM peak (further over theoretical capacity) on the northern arm with a queue of 90 PCU (517m) which would queue back across the Wide Lane junction to the north.
- Increases the RFC to 1.43 in the AM peak on the western arm (Wide Lane west – towards Southampton) with a queue of 213 PCU.

5.13 The results also show that the Spitfire Roundabout will be at theoretical capacity (0.98 RFC) on the Wide Lane northern arm in the 2028 Future Base (without development) PM period, and operating over theoretical capacity (1.06 PCU) during the 2036 Future Baseline PM period (without development).

5.14 The addition of Navigator Quarter development trips (2036 Proposed Development scenario) exacerbates this if there is no mitigation at the junction:

- Increases the RFC to 1.07 in the PM peak (further over theoretical capacity) on the northern arm with a queue of 37 PCU.
- Increases the RFC to 1.12 in the AM peak on the western arm (Wide Lane west – towards Southampton) with a queue of 49 PCU.

[Please note – Steer is currently discussing the feasibility of potential mitigation options for the Spitfire Roundabout with HCC, with further details to follow subsequently].

J05 – Wide Lane / Mountpark

5.15 The junction capacity results for this junction are shown in the tables as follows. The full output files are in **Appendix F**.

Table 5-10: Forecast Results – J05 AM Model – Wide Lane/ Mount Park

Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
Future Base 2025	Wide Lane N	40	1.2	5.2
	Mountpark	44	0.8	1.4
	Wide Lane S	68	2.2	10.4
Future Base 2028	Wide Lane N	44	1.4	5.9
	Mountpark	46	0.9	1.4
	Wide Lane S	72	2.5	11.8
Proposed 2028	Wide Lane N	46	1.5	6.1
	Mountpark	46	0.9	1.4
	Wide Lane S	78	3.3	14.9
Future Base 2036	Wide Lane N	51	1.7	7.1
	Mountpark	49	1.0	1.5
	Wide Lane S	79	3.5	15.4
Proposed 2036	Wide Lane N	52	1.8	7.4
	Mountpark	49	1.0	1.5
	Wide Lane S	85	4.8	19.7

Table 5-11: Forecast Results – J05 PM Model – Wide Lane/ Mount Park

Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
Future Base 2025	Wide Lane N	77	4.1	11.0
	Mountpark	65	1.5	2.3
	Wide Lane S	44	1.3	4.7
Future Base 2028	Wide Lane N	83	5.1	12.8
	Mountpark	66	1.6	2.3
	Wide Lane S	50	1.5	5.5
Proposed 2028	Wide Lane N	90	7.5	16.6
	Mountpark	66	1.6	2.4
	Wide Lane S	51	1.6	5.9
Future Base 2036	Wide Lane N	92	8.4	17.7
	Mountpark	70	1.8	2.6
	Wide Lane S	57	2.0	7.0
Proposed 2036	Wide Lane N	99	17.7	28.5
	Mountpark	71	1.8	2.7
	Wide Lane S	58	2.1	7.2

- 5.16 The results demonstrate that this junction would perform within capacity within all scenarios, during the AM peak period. However, during the PM peak the junction would be at practical capacity on one arm in the 2028 Proposed Development scenario and going forwards.
- 5.17 As a result, and as requested by SCC on 29th August 2025, the cycle time has been increased by 24 seconds to 82 seconds in the PM to better reflect how MOVA might operate in reality when flow patterns have changed in the future. The result of this mitigation is shown in **Table 5-12**. This significantly enhances the performance of the junction and ensures that it operates within capacity in all scenarios.

Table 5-12: Wide Lane/ Mount Park Mitigation Option – Forecast PM results

Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
Future Base 2025	Wide Lane N	77	4.1	11.0
	Mountpark	65	1.5	2.3
	Wide Lane S	44	1.3	4.7
Future Base 2028	Wide Lane N	66	3.2	12.3
	Mountpark	66	1.9	3.0
	Wide Lane S	44	1.3	5.9
Proposed 2028	Wide Lane N	72	3.8	14.3
	Mountpark	67	1.9	3.0
	Wide Lane S	45	1.3	6.3
Future Base 2036	Wide Lane N	73	4.0	14.9

Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
Proposed 2036	Mountpark	71	2.1	3.3
	Wide Lane S	50	1.6	7.3
	Wide Lane N	79	4.9	17.5
	Mountpark	71	2.2	3.3
	Wide Lane S	51	1.7	7.7

2025 Model Future Forecast Results

J06 - M27 J5

- 5.18 The junction capacity results for this junction are shown in the tables below/ overleaf. These results are based on the re-assessment using modified parameters as requested by National Highways (see **Table 1-1**). The full modelling output files are included in **Appendix G**.

Table 5-13: Forecast Results – J06 AM Model – M27 J5

Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
2028 Baseline	Stoneham Lane Ahead Left	85.4%	6.3	12.4
	Stoneham Lane Ahead	66.9%	4.5	6.5
	A335 (N) Left	20.4%	0.1	0.1
	A335 (N) Ahead	70.5%	4.2	9.2
	A335 (N) Ahead	45.1%	2.2	5.2
	M27 (E) Off slip Left	40.9%	0.3	0.3
	M27 (E) Off slip Ahead	78.2%	5.3	7.8
	A335 Stoneham Way (S) Ahead Left	101.6%	18.6	57.7
	A335 Stoneham Way (S) Ahead	100.2%	14.5	48.5
	M27 (W) Off slip Ahead Left	42.6%	2.0	4.6
	M27 (W) Off slip Ahead	46.1%	2.2	5.0
	M27 (W) Off slip Ahead	66.5%	3.5	7.6
	NW Circulatory Ahead	66.7%	1.9	7.7
	NW Circulatory Right Ahead	61.5%	1.7	9.0
	NW Circulatory Right	44.2%	0.6	7.0
	NE Circulatory Ahead	55.8%	1.4	11.2
	NE Circulatory Ahead Ahead2	59.1%	1.2	7.2

Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
	NE Circulatory Ahead	26.9%	0.0	0.1
	Eastern Circulatory Ahead	77.7%	2.0	6.0
	Eastern Circulatory Right Ahead	93.7%	2.8	6.5
	Eastern Circulatory Right	45.4%	1.1	5.7
	Southern Circulatory Ahead	10.2%	0.1	0.1
	Southern Circulatory Right Ahead	41.8%	0.4	0.4
	Southern Circulatory Right	26.8%	0.2	0.2
	Western Circulatory Ahead	59.1%	2.5	10.8
	Western Circulatory Right Ahead	64.0%	2.7	10.5
	Western Circulatory Right	54.0%	2.0	7.5
2028 Baseline + Proposed Development	Stoneham Lane Ahead Left	85.2%	6.3	12.8
	Stoneham Lane Ahead	70.0%	5.0	6.7
	A335 (N) Left	23.8%	0.2	0.2
	A335 (N) Ahead	66.3%	3.9	9.0
	A335 (N) Ahead	51.1%	2.7	6.5
	M27 (E) Off slip Left	40.9%	0.3	0.3
	M27 (E) Off slip Ahead	78.4%	5.6	7.9
	A335 Stoneham Way (S) Ahead Left	106.6%	33.5	71.6
	A335 Stoneham Way (S) Ahead	105.5%	25.7	57.8
	M27 (W) Off slip Ahead Left	40.5%	2.0	5.4
	M27 (W) Off slip Ahead	32.7%	1.5	4.1
	M27 (W) Off slip Ahead	46.8%	2.4	6.1
	NW Circulatory Ahead	70.1%	2.5	8.6
	NW Circulatory Right Ahead	71.3%	2.7	9.7
	NW Circulatory Right	45.6%	1.5	8.8
	NE Circulatory Ahead	50.9%	1.3	9.2
	NE Circulatory Ahead Ahead2	64.9%	0.9	6.6
	NE Circulatory Ahead	30.5%	0.3	5.5
	Eastern Circulatory Ahead	71.1%	2.0	6.6

Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
	Eastern Circulatory Right Ahead	99.9%	2.9	7.1
	Eastern Circulatory Right	57.6%	1.2	7.0
	Southern Circulatory Ahead	10.2%	0.1	0.1
	Southern Circulatory Right Ahead	45.1%	0.4	0.4
	Southern Circulatory Right	30.6%	0.2	0.2
	Western Circulatory Ahead	70.4%	5.4	14.5
	Western Circulatory Right Ahead	73.3%	4.9	13.6
	Western Circulatory Right	76.1%	4.5	13.0
2036 Baseline	Stoneham Lane Ahead Left	82.4%	5.7	11.8
	Stoneham Lane Ahead	67.6%	4.8	6.5
	A335 (N) Left	22.3%	0.1	0.1
	A335 (N) Ahead	63.1%	3.6	8.7
	A335 (N) Ahead	49.0%	2.5	6.3
	M27 (E) Off slip Left	43.0%	0.4	0.4
	M27 (E) Off slip Ahead	81.1%	6.0	8.4
	A335 Stoneham Way (S) Ahead Left	112.0%	53.0	95.1
	A335 Stoneham Way (S) Ahead	111.1%	41.0	73.3
	M27 (W) Off slip Ahead Left	52.9%	2.5	5.7
	M27 (W) Off slip Ahead	55.1%	2.7	6.0
	M27 (W) Off slip Ahead	73.6%	4.1	8.5
	NW Circulatory Ahead	71.5%	2.0	8.4
	NW Circulatory Right Ahead	66.5%	1.9	10.0
	NW Circulatory Right	47.1%	0.8	8.7
	NE Circulatory Ahead	57.2%	2.0	11.3
	NE Circulatory Ahead Ahead2	66.5%	1.2	6.0
	NE Circulatory Ahead	32.0%	0.3	5.9
	Eastern Circulatory Ahead	73.1%	2.2	6.6
	Eastern Circulatory Right Ahead	100.1%	3.1	7.5
	Eastern Circulatory Right	60.3%	1.3	7.0

Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
	Southern Circulatory Ahead	8.7%	0.0	0.0
	Southern Circulatory Right Ahead	47.1%	0.4	0.4
	Southern Circulatory Right	29.4%	0.2	0.2
	Western Circulatory Ahead	59.4%	2.5	11.0
	Western Circulatory Right Ahead	63.4%	2.6	10.7
	Western Circulatory Right	53.7%	2.0	7.4
2036 Baseline + Proposed Development	Stoneham Lane Ahead Left	85.4%	6.4	12.8
	Stoneham Lane Ahead	76.2%	5.8	8.0
	A335 (N) Left	25.6%	0.2	0.2
	A335 (N) Ahead	74.4%	4.7	10.7
	A335 (N) Ahead	54.6%	2.9	7.0
	M27 (E) Off slip Left	43.0%	0.4	0.4
	M27 (E) Off slip Ahead	83.5%	6.7	9.1
	A335 Stoneham Way (S) Ahead Left	118.0%	73.5	122.3
	A335 Stoneham Way (S) Ahead	117.9%	56.6	83.9
	M27 (W) Off slip Ahead Left	62.3%	3.1	6.8
	M27 (W) Off slip Ahead	66.8%	3.5	7.4
	M27 (W) Off slip Ahead	77.9%	4.6	8.9
	NW Circulatory Ahead	76.8%	2.7	9.8
	NW Circulatory Right Ahead	68.5%	1.6	10.3
	NW Circulatory Right	50.4%	0.5	2.4
	NE Circulatory Ahead	44.9%	1.5	9.1
	NE Circulatory Ahead Ahead2	72.0%	1.3	5.4
	NE Circulatory Ahead	32.9%	0.5	6.4
	Eastern Circulatory Ahead	91.4%	2.2	6.0
	Eastern Circulatory Right Ahead	91.2%	3.2	9.2
	Eastern Circulatory Right	64.2%	2.2	7.0
	Southern Circulatory Ahead	11.3%	0.1	1.2

Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
	Southern Circulatory Right Ahead	48.7%	0.5	0.5
	Southern Circulatory Right	32.6%	0.2	0.2
	Western Circulatory Ahead	59.6%	3.2	10.1
	Western Circulatory Right Ahead	62.9%	3.2	10.7
	Western Circulatory Right	54.0%	2.5	8.1

Table 5-14: Forecast Results – J06 PM Model – M27 J5

Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
2028 Baseline	Stoneham Lane Ahead Left	86.0%	6.4	12.5
	Stoneham Lane Ahead	60.5 : 60.5%	3.7	5.8
	A335 (N) Left	32.0%	0.2	0.2
	A335 (N) Ahead	63.4%	3.3	7.3
	A335 (N) Ahead	52.9%	2.6	5.9
	M27 (E) Off slip Left	31.4%	0.2	0.2
	M27 (E) Off slip Ahead	49.6%	2.3	3.8
	A335 Stoneham Way (S) Ahead Left	96.7%	9.2	23.2
	A335 Stoneham Way (S) Ahead	102.3%	20.2	67.2
	M27 (W) Off slip Ahead Left	54.1%	2.4	5.1
	M27 (W) Off slip Ahead	39.4%	1.6	3.5
	M27 (W) Off slip Ahead	62.9%	3.1	6.4
	NW Circulatory Ahead	67.4%	1.4	6.8
	NW Circulatory Right Ahead	61.1%	1.7	7.8
	NW Circulatory Right	43.4%	0.6	2.1
	NE Circulatory Ahead	72.1%	1.5	13.5
	NE Circulatory Ahead Ahead2	48.7%	1.9	6.4
	NE Circulatory Ahead	27.2%	0.3	1.0
	Eastern Circulatory Ahead	86.4%	1.4	4.8
	Eastern Circulatory Right Ahead	86.9%	1.6	6.3
	Eastern Circulatory Right	64.4%	0.7	2.5
	Southern Circulatory Ahead	6.5%	0.0	0.0
	Southern Circulatory Right Ahead	35.1%	0.3	0.3

Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
	Southern Circulatory Right	17.3%	0.1	0.1
	Western Circulatory Ahead	44.3%	2.2	7.0
	Western Circulatory Right Ahead	48.0%	2.3	8.7
	Western Circulatory Right	58.5%	2.4	10.5
2028 Baseline + Proposed Development	Stoneham Lane Ahead Left	86.5%	6.6	12.8
	Stoneham Lane Ahead	60.6%	3.7	5.8
	A335 (N) Left	37.0%	0.3	0.3
	A335 (N) Ahead	62.5%	3.4	8.1
	A335 (N) Ahead	56.6%	3.0	7.1
	M27 (E) Off slip Left	31.4%	0.2	0.2
	M27 (E) Off slip Ahead	52.0%	2.5	4.1
	A335 Stoneham Way (S) Ahead Left	101.4%	17.8	60.0
	A335 Stoneham Way (S) Ahead	110.6%	45.5	89.8
	M27 (W) Off slip Ahead Left	61.0%	2.8	5.7
	M27 (W) Off slip Ahead	55.2%	2.4	5.0
	M27 (W) Off slip Ahead	66.8%	3.3	6.6
	NW Circulatory Ahead	74.6%	1.5	7.6
	NW Circulatory Right Ahead	63.1%	1.6	8.5
	NW Circulatory Right	41.6%	0.5	1.9
	NE Circulatory Ahead	73.8%	1.7	13.0
	NE Circulatory Ahead Ahead2	48.7%	2.3	6.5
	NE Circulatory Ahead	30.8%	0.6	1.6
	Eastern Circulatory Ahead	83.0%	1.4	5.4
	Eastern Circulatory Right Ahead	99.6%	2.4	7.3
	Eastern Circulatory Right	77.4%	1.1	3.5
	Southern Circulatory Ahead	8.4%	0.0	0.0
	Southern Circulatory Right Ahead	39.0%	0.3	0.3
	Southern Circulatory Right	19.7%	0.1	0.1
	Western Circulatory Ahead	46.8%	2.2	7.6
	Western Circulatory Right Ahead	50.5%	2.4	9.3
	Western Circulatory Right	53.5%	1.9	9.0
2036 Baseline	Stoneham Lane Ahead Left	69.5%	3.9	9.1
	Stoneham Lane Ahead	74.8%	5.1	9.5
	A335 (N) Left	35.0%	0.3	0.3
	A335 (N) Ahead	58.3%	3.2	7.6
	A335 (N) Ahead	49.2%	2.5	6.2

Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
	M27 (E) Off slip Left	33.0%	0.2	0.2
	M27 (E) Off slip Ahead	51.8%	2.5	4.1
	A335 Stoneham Way (S) Ahead Left	105.2%	29.2	74.7
	A335 Stoneham Way (S) Ahead	113.6%	57.2	103.8
	M27 (W) Off slip Ahead Left	57.0%	2.5	5.2
	M27 (W) Off slip Ahead	53.4%	2.3	4.8
	M27 (W) Off slip Ahead	70.1%	3.6	7.2
	NW Circulatory Ahead	73.1%	1.5	6.7
	NW Circulatory Right Ahead	62.6%	1.8	8.3
	NW Circulatory Right	48.9%	1.1	8.3
	NE Circulatory Ahead	68.1%	2.5	11.3
	NE Circulatory Ahead Ahead2	71.7%	0.9	15.3
	NE Circulatory Ahead	23.7%	1.0	4.0
	Eastern Circulatory Ahead	93.0%	1.9	5.0
	Eastern Circulatory Right Ahead	98.6%	2.3	6.6
	Eastern Circulatory Right	66.8%	0.9	2.9
	Southern Circulatory Ahead	9.1%	0.1	0.1
	Southern Circulatory Right Ahead	36.5%	0.3	0.3
	Southern Circulatory Right	19.1%	0.1	0.1
	Western Circulatory Ahead	44.9%	1.7	7.5
	Western Circulatory Right Ahead	50.0%	1.9	8.3
	Western Circulatory Right	54.5%	2.1	8.5
2036 Baseline + Proposed Development	Stoneham Lane Ahead Left	68.8%	3.9	9.0
	Stoneham Lane Ahead	74.4%	5.1	9.2
	A335 (N) Left	39.9%	0.3	0.3
	A335 (N) Ahead	70.5%	4.3	9.8
	A335 (N) Ahead	54.9%	2.9	7.1
	M27 (E) Off slip Left	33.0%	0.2	0.2
	M27 (E) Off slip Ahead	106.0%	40.0	39.7
	A335 Stoneham Way (S) Ahead Left	110.5%	46.6	83.5
	A335 Stoneham Way (S) Ahead	118.5%	72.0	115.6
	M27 (W) Off slip Ahead Left	61.1%	3.0	6.6
	M27 (W) Off slip Ahead	44.3%	2.0	4.4
	M27 (W) Off slip Ahead	59.3%	2.9	6.4
	NW Circulatory Ahead	81.1%	1.7	10.1
	NW Circulatory Right Ahead	72.8%	2.5	11.8

Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
	NW Circulatory Right	38.2%	1.0	7.3
	NE Circulatory Ahead	74.9%	2.1	11.3
	NE Circulatory Ahead Ahead2	66.4%	0.5	15.1
	NE Circulatory Ahead	19.8%	1.1	4.5
	Eastern Circulatory Ahead	61.2%	0.4	3.0
	Eastern Circulatory Right Ahead	45.3%	0.7	5.3
	Eastern Circulatory Right	34.8%	0.2	0.9
	Southern Circulatory Ahead	13.6%	0.1	0.1
	Southern Circulatory Right Ahead	36.5%	0.3	0.3
	Southern Circulatory Right	20.4%	0.1	0.1
	Western Circulatory Ahead	48.8%	2.3	7.8
	Western Circulatory Right Ahead	52.4%	2.5	7.4
	Western Circulatory Right	57.3%	2.6	9.4

- 5.19 The modelling results indicate that the junction generally operates within acceptable capacity limits, in the 2025 and 2028 Baseline AM peak scenarios with most arms/ lanes staying below 90% DoS.
- 5.20 However, certain key movements experience increasing pressure over time. In the AM peak, DoS values exceed 100% by the 2036 Baseline on the A335 Stoneham Way arm and on the Eastern Circulatory section. In the 2036 Baseline + Proposed Development AM peak scenario, the DoS values exceed 100% on the A335 Stoneham Way S arm and 90% on the Eastern Circulatory.
- 5.21 In the PM peak, the DoS levels are generally higher than in the AM peak. In the 2028 Baseline PM peak the DoS is forecast to exceed 100% on A335 Stoneham Way S arm and 99% on the Eastern Circulatory. This increases further in the 2028 Baseline + Proposed Development PM peak scenario.
- 5.22 In the 2036 Baseline PM peak, the A335 Stoneham Way ahead arm is forecast to be at 113% DoS, and the Eastern Circulatory is forecast to be at 98.6% DoS, and therefore the junction will be operating above theoretical capacity even before Proposed Development trips are added. Therefore, the theoretical capacity is also forecast to be exceeded in the 2036 Baseline + Proposed Development scenario on the A335 Stoneham Way S arm (118% DoS) and the DoS also exceeds 90% on the Eastern Circulatory.

J07 - Stoneham Way / Wide Lane / Wessex Lane and Wide Lane / Mansbridge Road

- 5.23 The junction capacity results for this junction are shown in the tables overleaf.

Table 5-15: Forecast Results – J07 AM Model – Stoneham Way / Wide Lane / Wessex Lane and Wide Lane / Mansbridge Road

Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
2028 Baseline	Stoneham Way / Wessex Lane			
	Stoneham Way NB Ahead Left	50.8	2.7	12.4
	Stoneham Way NB Ahead	48.3	2.6	12
	Stoneham Way NB Right	77.3	4.9	9.5
	Wide Lane Left	45.8	0.4	0.5
	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
	Wide Lane Right Ahead Left	29.7	1.4	2.4
	Wide Lane Ahead	32.5	0.5	10.3
	The Fleming Arms Right Ahead Left	0	0	0
	Wessex Lane Right	61.3	1.9	3.2
	Wide Lane Ahead Left Right	65.9	4.9	13.5
	Mansbridge Roundabout			
	Wide Lane Right Left	21.5	0.1	0.1
	Mansbridge Road Right Left	42	0.4	0.4
	Mansbridge Road	16.3	0.1	0.1
	Wide Lane Right Left	20.4	0.1	0.1
2028 Baseline + Proposed Development	Stoneham Way / Wessex Lane			
	Stoneham Way NB Ahead Left	52.1	2.9	12.9
	Stoneham Way NB Ahead	49.7	2.8	12.6
	Stoneham Way NB Right	80.6	5.6	10.9
	Wide Lane Left	48.2	0.5	0.5
	Bassett Green Road Left	44	2.5	5.8
	Stoneham Way SB Ahead	78.1	5.8	23.9
	Stoneham Way SB Right Ahead	70.9	5.1	8.3
	Wide Lane Right Ahead Left	32.7	1.4	2.6
	Wide Lane Ahead	32.9	0.5	10.8
	The Fleming Arms Right Ahead Left	0	0	0

Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
	Wessex Lane Right	62.1	2	3.3
	Wide Lane Ahead Left Right	70.1	5.4	14.3
	Mansbridge Roundabout			
	Wide Lane Right Left	22.4	0.1	0.1
	Mansbridge Road Right Left	46.9	0.4	0.4
	Mansbridge Road	16.5	0.1	0.1
	Wide Lane Right Left	26.3	0.2	0.2
2036 Baseline	Stoneham Way / Wessex Lane			
	Stoneham Way NB Ahead Left	54	3	13.8
	Stoneham Way NB Ahead	51.7	2.9	13.3
	Stoneham Way NB Right	83.1	5.9	11.2
	Wide Lane Left	50.7	0.5	0.5
	Bassett Green Road Left	47.9	2.7	6.3
	Stoneham Way SB Ahead	81.1	6.4	26.2
	Stoneham Way SB Right Ahead	75.8	5.7	9
	Wide Lane Right Ahead Left	32.8	1.6	2.8
	Wide Lane Ahead	35.6	0.6	12.2
	The Fleming Arms Right Ahead Left	0	0	0
	Wessex Lane Right	64.5	2.1	3.5
	Wide Lane Ahead Left Right	73	5.9	15.4
	Mansbridge Roundabout			
	Wide Lane Right Left	26.5	0.2	0.2
	Mansbridge Road Right Left	48.1	0.5	0.5
	Mansbridge Road	19.3	0.1	0.1
	Wide Lane Right Left	23.9	0.2	0.2
2036 Baseline + Proposed Development	Stoneham Way / Wessex Lane			
	Stoneham Way NB Ahead Left	55.4	3.2	14.4
	Stoneham Way NB Ahead	53.1	3.2	13.9
	Stoneham Way NB Right	86.1	6.9	12.8
	Wide Lane Left	53.2	0.6	0.6

Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
	Bassett Green Road Left	44.7	2.6	6.1
	Stoneham Way SB Ahead	85.3	7.8	29.2
	Stoneham Way SB Right Ahead	72.9	5.4	8.5
	Wide Lane Right Ahead Left	35.8	1.7	3
	Wide Lane Ahead	36	0.7	12.6
	The Fleming Arms Right Ahead Left	0	0	0
	Wessex Lane Right	65.3	2.1	3.6
	Wide Lane Ahead Left Right	77.2	6.5	16.3
	Wide Lane Right Left	27.4	0.2	0.2
	Mansbridge Roundabout			
	Mansbridge Road Right Left	52.4	0.5	0.5
	Mansbridge Road	19.5	0.1	0.1
	Wide Lane Right Left	30.1	0.2	0.2

Table 5-16: Forecast Results – J07 PM Model – Stoneham Way / Wide Lane / Wessex Lane and Wide Lane / Mansbridge Road

Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
2028 Baseline	Stoneham Way / Wessex Lane			
	Stoneham Way NB Ahead Left	50.8	2.7	12.4
	Stoneham Way NB Ahead	48.3	2.6	12
	Stoneham Way NB Right	77.3	4.9	9.5
	Wide Lane Left	45.8	0.4	0.5
	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
	Wide Lane Right Ahead Left	29.7	1.4	2.4
	Wide Lane Ahead	32.5	0.5	10.3
	The Fleming Arms Right Ahead Left	0	0	0
	Wessex Lane Right	61.3	1.9	3.2
	Wide Lane Ahead Left Right	65.9	4.9	13.5

Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
	Mansbridge Roundabout			
	Wide Lane Right Left	21.5	0.1	0.1
	Mansbridge Road Right Left	42	0.4	0.4
	Mansbridge Road	16.3	0.1	0.1
	Wide Lane Right Left	20.4	0.1	0.1
2028 Baseline + Proposed Development	Stoneham Way / Wessex Lane			
	Stoneham Way NB Ahead Left	52.1	2.9	12.9
	Stoneham Way NB Ahead	49.7	2.8	12.6
	Stoneham Way NB Right	80.6	5.6	10.9
	Wide Lane Left	48.2	0.5	0.5
	Bassett Green Road Left	44	2.5	5.8
	Stoneham Way SB Ahead	78.1	5.8	23.9
	Stoneham Way SB Right Ahead	70.9	5.1	8.3
	Wide Lane Right Ahead Left	32.7	1.4	2.6
	Wide Lane Ahead	32.9	0.5	10.8
	The Fleming Arms Right Ahead Left	0	0	0
	Wessex Lane Right	62.1	2	3.3
	Wide Lane Ahead Left Right	70.1	5.4	14.3
	Mansbridge Roundabout			
	Wide Lane Right Left	22.4	0.1	0.1
	Mansbridge Road Right Left	46.9	0.4	0.4
	Mansbridge Road	16.5	0.1	0.1
	Wide Lane Right Left	26.3	0.2	0.2
2036 Baseline	Stoneham Way / Wessex Lane			
	Stoneham Way NB Ahead Left	54	3	13.8
	Stoneham Way NB Ahead	51.7	2.9	13.3
	Stoneham Way NB Right	83.1	5.9	11.2
	Wide Lane Left	50.7	0.5	0.5
	Bassett Green Road Left	47.9	2.7	6.3
	Stoneham Way SB Ahead	81.1	6.4	26.2

Scenario	Lane	DoS (%)	Total Delay (PCU/Hr)	Mean Max Queue
	Stoneham Way SB Right Ahead	75.8	5.7	9
	Wide Lane Right Ahead Left	32.8	1.6	2.8
	Wide Lane Ahead	35.6	0.6	12.2
	The Fleming Arms Right Ahead Left	0	0	0
	Wessex Lane Right	64.5	2.1	3.5
	Wide Lane Ahead Left Right	73	5.9	15.4
	Mansbridge Roundabout			
	Wide Lane Right Left	26.5	0.2	0.2
	Mansbridge Road Right Left	48.1	0.5	0.5
	Mansbridge Road	19.3	0.1	0.1
	Wide Lane Right Left	23.9	0.2	0.2
2036 Baseline + Proposed Development	Stoneham Way / Wessex Lane			
	Stoneham Way NB Ahead Left	55.4	3.2	14.4
	Stoneham Way NB Ahead	53.1	3.2	13.9
	Stoneham Way NB Right	86.1	6.9	12.8
	Wide Lane Left	53.2	0.6	0.6
	Bassett Green Road Left	44.7	2.6	6.1
	Stoneham Way SB Ahead	85.3	7.8	29.2
	Stoneham Way SB Right Ahead	72.9	5.4	8.5
	Wide Lane Right Ahead Left	35.8	1.7	3
	Wide Lane Ahead	36	0.7	12.6
	The Fleming Arms Right Ahead Left	0	0	0
	Wessex Lane Right	65.3	2.1	3.6
	Wide Lane Ahead Left Right	77.2	6.5	16.3
	Wide Lane Right Left	27.4	0.2	0.2
	Mansbridge Roundabout			
	Mansbridge Road Right Left	52.4	0.5	0.5
	Mansbridge Road	19.5	0.1	0.1
	Wide Lane Right Left	30.1	0.2	0.2

- 5.24 The modelling results show that across all scenarios and time periods, the junction operates within acceptable capacity limits, with all lanes remaining below 90% DoS. During the 2036 Baseline PM peak scenario the Stoneham Way northbound right turn lane and Stoneham Way southbound ahead lanes operate at 83% and 81% RFC respectively, with RFC's increasing marginally to 86% on the Stoneham Way northbound right turn lane and 85% on the Stoneham Way southbound lane during the 20236 Baseline + Proposed Development PM peak scenario.

6 Conclusion and Recommendations

6.1 The transport modelling analysis for the Navigator Quarter study area has demonstrated the effectiveness of the Junctions 9 and LinSig models in providing a robust representation of current and future traffic conditions. The base models were validated to an acceptable level of accuracy, confirming their suitability for assessing forecast scenarios.

6.2 Key findings from the base model analysis include:

- **Validation Results:** The base models generally aligned well with observed traffic conditions, with minimal discrepancies. While a few minor validation issues were identified they do not undermine the reliability of the overall models.
- **Operational Challenges:** The analysis highlighted significant existing operational issues at some junctions with the A335 / Wide Lane junction consistently operating above practical capacity during peak periods. Queueing effects at Southampton Airport Parkway contributes to this congestion issue.

6.3 Key findings from the forecast model analysis including junction arms operating at/ above practical capacity in either the AM or PM peaks are identified in **Table 6-1**. This table excludes mitigation measures.

Table 6-1: Summary of junctions operating at/ above practical capacity in either AM or PM peaks (excluding mitigation).

Junction	Lane	Junctions and arms operating at/ above capacity			
		FB 2028	Proposed 2028	FB 2036	Proposed 2036
J01 - Wide Lane / South Street	Southampton Rd	N	N	N	N
	Wide Lane	Y	Y	Y	Y
	South Street	N	N	Y	Y
J02 - Wide Lane / Southampton Airport Parkway	Wide Lane N	N	N	N	N
	SAP	N	N	N	N
	Wide Lane S	N	N	Y	Y
J03 - A335 / Wide Lane Roundabout	1/1 - Wide Lane (NE)	N	N	N	N
	1/2 - Wide Lane (NE)	Y	Y	Y	Y
	2/1 - Wide Lane (S)	N	N	Y	Y
	2/2 - Wide Lane (S)	N	N	N	N
	3/1 - A335 (NW)	Y	Y	Y	Y
	3/2 - A335 (NW)	N	Y	Y	Y
J04 - Spitfire Roundabout	1/1 - Wide Lane (N)	N	Y	N	Y
	1/2 - Wide Lane (N)	Y	Y	Y	Y
	2/1 - Mitchell Way (E)	N	N	N	N
	2/2 - Mitchell Way (E)	N	N	N	N

Junction	Lane	Junctions and arms operating at/ above capacity			
		FB 2028	Proposed 2028	FB 2036	Proposed 2036
	3/1 - George Curl Way (S)	N	N	N	N
	3/2 – George Curl Way (S)	N	N	N	N
	4/1 - Wide Lane (W)	N	Y	Y	Y
	4/2 – Wide Lane (W)	N	N	N	N
J05 - Wide Lane / Mountpark	Wide Lane N	N	Y	Y	Y
	Mountpark	N	N	N	N
	Wide Lane S	N	N	N	N
J06 – M27 J5	Stoneham Lane Ahead Left	N	N	N	N
	Stoneham Lane Ahead	N	N	N	N
	A335 (N) Left	N	N	N	N
	A335 (N) Ahead	N	N	N	N
	A335 (N) Ahead	N	N	N	N
	M27 (E) Off slip Left	N	N	N	N
	M27 (E) Off slip Ahead	N	N	N	Y
	A335 Stoneham Way (S) Ahead Left	Y	Y	Y	Y
	A335 Stoneham Way (S) Ahead	Y	Y	Y	Y
	M27 (W) Off slip Ahead Left	N	N	N	N
	M27 (W) Off slip Ahead	N	N	N	N
	M27 (W) Off slip Ahead	N	N	N	N
	NW Circulatory Ahead	N	N	N	N
	NW Circulatory Right Ahead	N	N	N	N
	NW Circulatory Right	N	N	N	N
	NE Circulatory Ahead	N	N	N	N
	NE Circulatory Ahead Ahead2	N	N	N	N
	NE Circulatory Ahead	N	N	N	N
	Eastern Circulatory Ahead	N	N	Y	Y
	Eastern Circulatory Right Ahead	Y	Y	Y	Y
	Eastern Circulatory Right	N	N	N	N
	Southern Circulatory Ahead	N	N	N	N

Junction	Lane	Junctions and arms operating at/ above capacity			
		FB 2028	Proposed 2028	FB 2036	Proposed 2036
	Southern Circulatory Right Ahead	N	N	N	N
	Southern Circulatory Right	N	N	N	N
	Western Circulatory Ahead	N	N	N	N
	Western Circulatory Right Ahead	N	N	N	N
	Western Circulatory Right	N	N	N	N
J07 – Stoneham Way / Wide Lane / Wessex Lane and Wide Lane / Mansbridge Road	Stoneham Way NB Ahead Left	N	N	N	N
	Stoneham Way NB Ahead	N	N	N	N
	Stoneham Way NB Right	N	N	N	N
	Wide Lane Left	N	N	N	N
	Bassett Green Road Left	N	N	N	N
	Stoneham Way SB Ahead	N	N	N	N
	Stoneham Way SB Right Ahead	N	N	N	N
	Wide Lane Right Ahead Left	N	N	N	N
	Wide Lane Ahead	N	N	N	N
	The Fleming Arms Right Ahead Left	N	N	N	N
	Wessex Lane Right	N	N	N	N
	Wide Lane Ahead Left Right	N	N	N	N
	Wide Lane Right Left	N	N	N	N
	Mansbridge Road Right Left	N	N	N	N
	Mansbridge Road	N	N	N	N
	Wide Lane Right Left	N	N	N	N

6.4 It is important to note the following points:

- **A335/ Wide Lane Roundabout:**
 - The results show that even in the 2025 Baseline, the junction will be approaching/ at theoretical capacity in both peak periods – 1.0 RFC on A335 NW arm in AM peak and 0.96 RFC on Wide Lane NE arm in PM peak.
 - In both the 2028 and 2036 Baseline scenarios without the development the junction will also exceed theoretical capacity (>1.00 RFC's), with this increasing with the addition of Proposed Development trips.

- **Spitfire Roundabout:**

- The results show that the Spitfire Roundabout will be over practical capacity (0.94 RFC) on the Wide Lane western arm during the 2036 Baseline AM period (without development).
- The results also show that the Spitfire Roundabout will be at theoretical capacity (0.98 RFC) on the Wide Lane northern arm in the 2028 Future Base (without development) PM period, and operating over theoretical capacity (1.06 PCU) during the 2036 Future Baseline PM period (without development).

6.5 Discussions relating to the feasibility of potential mitigation measures for the above junctions are currently being undertaken with HCC. This note will be updated with full details once further discussions have taken place.

Full details have been provided in relation to a mitigation option for the Wide Lane/ Mount Park Junction. This has involved increasing the green time of the Wide Lane northern arm during the PM peak which now results in the Wide Lane northern arm operating within capacity.