

Lewis Thomas

Subject: 24/00914/OUT Recreation Ground, Burroughs Road, Ratby
Attachments: 109003-PEF-ZZ-X--SK-TP-0800_S2-P02 - Junction Measurements.pdf

From: Lewis Thomas
Sent: 11 November 2025 14:08
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Cc: Patrick Thomas <patrick.thomas@nationalhighways.co.uk>; Ijas Muhammed <ijas.muhammed@nationalhighways.co.uk>
Subject: 24/00914/OUT Recreation Ground, Burroughs Road, Ratby

Hi Adrian,

Following the most recent comments please find the updated modelling results below.

The updated junction models and outputs can be downloaded here:  [Models NH Response - 29 Oct 25.zip](#)

Junction 5 Model

Model Geometry

1. *“The approach half-width of Leicester Road (West) is 2.89 metres, but 3.70 metres has been input into the model.”*
 - This number has been updated within the junction modelling files.
 - The effective flare on this arm has not been updated as a result of the half-width changes due to the layout of the approach to the roundabout.
2. *“The approach half-width of Sacheverell Way is 2.98 metres, but 3.70 metres has been input into the model.”*
 - This number has been updated within the junction modelling files.
 - As a result of the updated half-width the effective flare on this arm has been changed from 19.5m to 17.8m
3. *“The effective flare length of Leicester Road is 14.9 metres, but 35.7 metres has been input into the model.”*
 - This number has been updated within the junction modelling files as no other measurements were noted to be changed.

The above geometry changes requested have been made to demonstrate as a sensitivity test that these changes would not change the overall conclusions in terms of junction impact as set out below.

Following the geometry update, the models required revised Intercept Adjustments due to recalculated base slopes and capacity intercepts. For reference, the previously calculated capacity slopes and intercepts are shown below, along with the updated revalidation figures derived from the new ARCADY-calculated values to demonstrate the need for updated calibration and validation.

The updated results of the modelling are presented in **Table 2** and **Table 4** for the Lane simulation models.

Table 1: Direct Intercept Capacity Adjustments

Arm	Previously Calculated		Updated Geometry		
	Base Slope	Base Calculated Capacity Intercept	Base Slope	Base Calculated Capacity Intercept	AM Adjustment (PCU/ Hr)
Leicester Road (West)	0.745	2189	0.720	2066	-1200

Leicester Road (East)	0.742	2096	0.695	1858	-800
Sacheverell Way	0.705	1999	0.664	1794	-950

Table 2: A426/Leicester Road Roundabout Capacity Assessment

Arm / Movement	AM Peak			PM Peak		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
2024 Base (Initial Base Model based solely on Geometry)						
Leicester Road (West)	0	3	0.19	0	2	0.14
Leicester Road (East)	1	3	0.36	1	5	0.57
Sacheverell Way	1	3	0.33	0	4	0.30
2024 Base (Calibrated and Validated)						
Leicester Road (West)	2	20	0.64	1	19	0.56
Leicester Road (East)	2	11	0.65	3	12	0.77
Sacheverell Way	4	29	0.81	4	32	0.80
2028 Furnessed Future						
Leicester Road (West)	3	30	0.77	2	23	0.63
Leicester Road (East)	3	14	0.74	4	15	0.82
Sacheverell Way	5	35	0.84	8	64	0.92
2028 Furnessed Future + Development						
Leicester Road (West)	3	33	0.79	2	24	0.64
Leicester Road (East)	3	15	0.75	5	16	0.83
Sacheverell Way	6	44	0.88	8	66	0.92
2031 Furnessed Future						
Leicester Road (West)	6	49	0.87	2	22	0.62
Leicester Road (East)	4	17	0.78	6	19	0.85
Sacheverell Way	6	41	0.87	9	73	0.93
2031 Furnessed Future + Development						
Leicester Road (West)	11	89	0.96	2	25	0.66
Leicester Road (East)	4	20	0.81	7	24	0.89
Sacheverell Way	10	66	0.94	13	98	0.98

Lane Simulation Modelling

Table 3: Direct Intercept Capacity Adjustments – Lane Simulation Model

Arm	Previously Calculated		Updated Geometry		
	Base Slope	Base Calculated Capacity Intercept	Base Slope	Base Calculated Capacity Intercept	AM Adjustment (PCU/ Hr)
Leicester Road (West)	0.745	2189	0.720	2066	-950
Leicester Road (East)	0.742	2096	0.695	1858	-500
Sacheverell Way	0.705	1999	0.664	1794	-350

Table 4: A426/Leicester Road Roundabout Capacity Assessment – Lane Simulation Model

Arm / Movement	AM Peak		PM Peak	
	Queue (PCU)	Delay (s)	Queue (PCU)	Delay (s)
2024 Base (Initial Base Model based solely on Geometry)				
Leicester Road (West)	1	6	0	5
Leicester Road (East)	1	7	3	10
Sacheverell Way	2	12	1	10
2024 Base (Calibrated and Validated)				

Leicester Road (West)	2	23	1	16
Leicester Road (East)	2	23	3	12
Sacheverell Way	4	27	5	39
2028 Furnessed Future				
Leicester Road (West)	4	37	1	17
Leicester Road (East)	3	16	4	13
Sacheverell Way	5	32	9	59
2028 Furnessed Future + Development				
Leicester Road (West)	4	32	1	18
Leicester Road (East)	4	18	4	14
Sacheverell Way	5	32	8	58
2031 Furnessed Future				
Leicester Road (West)	6	47	1	16
Leicester Road (East)	4	21	5	15
Sacheverell Way	6	40	8	56
2031 Furnessed Future + Development				
Leicester Road (West)	7	53	1	17
Leicester Road (East)	5	25	6	17
Sacheverell Way	9	49	12	80

Overall, it is concluded that the with development scenarios will have a minimal impact on the junction when compared to both the 2028 and the 2031 future scenarios with committed development. It should also be noted that these queue impacts are based on a single-lane assessment due to limitations in ARCADY's ability to model wider/ multiple lane approaches. In reality, queuing is likely to be distributed across multiple lanes.

As such, no mitigation measures are required to facilitate the development proposals and the queues would not interact with the Brantings Roundabout and as such, the J9 modelling approach as a standalone model forms the most appropriate methodology.

Junction 6 LinSIG Model Review

Apologies for the Traffic Flow mistakes for the LinSig modelling the flows now match what was previously provided within appendix C this has now been corrected and the updated results are presented below in **Table 5**.

Table 5: Brantings Roundabout Modelling Results

Arm / Movement	AM Peak			PM Peak		
	Mean Max Queue (PCU)	Av Delay (s)	Degree of Saturation	Mean Max Queue (PCU)	Av Delay (s)	Degree of Saturation
2024 Base (Initial Base Model based solely on Geometry)						
Grobby Road	4	44	69.1%	7	31	70.8%
Leicester Road	4	8	69.4%	2	7	55.5%
A46 (South)	2	11	48.8%	2	13	49.1%
Markfield Road	19	32	91.7%	10	11	65.9%
A46 (North)	11	39	89.7%	17	69	100.1%
PRC	-1.9%			-11.2%		
2028 Furnessed Future						
Grobby Road	5	50	76.2%	7	32	73.7%
Leicester Road	4	10	72.2%	2	8	61.3%
A46 (South)	2	13	52.8%	1	12	43.0%
Markfield Road	20	35	92.9%	11	12	70.5%
A46 (North)	12	41	91.2%	18	114	100.1%
PRC	-3.2%			-11.3%		

2028 Furnessed Future + Development						
Groby Road	5	50	76.2%	8	33	75.2%
Leicester Road	4	11	75.3%	2	9	62.5%
A46 (South)	2	13	53.6%	1	12	44.5%
Markfield Road	21	36	93.2%	11	12	70.5%
A46 (North)	12	41	91.2%	18	110	99.8%
PRC	-3.6%			-10.9%		
2031 Furnessed Future						
Groby Road	5	53	79.2%	8	34	77.1%
Leicester Road	5	12	76.9%	2	8	60.1%
A46 (South)	2	13	52.7%	1	12	42.5%
Markfield Road	21	35	93.1%	11	12	69.2%
A46 (North)	12	44	92.3%	21	142	102.9%
PRC	-3.5%			-14.3%		
2031 Furnessed Future + Development						
Groby Road	5	53	79.2%	9	39	83.2%
Leicester Road	8	13	81.8%	3	9	64.0%
A46 (South)	2	14	55.5%	1	12	45.4%
Markfield Road	21	37	93.6%	11	12	69.3%
A46 (North)	12	49	92.7%	20	20	102.1%
PRC	-4.0%			-13.5%		

As with all previously submitted models the results indicate that the proposed development would have a minimal impact on the Brantings Roundabout.

Overall, the results confirm that the development would have a minimal impact on the operation of the junction, and as such, no mitigation measures are proposed.

We hope that this information allows for you to remove your holding objection on the application.

Many Thanks

Lewis

Lewis Thomas
Associate Director

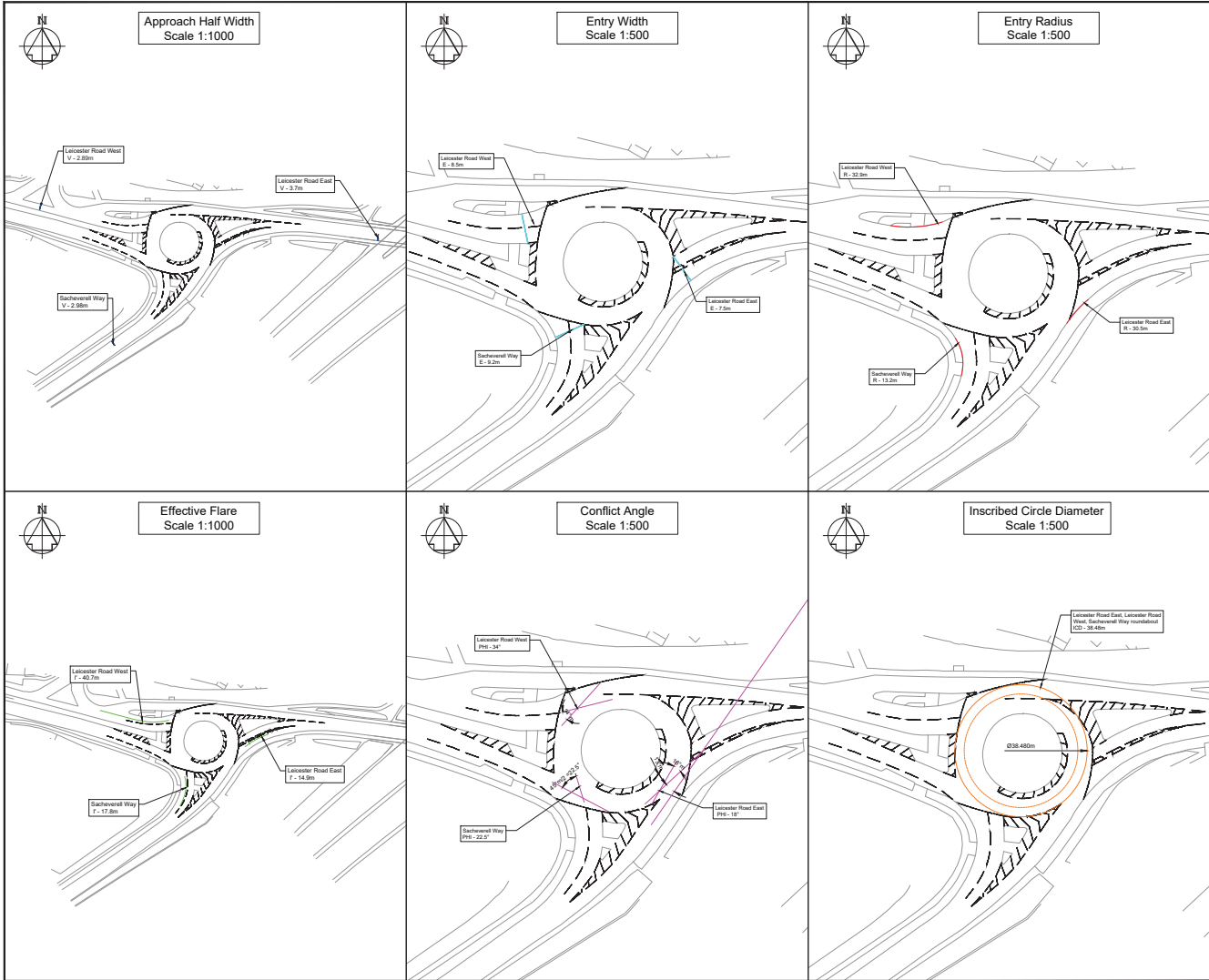
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REVISED ISSUE FOLLOWING COMMENTS	JF	LT	CH	27.10.25
FIRST ISSUE	SP	JF	CH	36.09.25
DESCRIPTION	OWN	CHK	APP	DATE

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Project
RATBY PHASE 3 AND 4

Location/Title
**LEICESTER ROAD EAST/WEST,
SACHEVERELL WAY,
ROUNDAABOUT MEASUREMENTS**

FOR INFORMATION				
Drawn	Name	Date	Revision	
Drawn	S. PACE	08/03/20	S2	
Designed	S. PACE	08/03/20	1:500 & 1:1000	
Eng. Chk	J. PARRELL	08/03/20		
Approved	C. HOLLANDWAY	08/03/20	P02	

109003-PEF-ZZ-XX-DR-TP-0800

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