A46 Newark Bypass

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7.45 Additional Junction Assessment for Nottinghamshire County Council

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7.45 Additional Junction Assessment for Nottinghamshire County Council

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1. Overview

Nottinghamshire County Council (NCC) has requested additional peak hour junction modelling of the following roundabout junctions:

- B6326 Great North Road / B6166 Bar Gate
- B6326 Great North Road / Ossington Way (Waitrose junction)
- A17 / Stapleford Lane / Beckingham Road
- A17 / Long Hollow Way / Godfrey Drive

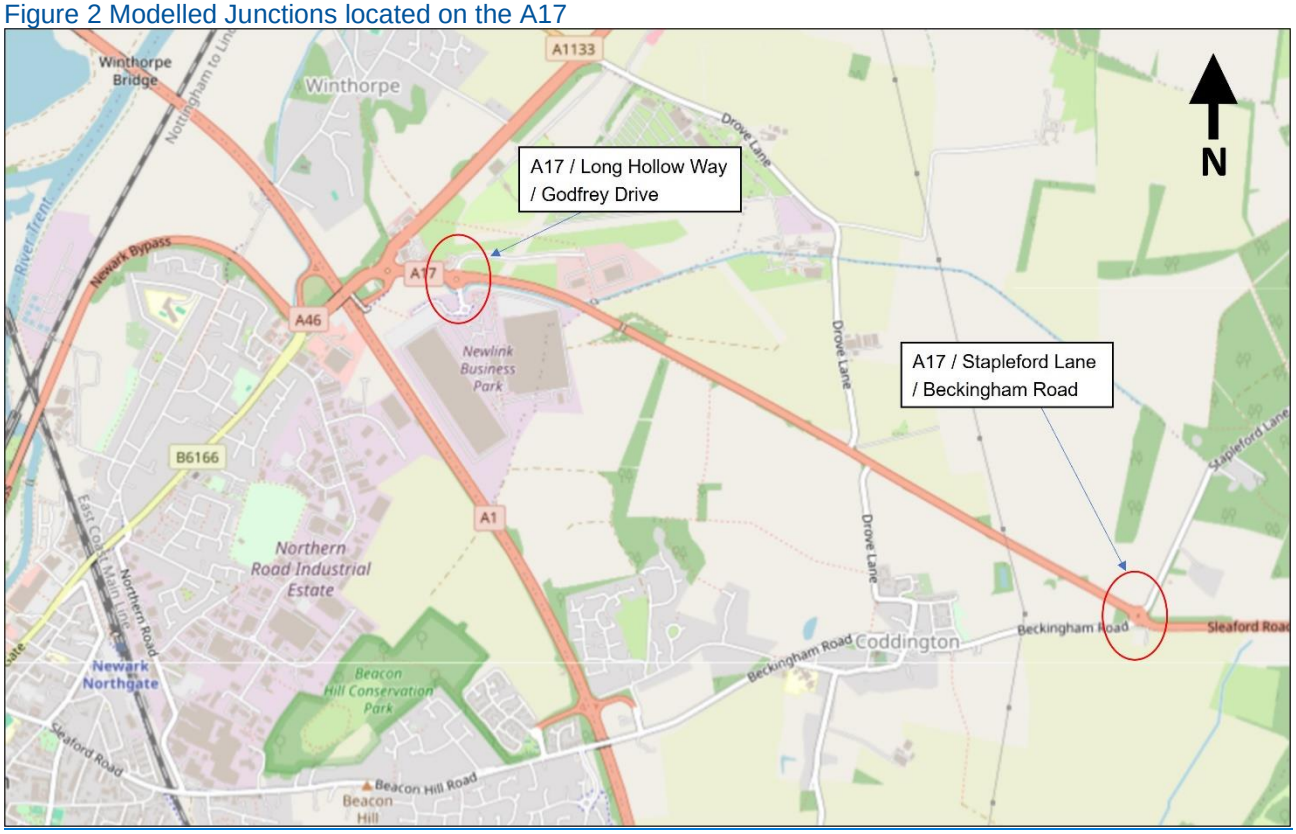
NCC has noted that the junctions are anticipated to experience significant increases in traffic volumes with the Scheme and are therefore keen to understand whether capacity will be impacted.

The locations of the two roundabouts located on the B6326 are illustrated in Figure 1, and the two roundabouts modelled along the A17 are illustrated in Figure 2.

Figure 1 Modelled Junctions located on the B6326 Great North Road

Source: Openstreetmaps.org

Figure 2 Modelled Junctions located on the A17



Source: Openstreetmaps.org

Each of the junctions has subsequently been assessed in the standalone junction modelling software ARCADY using forecast traffic flows from the A46 Newark Bypass strategic traffic model (SATURN) Core scenario. Details of the assessment and the results from the junction modelling are presented within this technical note for the 2028 and 2043 forecast years.

2. Junction Model Details

2.1 B6326 Great North Road / Bar Gate Roundabout

The B6326 Great North Road / Bar Gate Roundabout is a three-arm roundabout comprising of Bar Gate, B6166 Castle Gate and B6326 Great North Road. The junction is illustrated in Figure 3.

Figure 3 B6326 Great North Road / Bar Gate Roundabout

Source: Openstreetmaps.org

This junction is modelled within ARCADY, with the measurement parameters obtained from aerial imagery.

Bar Gate is a single-carriageway with a 30mph speed limit. It has a single lane, which widens to provide two lanes on the approach to the junction. It has a zebra crossing with a refuge located approximately 8 metres to the north of the junction. B6166 Castle Gate is also a single carriageway subject to a 30mph speed limit, it has a single lane which widens to provide two lanes on the approach to the junction. It also has a zebra crossing with a refuge located approximately 25 metres south of the junction. B6326 Great North Road is a single-carriageway road subject to a 30mph speed limit. It has a single lane, which widens to provide two lanes on the approach to the junction. A zebra crossing with a refuge is located approximately 7 metres to the west of the junction on this arm.

The B6326 Great North Road / Bar Gate roundabout is represented within the A46 Newark Bypass strategic traffic model. Flows for the ARCADY assessment are therefore taken directly from SATURN for the Do Minimum and Do Something scenario.

2.2 B6326 Great North Road / Ossington Way Roundabout

The B6326 Great North Road / Ossington Way Roundabout is a three-arm mini-roundabout comprising of B6326 Great North Road (east and west), as well as Ossington Way. The junction is illustrated in Figure 4.

Figure 4 B6326 Great North Road / Ossington Way Roundabout

Source: Openstreetmaps.org

This junction is modelled within ARCADY, with the measurement parameters obtained from aerial imagery.

B6326 Great North Road (east) is a single-carriageway with a 30mph speed limit. It has a single lane, which widens on the approach to the junction. It also has a kerbed central island at the junction. Ossington Way is a single-carriageway with a 30mph speed limit; it has a single lane, which widens to provide two lanes on the approach to the junction. It also has a kerbed central island at the junction. B6326 Great North Road (west) is a single-carriageway which widens on the approach to the junctions with a 30mph speed limit. It also has a kerbed central island at the junction.

While the A46 Newark Bypass strategic traffic model includes the B6326 Great North Road, it does not explicitly model Ossington Way or the Ossington Way roundabout. For the assessment of this junction, it is, therefore, not possible to take all flows directly from SATURN.

Turning flows at this location are therefore informed by a manual classified count (MCC) (Wednesday, July 14, 2021), which is used in tandem with available forecast traffic flows from SATURN.

2.3 A17 / Stapleford Lane / Beckingham Road Roundabout

The A17 / Stapleford Lane / Beckingham Road Roundabout is a four-arm roundabout comprising of Stapleford Lane, A17 Beckingham Road, Beckingham Road and A17 west. The junction is illustrated in Figure 5.

Figure 5 A17 / Stapleford Lane / Beckingham Road Roundabout

Source: Openstreetmaps.org

This junction is modelled within ARCADY, with the measurement parameters obtained from aerial imagery.

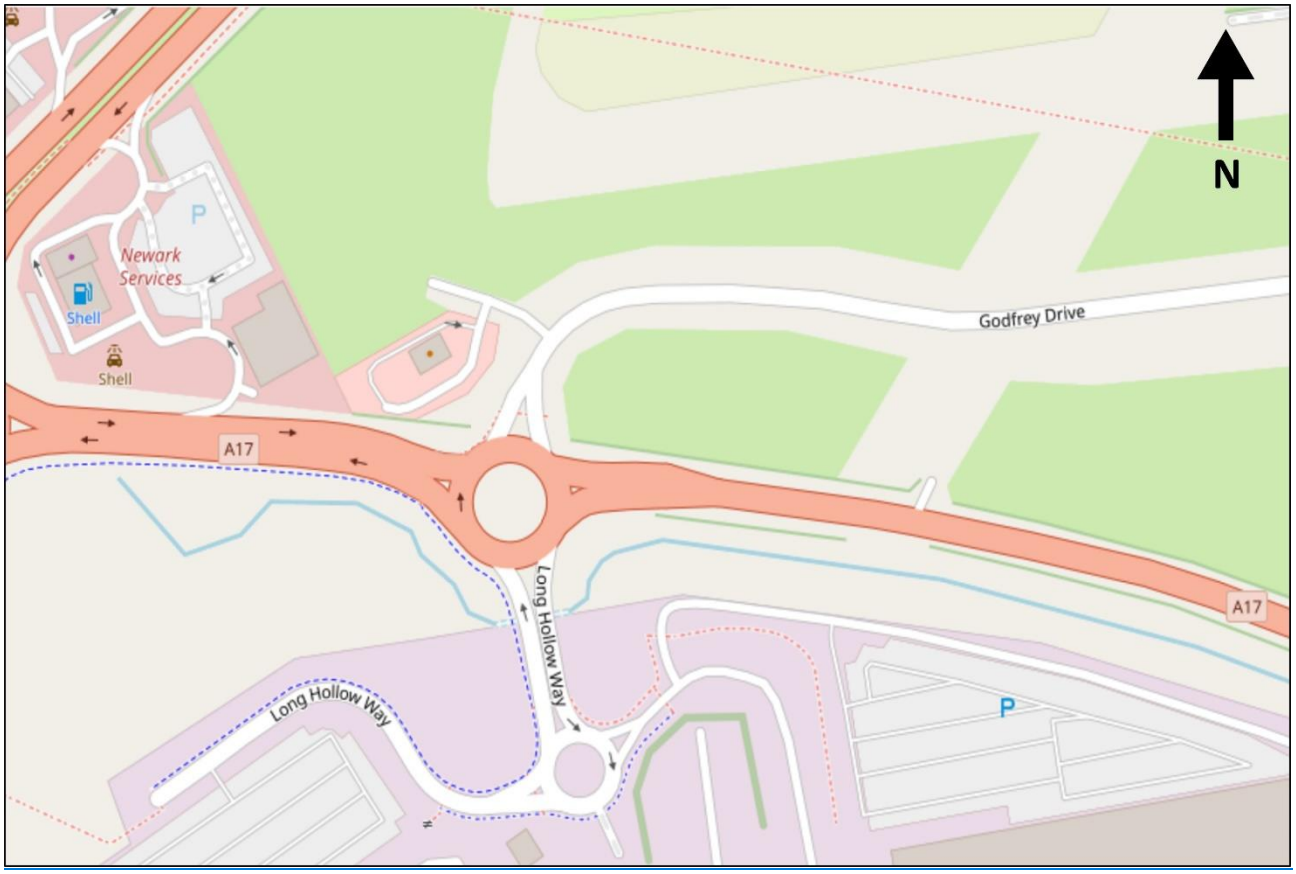
Stapleford Lane is a single-carriageway; it has a single lane which widens on the approach to the junction. A17 Beckenham Road is also a single-carriageway subject to a 40mph speed limit but increased to the national speed limit on the approach to the junction. Beckingham Road is a single-carriageway road subject to the national speed limit; it has a single lane and widens to two lanes at the junction. A17 (west) is a single-carriageway that is subject to the national speed limit.

The A17 / Stapleford Lane / Beckingham Road roundabout is represented within the A46 Newark Bypass strategic traffic model. Flows for the ARCADY assessment are therefore taken directly from SATURN for the Do Minimum and Do Something scenario.

2.4 A17 / Long Hollow Way / Godfrey Drive

The A17 / Long Hollow Way / Godfrey Drive roundabout is a four-arm roundabout comprising of Godfrey Drive, A17 east, Long Hollow Way and A17 west. The junction is illustrated in Figure 6.

Figure 6 A17 / Long Hollow Way / Godfrey Drive Roundabout



Source: Openstreetmaps.org

This junction is modelled within ARCADY, with the measurement parameters obtained from aerial imagery.

Godfrey Drive is a single-carriageway with a 30mph speed limit; it has a single lane which widens on the approach to the junction. A17 (east) is also a single-carriageway subject to the national speed limit; it has a single lane, which widens to provide two lanes on the approach to the junction. Long Hollow Way is a single-carriageway road subject to a 30mph speed limit; it has two lanes on the approach to the junction and on the exit arm. A17 (west) is a dual carriageway that is subject to the national speed limit; it has two lanes on the approach to the junction as well as on the exit arm.

The strategic SATURN model is also used in part to obtain flows in part at Godfrey Drive / A17 East / Long Hollow Way / A17 West Roundabout. While the A46 Newark Bypass strategic traffic model includes part of the Godfrey Drive / A17 East / Long Hollow Way / A17 West Roundabout, it does not explicitly model Godfrey Drive. For the assessment of this junction, it is, therefore, not possible to take all flows directly from SATURN.

Flows are obtained for the movements between the A17 east, Long Hollow Way and A17 west. Flows to and from Godfrey Drive from MCC data obtained at the Godfrey Drive / A17 East / Long

Hollow Way / A17 West Roundabout (collected on July 13, 2022). The MCC data is also used to conduct sense checks of the SATURN model outputs.

3. Model Results

This section presents the modelling outputs for each of the four junctions, including results for AM and PM peaks for the 2019 baseline scenario along with Do Minimum and Do Something forecasts for 2028 and 2043.

Overall, the junction performance of the roundabouts on the B6166 Bar Gate generally typically improved, in both scenarios the junctions operate well within capacity. Whilst the performance of the junctions modelled along the A17 typically worsens, the degree to which the performance worsens is minimal, and the junctions both operate well within capacity.

3.1 Model Results: Great North Road/Bar Gate

Table 1 through to **Table 5** present the AM and PM peak hour modelling of the B6166 Bar Gate / B6166 Castle Gate / B6326 Great North Road Roundabout during the 2019 baseline scenario. These tables also present a comparison between the Core Do Minimum Scenario with the Core Do-Something scheme during the AM and PM peaks in 2028 and 2043.

Table 1 – B6166 Bar Gate / B6166 Castle Gate / B6326 Great North Road Roundabout 2019 base year peak hours performance

	AM Peak			PM Peak		
	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)
B6166 Bar Gate	0.2	2.26	0.18	0.2	2.25	0.19
B6166 Castle Gate	1.0	4.05	0.47	1.6	5.92	0.60
B6326 Great North Road	0.3	2.62	0.21	0.4	3.46	0.26
Maximum	1.0	4.05	0.47	1.6	5.92	0.60

Table 2 – B6166 Bar Gate / B6166 Castle Gate / B6326 Great North Road Roundabout 2028 Do Minimum and Do Something AM peak hours performance

	2028 AM Peak Do Minimum			2028 AM Peak Do Something		
	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)
B6166 Bar Gate	0.2	2.23	0.18	0.2	2.26	0.15
B6166 Castle Gate	1.1	4.29	0.51	0.7	3.49	0.40
B6326 Great North Road	0.3	2.64	0.20	0.4	2.71	0.26
Maximum	1.1	4.29	0.51	0.7	3.49	0.40

Table 3 – B6166 Bar Gate / B6166 Castle Gate / B6326 Great North Road Roundabout 2028 Do Minimum and Do Something PM peak hours performance

	2028 PM Peak Do Minimum			2028 PM Peak Do Something		
	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)
B6166 Bar Gate	0.2	2.20	0.19	0.2	2.16	0.16
B6166 Castle Gate	1.2	4.47	0.54	0.7	3.50	0.42
B6326 Great North Road	0.3	2.64	0.20	0.3	2.55	0.24
Maximum	1.2	4.47	0.54	0.7	3.50	0.42

Table 4 – B6166 Bar Gate / B6166 Castle Gate / B6326 Great North Road Roundabout 2043 Do Minimum and Do Something AM peak hours performance

	2043 AM Peak Do Minimum			2043 AM Peak Do Something		
	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)
B6166 Bar Gate	0.2	2.26	0.18	0.2	2.24	0.14
B6166 Castle Gate	1.3	4.66	0.54	0.8	3.64	0.42
B6326 Great North Road	0.2	2.69	0.19	0.4	2.73	0.27
Maximum	1.3	4.66	0.54	0.8	3.64	0.42

Table 5 – B6166 Bar Gate / B6166 Castle Gate / B6326 Great North Road Roundabout 2043 Do Minimum and Do Something PM peak hours performance

	2043 PM Peak Do Minimum			2043 PM Peak Do Something		
	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)
B6166 Bar Gate	0.3	2.25	0.22	0.2	2.13	0.16
B6166 Castle Gate	1.2	4.51	0.54	1.2	5.13	0.53
B6326 Great North Road	0.2	2.60	0.18	0.4	3.12	0.26
Maximum	1.2	4.51	0.54	1.2	5.13	0.53

The Great North Road/Bar Gate Roundabout modelling results show that there is an improvement in the maximum Ratio Flow Capacity (RFC) in the 2028 AM peak (where it decreases by 0.11 between the Do Minimum and Do Something scenarios to 0.40) and in the 2028 PM peak (where it decreases by 0.12 between the Do Minimum and Do Something scenarios to 0.42).

In the 2043 AM peak it also improves in the Do Something scenario (it decreases by 0.12 between the Do Minimum and Do Something scenarios to 0.42) and in the 2043 PM peak (where it decreases by 0.01 between the Do Minimum and Do Something scenarios to 0.53).

Improvements in RFC are due to decreases in flows on both Castle Gate and Bar Gate with the introduction of the scheme. Flows increase on Great North Road which can be seen in increases in RFC for this arm.

3.2 Model Results: B6326 Great North Road / Ossington Road Mini-Roundabout

Table 6 through to **Table 10** present the AM and PM peak hour modelling of the B6326 Great North Road / Ossington Road Mini-Roundabout during the 2019 baseline scenario. These tables also present a comparison between the Core Do Minimum Scenario with the Core Do-Something scheme during the AM and PM peaks in 2028 and 2043.

Table 6 – B6326 Great North Road / Ossington Road Mini-Roundabout 2019 peak hours performance

	AM Peak			PM Peak		
	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)
B326 Great North Road (North)	0.4	3.67	0.26	0.4	3.55	0.27
Ossington Way	0.2	5.69	0.15	0.2	5.6	0.18
B326 Great North Road (South)	2.3	13.32	0.69	1.9	11.51	0.65
Maximum	2.3	13.32	0.69	1.9	11.51	0.65

Table 7 – B6326 Great North Road / Ossington Road Mini-Roundabout 2028 Do Minimum and Do Something AM peak hours performance

	2028 AM Peak Do Minimum			2028 AM Peak Do Something		
	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)
B326 Great North Road (North)	0.4	3.64	0.25	0.6	4.17	0.35
Ossington Way	0.2	5.74	0.18	0.3	6.49	0.20
B326 Great North Road (South)	2.4	13.61	0.69	2.0	12.06	0.66
Maximum	2.4	13.61	0.69	2.0	12.06	0.66

Table 8 – B6326 Great North Road / Ossington Road Mini-Roundabout 2028 Do Minimum and Do Something PM peak hours performance

	2028 PM Peak Do Minimum			2028 PM Peak Do Something		
	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)
B326 Great North Road (North)	0.3	3.46	0.24	0.5	3.82	0.32
Ossington Way	0.2	5.48	0.18	0.3	6.02	0.21
B326 Great North Road (South)	2.1	12.11	0.67	2.1	12.28	0.67
Maximum	2.1	12.11	0.67	2.1	12.28	0.67

Table 9 – B6326 Great North Road / Ossington Road Mini-Roundabout 2043 Do Minimum and Do Something AM peak hours performance

	2043 AM Peak Do Minimum			2043 AM Peak Do Something		
	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)
B326 Great North Road (North)	0.3	3.56	0.23	0.6	4.19	0.35
Ossington Way	0.2	5.62	0.17	0.3	6.52	0.20
B326 Great North Road (South)	2.2	12.73	0.67	2.0	12.14	0.66
Maximum	2.2	12.73	0.67	2.0	12.14	0.66

Table 10 – B6326 Great North Road / Ossington Road Mini-Roundabout 2043 Do Something peak performance

	2043 PM Peak Do Minimum			2043 PM Peak Do Something		
	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)
B326 Great North Road (North)	0.3	3.36	0.22	0.4	3.66	0.29
Ossington Way	0.2	5.30	0.16	0.3	5.79	0.20
B326 Great North Road (South)	1.9	11.48	0.65	2.3	12.98	0.69
Maximum	1.9	11.48	0.65	2.3	12.98	0.69

The B6326 Great North Road / Ossington Road Mini-Roundabout modelling results show that there is an improvement in the maximum RFC in the 2028 AM peak (where it decreases by 0.03 between the Do Minimum and Do Something scenarios to 0.66) and in the 2028 PM peak its performance remains consistent (the maximum RFC in the Do Minimum and Do Something scenarios remain at 0.67).

In the 2043 AM peak, it also improves in the Do Something scenario (where it decreases by 0.01 between the Do Minimum and Do Something scenarios to 0.66). However, in the 2043 PM peak, the performance of the junction worsens slightly (where it increases by 0.04 between the Do Minimum and Do Something scenarios to 0.69).

Marginal improvements in RFC are due to small decreases in northbound flows on Great North Road (south) for all modelled time periods except 2043 AM. Flows increase southbound on Great North Road (north) and Ossington Way which can be seen in increases in RFC for these arms. The worst performing arm remains the northbound Great North Road (south) which only sees slight changes in flow (both increases and decreases for different time periods). The southbound Great North Road (north) RFC increases in line with forecast increases in traffic flow.

3.3 Model Results: Godfrey Drive / A17 East / Long Hollow Way / A17 West Roundabout

Table 11 through to **Table 15** present the AM and PM peak hour modelling of the Godfrey Drive / A17 East / Long Hollow Way / A17 West Roundabout during the 2019 baseline scenario. These tables also present a comparison between the Core Do Minimum Scenario with the Core Do-Something scheme during the AM and PM peaks in 2028 and 2043.

Table 11 – Godfrey Drive / A17 East / Long Hollow Way / A17 West Roundabout 2019 peak hours performance

	2019 AM Peak			2019 PM Peak		
	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)
Godfrey Drive	0.1	2.93	0.05	0.1	2.64	0.05
A17 east	0.4	2.55	0.25	0.3	2.25	0.22
Long Hollow Way	0.1	3.71	0.06	0.1	3.68	0.07
A17 west	0.6	2.56	0.33	0.4	2.15	0.26
Maximum	0.6	3.71	0.33	0.4	3.68	0.26

Table 12 – Godfrey Drive / A17 East / Long Hollow Way / A17 West Roundabout 2028 Do Minimum and Do Something AM peak hours performance

	2028 AM Peak Do Minimum			2028 AM Peak Do Something		
	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)
Godfrey Drive	0.0	2.65	0.04	0.1	3.29	0.05
A17 east	0.3	2.58	0.19	0.9	3.37	0.45
Long Hollow Way	0.1	3.45	0.07	0.2	4.65	0.09
A17 west	0.5	2.48	0.25	0.8	2.77	0.41
Maximum	0.5	3.45	0.25	0.9	4.65	0.41

Table 13 – Godfrey Drive / A17 East / Long Hollow Way / A17 West Roundabout 2028 Do Minimum and Do Something PM peak hours performance

	2028 PM Peak Do Minimum			2028 PM Peak Do Something		
	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)
Godfrey Drive	0.1	2.45	0.05	0.1	2.91	0.06
A17 east	0.2	2.24	0.16	0.6	2.67	0.35
Long Hollow Way	0.1	3.43	0.07	0.2	4.24	0.09
A17 west	0.3	2.13	0.20	0.5	2.29	0.33
Maximum	0.3	3.43	0.20	0.6	4.24	0.35

Table 14 – Godfrey Drive / A17 East / Long Hollow Way / A17 West Roundabout 2043 Do Minimum and Do Something AM peak hours performance

	2043 AM Peak Do Minimum			2043 AM Peak Do Something		
	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)
Godfrey Drive	0.0	2.60	0.04	0.1	3.59	0.05
A17 east	0.3	2.65	0.19	1.0	3.54	0.47
Long Hollow Way	0.1	3.41	0.07	0.2	4.75	0.09
A17 west	0.4	2.51	0.24	1.0	2.99	0.46
Maximum	0.4	3.41	0.24	1.0	4.75	0.47

Table 15 – Godfrey Drive / A17 East / Long Hollow Way / A17 West Roundabout 2043 Do Something peak performance

	2043 PM Peak Do Minimum			2043 PM Peak Do Something		
	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)
Godfrey Drive	0.1	2.50	0.05	0.1	3.13	0.06
A17 east	0.2	2.26	0.17	0.8	2.99	0.42
Long Hollow Way	0.1	3.41	0.08	0.2	4.55	0.10
A17 west	0.3	2.14	0.21	0.7	2.43	0.37
Maximum	0.3	3.41	0.21	0.8	4.55	0.42

The Godfrey Drive / A17 East / Long Hollow Way / A17 West Roundabout modelling results show that the junction's performance in the 2028 AM peak worsens slightly (the maximum RFC increases by 0.16 between the Do Minimum and Do Something scenarios to 0.41), and in the

2028 PM peak, it also worsens slightly (the maximum RFC increases by 0.15 between the Do Minimum and Do Something scenarios to 0.35). Nonetheless, the junction still operates well within capacity in both scenarios in the 2028 AM and PM peaks.

In the 2043 AM peak, the junction's performance also worsens slightly (the maximum RFC increases by 0.23 between the Do Minimum and Do Something scenarios to 0.47). In the 2028 PM peak, it also worsens slightly (the maximum RFC increases by 0.21 between the Do Minimum and Do Something scenarios to 0.42). Nonetheless, the junction still operates well within capacity in both scenarios in the 2043 AM and PM peaks.

Worsening in RFC across all arms and time periods are due to increases in flows on the A17 East and West. As expected, the largest increases in RFC are on the A17 approaches, although these remain well within capacity.

3.4 Model Results: Stapleford Lane / A17 Beckingham Road / Beckingham Road / A17 West Roundabout

Table 16 through to **Table 20** present the AM and PM peak hour modelling of the Stapleford Lane / A17 Beckingham Road / Beckingham Road / A17 West Roundabout during the 2019 baseline scenario. These tables also present a comparison between the Core Do Minimum Scenario with the Core Do-Something scheme during the AM and PM peaks in 2028 and 2043.

Table 16 – Stapleford Lane / A17 Beckingham Road / Beckingham Road / A17 West Roundabout 2019 peak hours performance

	2019 AM Peak			2019 PM Peak		
	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)
Stapleford Lane	0.2	5.58	0.17	0.1	5.03	0.10
A17 Beckingham Road	1.2	4.88	0.52	1.1	4.47	0.51
Beckingham Road	0.3	2.99	0.23	0.4	3.01	0.26
A17 west	0.7	4.02	0.38	0.7	3.89	0.38
Maximum	1.2	5.58	0.52	1.1	5.03	0.51

Table 17 – Stapleford Lane / A17 Beckingham Road / Beckingham Road / A17 West Roundabout 2028 Do Minimum and Do Something AM peak hours performance

	2028 AM Peak Do Minimum			2028 AM Peak Do Something		
	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)
Stapleford Lane	0.2	5.40	0.17	0.2	5.56	0.14
A17 Beckingham Road	0.9	4.26	0.44	1.7	5.77	0.59
Beckingham Road	0.4	3.10	0.30	0.3	3.58	0.25
A17 west	0.5	3.95	0.29	1.0	4.34	0.48
Maximum	0.9	5.40	0.44	1.7	5.77	0.59

Table 18 – Stapleford Lane / A17 Beckingham Road / Beckingham Road / A17 West Roundabout 2028 Do Minimum and Do Something PM peak hours performance

	2028 PM Peak Do Minimum			2028 PM Peak Do Something		
	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)
Stapleford Lane	0.1	4.85	0.10	0.1	5.13	0.09
A17 Beckingham Road	0.9	4.13	0.46	1.3	4.92	0.55
Beckingham Road	0.4	2.91	0.29	0.4	3.27	0.29
A17 west	0.5	3.74	0.31	1.0	4.32	0.48
Maximum	0.9	4.85	0.46	1.3	5.13	0.55

Table 19 – Stapleford Lane / A17 Beckingham Road / Beckingham Road / A17 West Roundabout 2043 Do Minimum and Do Something AM peak hours performance

	2043 AM Peak Do Minimum			2043 AM Peak Do Something		
	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)
Stapleford Lane	0.4	6.66	0.26	0.2	6.52	0.18
A17 Beckingham Road	1.1	4.78	0.49	2.0	6.44	0.64
Beckingham Road	0.6	3.51	0.38	0.3	3.75	0.24
A17 west	0.5	4.36	0.29	1.4	5.12	0.56
Maximum	1.1	6.66	0.49	2.0	6.52	0.64

Table 20 – Stapleford Lane / A17 Beckingham Road / Beckingham Road / A17 West 2043 Do Minimum and Do Something PM peak hours performance

	2043 PM Peak Do Minimum			2043 PM Peak Do Something		
	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)	Queue (PCUs)	Delay (Seconds)	Ratio Flow Capacity (RFC)
Stapleford Lane	0.2	5.53	0.13	0.1	5.74	0.11
A17 Beckingham Road	1.0	4.41	0.49	1.7	5.73	0.61
Beckingham Road	0.6	3.26	0.35	0.4	3.65	0.31
A17 west	0.6	4.12	0.34	1.3	4.95	0.55
Maximum	1.0	5.53	0.49	1.7	5.74	0.61

The Stapleford Lane / A17 Beckingham Road / Beckingham Road / A17 West Roundabout modelling results show that the junction's performance in the 2028 AM peak worsens slightly (the maximum RFC increases by 0.15 between the Do Minimum and Do Something scenarios to 0.59). In the 2028 PM peak, it also worsens slightly (the maximum RFC increases by 0.09 between the Do Minimum and Do Something scenarios to 0.55). Nonetheless, the junction still operates well within capacity in both scenarios in the 2028 AM and PM peaks.

In the 2043 AM peak, the junction's performance also worsens slightly (the maximum RFC increases by 0.15 between the Do Minimum and Do Something scenarios to 0.64). In the 2043 PM peak, it also worsens slightly (the maximum RFC increases by 0.12 between the Do Minimum and Do Something scenarios to 0.61). Nonetheless, the junction still operates well within capacity in both scenarios in the 2043 AM and PM peaks.

Worsening in RFC across all arms and time periods are due to increases in flows on the A17 East and West. As expected, the largest increases in RFC are on the A17 approaches, although these remain well within capacity.