

A46 Newark Bypass

TR010065/7.44

7.44 A46 Cattle Market / Kelham Road Microsim Modelling

APFP Regulation 5(2)(a)

Planning Act 2008

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(Applications: Prescribed Forms
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A46 Newark Bypass

Development Consent Order 202[x]

7.44 A46 Cattle Market / Kelham Road Microsim Modelling

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Rev 1	November 2024	Deadline 3 Submission

1. Overview

Following a meeting with NCC and NSDC, an update to the 2028 and 2043 forecast year VISSIM models to show the actual lane configuration south of Cattle Market roundabout has been requested.

This technical note sets out the details of the modelling exercise undertaken and the comparison of the modelling results with those from the DCO submitted 2028 and 2043 Do-Something schemes.

2. Model Updates

Figure 1 below shows the proposed network changes. **Figure 2** below shows model updates carried out to the A46 Do-Something (DS) model to the B6326 south of Cattle Market roundabout. The model does not have Kelham Road coded therefore the B6326 southbound right turn flare after the T junction is not coded in the model.

3. Model Results

Modelling results carried out as part of this study (referred to as “New DS”) is compared to the DS results submitted as part of the Transport Assessment, DCO document reference 7.4. It can be observed that the changes described above have a marginal impact on journey times and queuing. See **Table 1** and **Table 2** (for 2028), and **Table 4** and **Table 5** (for 2043) showing the junction performance results for Cattle Market roundabout AM and PM Peaks. Results are presented as averages and maximums for the whole of the modelled AM and PM peak hours.

There is a marginal impact to the journey times along the B6326 Great North Road, whilst there are no changes to journey times on the A1. **Figure 3** shows the section of Great North Road measured in blue. See **Table 3** (for 2028) and **Table 6** (for 2043) showing the journey time comparison on Great North Road and the A1 between DS and New DS models.

There are marginal changes in flows and journey times on B6326 Great North Road, which is due to lane choice behaviour and changes made to the model with the new layouts (e.g Lorry Park access). Flow changes are also due to model variation and are reported as actual rather than demand flow during the peak hours.

Appendix A, B (2028), **C** and **D** (2043) shows the wider network junction performance and JT results respectively.

Figure 1 - Proposed Network Changes



Figure 2 - VISSIM Coding

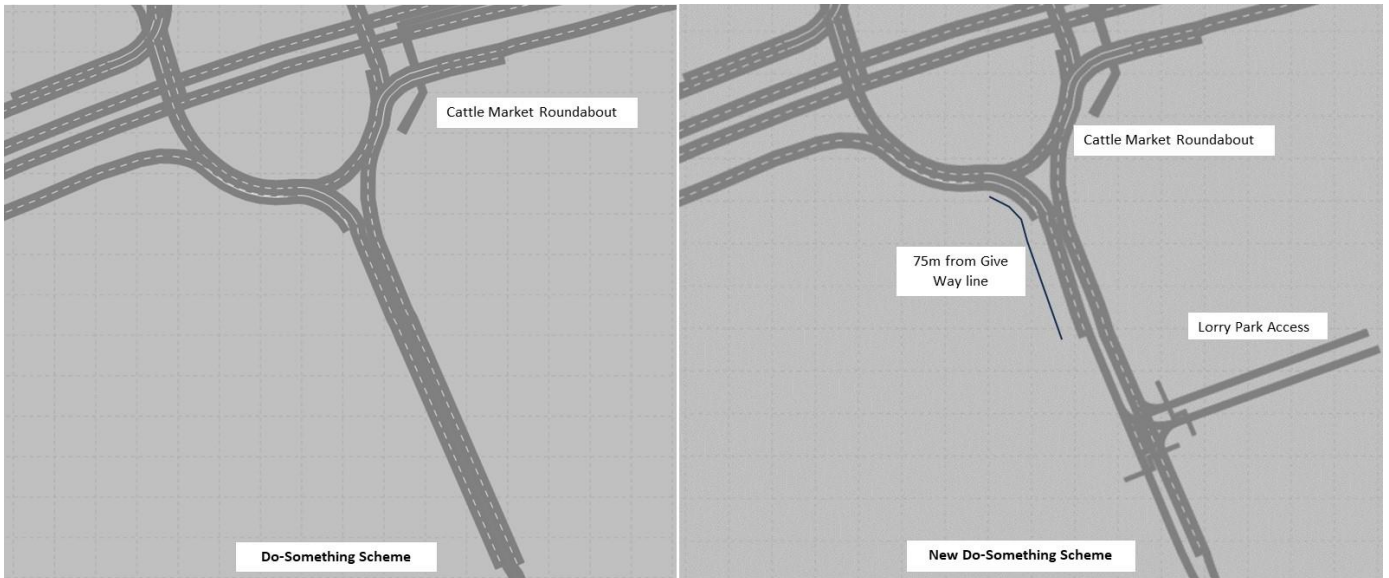


Figure 3 - Start and End point of journey time measurement on Great North Road



Table 1 – 2028 AM Peak Cattle Market roundabout performance

Junction	From	To	Flows (vehicles)			Average Queue (metres)			Max Queue (metres)		
			DS	New DS	Diff	DS	New DS	Diff	DS	New DS	Diff
Cattle Market Roundabout	A46(W)	Kelham Rd	121	121	0	8	8	+0	72	70	-3
		Great North Rd (N)	326	326	0						
		A46(E)	1204	1205	1						
		Great North Rd (S)	217	225	8						
	Kelham Rd	Great North Rd (N)	19	19	0	11	14	+2	81	94	+14
		A46 (E)	477	477	0						
		Great North Rd (S)	191	196	5						
		A46 (W)	77	77	0						
	Great North Rd (N)	A46 (E)	76	76	0	48	66	+18	361	416	+55
		Great North Rd (S)	354	363	9						
		A46 (W)	461	461	0						
		Kelham Rd	13	13	0						
	A46 (E)	Great North Rd (S)	169	187	18	18	18	+0	70	68	-1
		A46 (W)	1286	1283	-3						
		Kelham Rd	375	375	0						
		Great North Rd (N)	85	85	0						
	Great North Rd (S)	A46 (W)	139	145	6	7	8	+1	82	82	-0
		Kelham Rd	153	157	4						
		Great North Rd (N)	180	187	7						
		A46 (E)	98	110	12						

Table 2 – 2028 PM Peak Cattle Market roundabout performance

Junction	From	To	Flows (vehicles)			Average Queue (metres)			Max Queue (metres)		
			DS	New DS	Diff	DS	New DS	Diff	DS	New DS	Diff
Cattle Market Roundabout	A46(W)	Kelham Rd	100	99	-1	18	19	+1	104	111	+7
		Great North Rd (N)	396	395	-1						
		A46(E)	1327	1327	0						
		Great North Rd (S)	253	259	6						
	Kelham Rd	Great North Rd (N)	11	11	0	9	9	+1	61	64	+2
		A46 (E)	236	236	0						
		Great North Rd (S)	156	160	4						
		A46 (W)	116	116	0						
	Great North Rd (N)	A46 (E)	76	76	0	2	2	+0	53	53	+0
		Great North Rd (S)	145	151	6						
		A46 (W)	267	267	0						
		Kelham Rd	12	12	0						
	A46 (E)	Great North Rd (S)	215	227	12	12	12	+0	67	75	+8
		A46 (W)	1062	1062	0						
		Kelham Rd	434	433	-1						
		Great North Rd (N)	73	73	0						
	Great North Rd (S)	A46 (W)	182	192	10	9	10	+1	101	110	+10
		Kelham Rd	246	252	6						
		Great North Rd (N)	188	198	10						
		A46 (E)	195	213	18						

Table 3 – 2028 JT Comparison

Route	AM JT (seconds)			PM JT (seconds)		
	DS	New DS	Diff	DS	New DS	Diff
GNR S SB	89	97	8	87	96	9
GNR S NB	83	95	12	89	105	16
A1 NB	188	188	0	188	188	0
A1 SB	189	189	0	187	187	0

Table 4 – 2043 AM Peak Cattle Market roundabout performance

Junction	From	To	Flows (vehicles)			Average Queue (metres)			Max Queue (metres)		
			DS	New DS	Diff	DS	New DS	Diff	DS	New DS	Diff
Cattle Market Roundabout	A46(W)	Kelham Rd	139	140	1	11	11	+0	76	82	+6
		Great North Rd (N)	454	456	2						
		A46(E)	1508	1507	-1						
		Great North Rd (S)	241	249	8						
	Kelham Rd	Great North Rd (N)	20	20	0	19	23	+3	130	159	+29
		A46 (E)	501	502	1						
		Great North Rd (S)	184	190	6						
		A46 (W)	106	106	0						
	Great North Rd (N)	A46 (E)	72	72	0	227	294	+67	823	925	+102
		Great North Rd (S)	344	347	3						
		A46 (W)	580	571	-9						
		Kelham Rd	14	13	-1						
	A46 (E)	Great North Rd (S)	191	209	18	16	17	+1	85	91	+6
		A46 (W)	1469	1465	-4						
		Kelham Rd	392	389	-3						
		Great North Rd (N)	87	87	0						
	Great North Rd (S)	A46 (W)	175	181	6	10	12	+2	99	121	+22
		Kelham Rd	142	146	4						
		Great North Rd (N)	153	161	8						
		A46 (E)	97	110	13						

Table 5 – 2043 PM Peak Cattle Market roundabout performance

Junction	From	To	Flows (vehicles)			Average Queue (metres)			Max Queue (metres)		
			DS	New DS	Diff	DS	New DS	Diff	DS	New DS	Diff
Cattle Market Roundabout	A46(W)	Kelham Rd	131	130	-1	36	38	+2	171	175	+4
		Great North Rd (N)	547	548	1						
		A46(E)	1561	1565	4						
		Great North Rd (S)	259	265	6						
	Kelham Rd	Great North Rd (N)	11	11	0	15	17	+2	98	97	-1
		A46 (E)	281	281	0						
		Great North Rd (S)	143	145	2						
		A46 (W)	132	132	0						
	Great North Rd (N)	A46 (E)	74	74	0	4	5	+1	79	105	+26
		Great North Rd (S)	132	138	6						
		A46 (W)	422	422	0						
		Kelham Rd	14	14	0						
	A46 (E)	Great North Rd (S)	223	235	12	14	15	+0	74	74	-0
		A46 (W)	1404	1405	1						
		Kelham Rd	493	494	1						
		Great North Rd (N)	72	72	0						
	Great North Rd (S)	A46 (W)	221	230	9	25	24	-2	185	157	-27
		Kelham Rd	243	248	5						
		Great North Rd (N)	149	158	9						
		A46 (E)	232	250	18						

Table 6 – 2043 JT Comparison

Route	AM JT (seconds)			PM JT (seconds)		
	DS	New DS	Diff	DS	New DS	Diff
GNR S SB	89	98	9	89	98	9
GNR S NB	88	101	13	103	124	21
A1 NB	190	190	+0	190	190	+0
A1 SB	192	192	+0	188	188	+0

Appendix A

2028 AM Junction Performance

Junction	From	To	Flows (Veh)			Average Queue (m)			Max Queue (m)		
			DS	New DS	Diff	DS	New DS	Diff	DS	New DS	Diff
Southern Link Roundabout	A46 (W)	A46 (E)	1684	1692	8	8	8	+0	155	160	+6
		Southern link road	365	365	0						
	A46 (E)	Southern link road	72	72	0	14	14	+1	127	130	+3
		A46 (W)	1687	1693	6						
	Southern link road	A46 (W)	433	433	0	5	5	+0	61	65	+4
		A46 (E)	68	68	0						
Farndon Roundabout	A46 (S)	Fosse Rd	5	5	0	12	12	+0	170	175	+4
		A46(N)	1672	1680	8						
		Farndon Rd	59	59	0						
		Farm	0	0	0						
	Fosse Rd	A46(N)	116	116	0	1	1	-0	25	26	+1
		Farndon Rd	61	61	0						
		Farm	0	0	0						
		A46 (S)	4	4	0						
	A46(N)	Farndon Rd	142	142	0	8	8	-1	157	149	-8
		Farm	0	0	0						
		A46 (S)	1736	1739	3						
		Fosse Rd	89	90	1						
	Farndon Rd	Farm	0	0	0	2	2	+0	24	25	+2
		A46 (S)	24	24	0						
		Fosse Rd	93	93	0						
		A46(N)	71	71	0						
	Farm	A46 (S)	0	0	0	0	0	0	0	0	0
		Fosse Rd	0	0	0						
		A46(N)	0	0	0						
		Farndon Rd	0	0	0						
Cattle Market Roundabout	A46(W)	Kelham Rd	121	121	0	8	8	+0	72	70	-3
		Great North Rd (N)	326	326	0						
		A46(E)	1204	1205	1						

		Great North Rd (S)	217	225	8						
Kelham Rd		Great North Rd (N)	19	19	0	11	14	+2	81	94	+14
		A46 (E)	477	477	0						
		Great North Rd (S)	191	196	5						
		A46 (W)	77	77	0						
Great North Rd (N)		A46 (E)	76	76	0	48	66	+18	361	416	+55
		Great North Rd (S)	354	363	9						
		A46 (W)	461	461	0						
		Kelham Rd	13	13	0						
A46 (E)		Great North Rd (S)	169	187	18	18	18	+0	70	68	-1
		A46 (W)	1286	1283	-3						
		Kelham Rd	375	375	0						
		Great North Rd (N)	85	85	0						
Great North Rd (S)		A46 (W)	139	145	6	7	8	+1	82	82	-0
		Kelham Rd	153	157	4						
		Great North Rd (N)	180	187	7						
		A46 (E)	98	110	12						
Kennel roundabout	A46 (W)	Kennel	0	0	0	0	0	+0	44	35	-9
		Brownhills	679	679	0						
	Kennel	Brownhills	0	0	0						
		Brownhills	0	0	0						
Brownhills Roundabout	A46 (W)	A1 (N)	61	61	0	13	13	-1	107	88	-19
		A46(E)	334	334	0						
		Lincoln Road	283	283	0						
	A1 (N)	A46(E)	463	462	-1	3	3	0	54	50	-5

		Lincoln Road	75	75	0							
		A46 (W)	113	113	0							
	A46(E)	Lincoln Road	570	570	0	7	7	0	100	118	+17	
		A46 (W)	655	655	0							
		A1 (N)	379	379	0							
	Lincoln Road	A46 (W)	125	125	0	4	5	0	56	61	+5	
		A1 (N)	86	87	1							
		A46(E)	393	395	2							
Friendly Farmer Roundabout	A46 (W)	A46 (E)	632	631	-1	16	16	1	123	122	-1	
		A17	353	352	-1							
		A1 (S)	207	206	-1							
	A46 (E)	A17	27	27	0	20	20	0	110	95	-15	
		A1 (S)	481	481	0							
		A46 (W)	518	519	1							
	A17	A1 (S)	23	23	0	43	39	-4	183	157	-27	
		A46 (W)	875	876	1							
		A46 (E)	31	32	1							
	A1 (S)	A46 (W)	214	214	0	15	15	0	117	135	+18	
A46 (E)		128	128	0								
A17		389	386	-3								
Long Hollow Way Roundabout	A17 (W)	A17 (E)	654	653	-1	0	0	0	32	34	+2	
		Long Hollow Way	114	114	0							
	A17 (E)	Long Hollow Way	16	16	0	0	0	0	28	28	-0	
		A17 (W)	851	851	0							
	Long Hollow Way	A17 (W)	86	86	0	0	0	0	19	19	+0	
		A17 (E)	0	0	0							
Winthorpe Roundabout	A46(W)	A1133	112	113	1	10	10	0	72	72	+1	
		A46 (E)	1041	1052	11							
		Drove Lane	7	7	0							
		Old A46 (W)	0	0	0							
	A1133	A46 (E)	3	3	0	1	1	0	30	30	+0	
		Drove Lane	78	78	0							
		Old A46 (W)	154	154	0							
		A46 (W)	119	119	0							
A46(E)	Drove Lane	63	63	0	23	24	1	110	111	+1		

		Old A46 (W)	875	875	0						
		A46 (W)	902	921	19						
		A1133	3	3	0						
	Drove Lane	Old A46 (W)	3	3	0	2	2	0	39	39	-0
		A46 (W)	3	3	0						
		A1133	29	29	0						
		A46 (E)	52	52	0						
	Old A46 (W)	A46 (W)	0	0	0	37	11	-26	226	91	-135
		A1133	130	125	-5						
		A46 (E)	623	622	-1						
		Drove Lane	12	11	-1						
Lincoln Rd Junction	Lincoln Road (N)	Brunel Drive	452	451	-1	35	35	-0	154	155	+0
		Lincoln Road (S)	330	329	-1						
		Harvest Drive	142	141	-1						
	Harvest Drive	Lincoln Road (N)	137	136	-1	9	9	-0	61	53	-9
		Brunel Drive	28	28	0						
		Lincoln Road (S)	38	38	0						
	Lincoln Road (S)	Harvest Drive	34	34	0	13	13	+1	63	70	+8
		Lincoln Road (N)	306	305	-1						
		Brunel Drive	56	56	0						
	Brunel Drive	Lincoln Road (S)	39	39	0	23	22	-1	116	113	-3
		Harvest Drive	13	13	0						
		Lincoln Road (N)	165	165	0						

2028 PM Junction Performance

Junction	From	To	Flows (Veh)			Average Queue (m)			Max Queue (m)		
			DS	New DS	Diff	DS	New DS	Diff	DS	New DS	Diff
Southern Link Roundabout	A46 (W)	A46 (E)	1834	1840	6	10	11	+0	174	173	-0
		Southern link road	545	545	0						
	A46 (E)	Southern link road	111	111	0	12	12	+0	71	72	+1
		A46 (W)	1298	1308	10						
	Southern link road	A46 (W)	332	332	0	3	3	+0	47	45	-2
		A46 (E)	123	123	0						
Farndon Roundabout	A46 (S)	Fosse Rd	7	7	0	9	9	-0	138	131	-6
		A46(N)	1833	1837	4						
		Farndon Rd	116	115	-1						
		Farm	0	0	0						
	Fosse Rd	A46(N)	132	132	0	3	3	+0	38	35	-3
		Farndon Rd	117	117	0						
		Farm	0	0	0						
		A46 (S)	7	7	0						
	A46(N)	Farndon Rd	171	171	0	6	6	-0	118	102	-15
		Farm	0	0	0						
		A46 (S)	1339	1348	9						
		Fosse Rd	116	116	0						
	Farndon Rd	Farm	0	0	0	2	2	+0	33	31	-2
		A46 (S)	66	67	1						
		Fosse Rd	169	169	0						
		A46(N)	105	106	1						
Farm	A46 (S)	0	0	0	0	0	0	0	0	0	
	Fosse Rd	0	0	0							
	A46(N)	0	0	0							
	Farndon Rd	0	0	0							
Cattle Market Roundabout	A46(W)	Kelham Rd	100	99	-1	18	19	+1	104	111	+7
		Great North Rd (N)	396	395	-1						
		A46(E)	1327	1327	0						
		Great North Rd (S)	253	259	6						

	Kelham Rd	Great North Rd (N)	11	11	0	9	9	+1	61	64	+2
		A46 (E)	236	236	0						
		Great North Rd (S)	156	160	4						
		A46 (W)	116	116	0						
	Great North Rd (N)	A46 (E)	76	76	0	2	2	+0	53	53	+0
		Great North Rd (S)	145	151	6						
		A46 (W)	267	267	0						
		Kelham Rd	12	12	0						
	A46 (E)	Great North Rd (S)	215	227	12	12	12	+0	67	75	+8
		A46 (W)	1062	1062	0						
		Kelham Rd	434	433	-1						
		Great North Rd (N)	73	73	0						
Great North Rd (S)	A46 (W)	182	192	10	9	10	+1	101	110	+10	
	Kelham Rd	246	252	6							
	Great North Rd (N)	188	198	10							
	A46 (E)	195	213	18							
Kennel roundabout	A46 (W)	Kennel	0	0	0	0	0	+0	26	35	+9
		Brownhills	566	566	0						
	Kennel	Brownhills	0	0	0	0	0	0	0	0	0
		Kennel	0	0	0						
Brownhills Roundabout	A46 (W)	A1 (N)	37	37	0	29	31	2	129	165	+36
		A46(E)	303	302	-1						
		Lincoln Road	222	221	-1						
	A1 (N)	A46(E)	496	497	1	4	4	0	59	47	-11
		Lincoln Road	70	70	0						
		A46 (W)	117	117	0						

	A46(E)	Lincoln Road	405	406	1	4	4	0	91	91	-1
		A46 (W)	461	463	2						
		A1 (N)	522	523	1						
	Lincoln Road	A46 (W)	189	189	0	14	15	1	108	121	+13
		A1 (N)	136	135	-1						
		A46(E)	671	668	-3						
Friendly Farmer Roundabout	A46 (W)	A46 (E)	897	898	1	36	36	0	138	138	-1
		A17	413	413	0						
		A1 (S)	156	156	0						
	A46 (E)	A17	20	20	0	9	9	0	71	67	-4
		A1 (S)	455	456	1						
		A46 (W)	421	421	0						
	A17	A1 (S)	53	53	0	14	13	-1	104	96	-8
		A46 (W)	821	822	1						
		A46 (E)	22	22	0						
	A1 (S)	A46 (W)	146	146	0	5	5	0	65	60	-5
		A46 (E)	138	138	0						
		A17	237	236	-1						
Long Hollow Way Roundabout	A17 (W)	A17 (E)	624	624	0	0	0	0	38	35	-3
		Long Hollow Way	45	45	0						
	A17 (E)	Long Hollow Way	2	2	0	0	0	0	21	18	-3
		A17 (W)	768	767	-1						
	Long Hollow Way	A17 (W)	132	132	0	0	0	0	14	16	+2
		A17 (E)	4	4	0						
Winthorpe Roundabout	A46(W)	A1133	181	181	0	11	11	0	86	88	+2
		A46 (E)	1055	1074	19						
		Drove Lane	6	6	0						
		Old A46 (W)	0	0	0						
	A1133	A46 (E)	1	1	0	1	1	0	29	28	-1
		Drove Lane	33	33	0						
		Old A46 (W)	142	142	0						
		A46 (W)	113	113	0						
	A46(E)	Drove Lane	73	73	0	30	31	1	117	121	+3
		Old A46 (W)	747	747	0						
A46 (W)		898	910	12							

		A1133	2	2	0						
	Drove Lane	Old A46 (W)	7	7	0	4	4	0	48	49	+2
		A46 (W)	11	11	0						
		A1133	77	77	0						
		A46 (E)	66	66	0						
	Old A46 (W)	A46 (W)	0	0	0	36	29	-7	127	131	+4
		A1133	156	157	1						
		A46 (E)	784	823	39						
		Drove Lane	6	6	0						
Lincoln Rd Junction	Lincoln Road (N)	Brunel Drive	232	231	-1	26	26	+0	122	125	+3
		Lincoln Road (S)	341	341	0						
		Harvest Drive	123	122	-1						
	Harvest Drive	Lincoln Road (N)	110	110	0	7	7	+0	49	50	+0
		Brunel Drive	15	15	0						
		Lincoln Road (S)	50	50	0						
	Lincoln Road (S)	Harvest Drive	61	61	0	29	30	+1	112	114	+2
		Lincoln Road (N)	508	507	-1						
		Brunel Drive	26	26	0						
	Brunel Drive	Lincoln Road (S)	69	69	0	49	48	-1	194	199	+5
		Harvest Drive	20	20	0						
		Lincoln Road (N)	376	378	2						

Appendix B

2028 JT Summary

Direction	From	To	AM JT (s)			PM JT (s)		
			DS	New DS	Diff	DS	New DS	Diff
Northbound	Lodge Lane	Southern Link Road	191	191	+0	194	194	+0
	Southern Link Road	Farndon Roundabout	59	59	+0	57	57	+0
	Lodge Lane	Farndon Roundabout	250	250	+0	251	251	+0
	Farndon Roundabout	Cattle Market Roundabout	115	114	-0	115	115	+0
	Cattle Market Roundabout	Brownhills	177	176	-1	196	197	+1
	Friendly Farmer Roundabout	Winthorpe Roundabout	77	73	-4	72	72	+0
	Winthorpe Roundabout	Brough	130	130	-1	126	126	-0
	Cattle Market Roundabout	Winthorpe Roundabout	191	191	-0	195	195	+0
	Winthorpe Roundabout	Brough	123	123	-0	126	126	-0
Southbound	Brough	Winthorpe Roundabout	77	77	-0	71	71	+0
	Winthorpe Roundabout	Friendly Farmer Roundabout	89	89	-0	79	79	-0
	Friendly Farmer Roundabout	Brownhills Roundabout	39	39	+0	36	36	+0
	Brownhills Roundabout	Cattle Market Roundabout	139	140	+0	138	139	+0
	Cattle Market Roundabout	Farndon Roundabout	111	111	-0	110	110	+0
	Farndon Roundabout	Lodge Lane	270	271	+2	264	263	-0
	Farndon Roundabout	Southern Link Road	64	64	+0	65	65	+0
	Southern Link Road	Lodge Lane	206	207	+1	199	199	-0
Eastbound	Winthorpe Roundabout	Cattle Market Roundabout	218	219	+0	221	221	+0
	Ollerton Rd	Cattle Market Roundabout	189	191	+2	186	187	+1
	Cattle Market Roundabout	Brownhills Roundabout	195	195	-1	216	218	+2
	Brownhills Roundabout	Friendly Farmer Roundabout	39	39	+1	38	38	+0
	Friendly Farmer Roundabout	Long Hollow way roundabout	23	23	+0	23	23	+0
Westbound	Long Hollow way roundabout	Drove lane	85	85	+0	84	84	-0
	Drove lane	Long Hollow way roundabout	81	81	-0	80	80	-0
	Long Hollow way roundabout	Friendly Farmer Roundabout	58	55	-3	36	35	-1
	Friendly Farmer Roundabout	Brownhills Roundabout	33	33	+0	31	31	-0
	Brownhills Roundabout	Cattle Market Roundabout	174	174	+0	163	164	+1
	Cattle Market Roundabout	Ollerton Rd	187	186	-0	187	186	-0

Appendix C

2043 AM Junction Performance

Junction	From	To	Flows (Veh)			Average Queue (m)			Max Queue (m)		
			DS	New DS	Diff	DS	New DS	Diff	DS	New DS	Diff
Southern Link Roundabout	A46 (W)	A46 (E)	2200	2208	8						
		Southern link road	474	474	0	19	19	-0	295	301	7
	A46 (E)	Southern link road	101	101	0						
		A46 (W)	2039	2031	-8	21	21	+1	156	153	-2
	Southern link road	A46 (W)	544	544	0						
		A46 (E)	101	101	0	19	20	+1	158	165	7
Farndon Roundabout	A46 (S)	Fosse Rd	7	6	-1						
		A46(N)	2207	2212	5						
		Farndon Rd	87	87	0						
		Farm	0	0	0	50	60	+10	344	384	40
	Fosse Rd	A46(N)	82	83	1						
		Farndon Rd	49	49	0						
		Farm	0	0	0						
		A46 (S)	4	4	0	2	2	-0	29	28	0
	A46(N)	Farndon Rd	162	160	-2						
		Farm	0	0	0						
		A46 (S)	2109	2102	-7						
		Fosse Rd	67	67	0	13	11	-1	183	177	-6
	Farndon Rd	Farm	0	0	0						
		A46 (S)	7	7	0						
		Fosse Rd	81	81	0						
		A46(N)	68	68	0	2	2	+0	22	24	2
Farm	A46 (S)	0	0	0							
	Fosse Rd	0	0	0							
	A46(N)	0	0	0							
	Farndon Rd	0	0	0	0	0	0	0	0	0	
Cattle Market Roundabout	A46(W)	Kelham Rd	139	140	1						
		Great North Rd (N)	454	456	2						
		A46(E)	1508	1507	-1	11	11	0	76	82	6

		Great North Rd (S)	241	249	8						
Kelham Rd		Great North Rd (N)	20	20	0						
		A46 (E)	501	502	1						
		Great North Rd (S)	184	190	6						
		A46 (W)	106	106	0	19	23	+3	130	159	29
		A46 (E)	72	72	0						
Great North Rd (N)		Great North Rd (S)	344	347	3						
		A46 (W)	580	571	-9						
		Kelham Rd	14	13	-1	227	294	+67	823	925	102
		Great North Rd (S)	191	209	18						
A46 (E)		A46 (W)	1469	1465	-4						
		Kelham Rd	392	389	-3						
		Great North Rd (N)	87	87	0	16	17	+1	85	91	6
		A46 (W)	175	181	6						
Great North Rd (S)		Kelham Rd	142	146	4						
		Great North Rd (N)	153	161	8						
		A46 (E)	97	110	13	10	12	+2	99	121	22
		Kennel	0	0	0						
Kennel roundabout	A46 (W)	Brownhills	751	749	-2	0	0	+0	43	51	9
		Kennel	0	0	0	0	0	0	0	0	0
	Brownhills	Kennel	0	0	0	0	0	0	0	0	0
		A46(E)	573	572	-1	6	10	+4	76	94	18
Brownhills Roundabout	A46 (W)	A1 (N)	61	61	0						
		Lincoln Road	300	300	0	31	29	-2	168	160	-8
		A46(E)	385	388	3						
	A1 (N)	A46(E)	573	572	-1	6	10	+4	76	94	18

		Lincoln Road	89	89	0						
		A46 (W)	127	127	0						
	A46(E)	Lincoln Road	550	552	2						
		A46 (W)	670	667	-3						
		A1 (N)	451	450	-1	11	11	-0	121	129	9
	Lincoln Road	A46 (W)	148	148	0						
		A1 (N)	118	118	0						
		A46(E)	438	438	0	7	7	+0	76	75	-1
Friendly Farmer Roundabout	A46 (W)	A46 (E)	730	732	2						
		A17	395	395	0						
		A1 (S)	257	258	1	75	73	-1	144	143	0
	A46 (E)	A17	29	30	1						
		A1 (S)	550	556	6						
		A46 (W)	515	524	9	262	250	-12	568	568	0
	A17	A1 (S)	21	21	0						
		A46 (W)	930	916	-14						
		A46 (E)	26	26	0	129	159	+31	278	306	29
	A1 (S)	A46 (W)	229	230	1						
		A46 (E)	137	137	0						
		A17	494	492	-2	27	27	-0	206	214	7
Long Hollow Way Roundabout	A17 (W)	A17 (E)	804	803	-1						
		Long Hollow Way	114	114	0	0	0	-0	34	35	1
	A17 (E)	Long Hollow Way	16	16	0						
		A17 (W)	916	908	-8	4	6	+2	83	103	20
	Long Hollow Way	A17 (W)	85	81	-4						
		A17 (E)	1	1	0	6	13	+7	41	67	26
Winthorpe Roundabout	A46(W)	A1133	124	125	1						
		A46 (E)	1295	1306	11						
		Drove Lane	7	7	0						
		Old A46 (W)	0	0	0	12	13	+1	104	106	1
	A1133	A46 (E)	3	3	0						
		Drove Lane	80	80	0						
		Old A46 (W)	177	177	0						
		A46 (W)	137	137	0	2	3	+1	43	47	4
	A46(E)	Drove Lane	63	63	0	57	41	-16	211	170	-41

		Old A46 (W)	979	988	9						
		A46 (W)	1060	1080	20						
		A1133	3	3	0						
	Drove Lane	Old A46 (W)	4	10	6						
		A46 (W)	3	3	0						
		A1133	24	27	3						
		A46 (E)	38	36	-2	16	5	-10	89	54	-35
	Old A46 (W)	A46 (W)	0	0	0						
		A1133	146	138	-8						
		A46 (E)	703	739	36						
		Drove Lane	11	11	0	33	16	-17	330	122	-208
	Lincoln Rd Junction	Lincoln Road (N)	Brunel Drive	474	479	5					
Lincoln Road (S)			316	317	1						
Harvest Drive			146	146	0	36	37	+1	159	160	2
Harvest Drive		Lincoln Road (N)	148	147	-1						
		Brunel Drive	51	51	0						
		Lincoln Road (S)	38	38	0	10	9	-0	59	59	0
Lincoln Road (S)		Harvest Drive	34	34	0						
		Lincoln Road (N)	339	339	0						
		Brunel Drive	25	25	0	15	15	-0	71	72	1
Brunel Drive		Lincoln Road (S)	36	36	0						
		Harvest Drive	12	12	0						
		Lincoln Road (N)	218	217	-1	27	27	+0	132	130	-2

2043 PM Junction Performance

Junction	From	To	Flows (Veh)			Average Queue (m)			Max Queue (m)		
			DS	New DS	Diff	DS	New DS	Diff	DS	New DS	Diff
Southern Link Roundabout	A46 (W)	A46 (E)	2209	2214	5						
		Southern link road	653	653	0	22	22	+0	263	265	+2
	A46 (E)	Southern link road	201	201	0						
		A46 (W)	1695	1702	7	24	24	+0	107	118	+12
	Southern link road	A46 (W)	443	444	1						
		A46 (E)	204	204	0	12	14	+1	118	137	+19
Farndon Roundabout	A46 (S)	Fosse Rd	13	13	0						
		A46(N)	2286	2294	8						
		Farndon Rd	104	104	0						
		Farm	0	0	0	63	62	-2	361	328	-33
	Fosse Rd	A46(N)	114	113	-1						
		Farndon Rd	106	106	0						
		Farm	0	0	0						
		A46 (S)	7	7	0	5	5	+0	45	49	+4
	A46(N)	Farndon Rd	215	215	0						
		Farm	0	0	0						
		A46 (S)	1864	1871	7						
		Fosse Rd	102	103	1	9	10	+1	141	144	+2
	Farndon Rd	Farm	0	0	0						
		A46 (S)	31	31	0						
		Fosse Rd	156	156	0						
		A46(N)	105	105	0	4	4	-0	33	33	-1
	Farm	A46 (S)	0	0	0						
		Fosse Rd	0	0	0						
A46(N)		0	0	0							
Farndon Rd		0	0	0	0	0	0	0	0	0	
Cattle Market Roundabout	A46(W)	Kelham Rd	131	130	-1						
		Great North Rd (N)	547	548	1						
		A46(E)	1561	1565	4	36	38	+2	171	175	+4

		Great North Rd (S)	259	265	6						
Kelham Rd		Great North Rd (N)	11	11	0						
		A46 (E)	281	281	0						
		Great North Rd (S)	143	145	2						
		A46 (W)	132	132	0	15	17	+2	98	97	-1
		A46 (E)	74	74	0						
Great North Rd (N)		Great North Rd (S)	132	138	6						
		A46 (W)	422	422	0						
		Kelham Rd	14	14	0	4	5	+1	79	105	+26
		A46 (E)	223	235	12						
A46 (E)		A46 (W)	1404	1405	1						
		Kelham Rd	493	494	1						
		Great North Rd (N)	72	72	0	14	15	+0	74	74	0
		A46 (W)	221	230	9						
Great North Rd (S)		Kelham Rd	243	248	5						
		Great North Rd (N)	149	158	9						
		A46 (E)	232	250	18	25	24	-2	185	157	-27
		Kennel	0	0	0						
Kennel roundabout	A46 (W)	Brownhills	639	641	2	31	24	-7	230	224	-6
		Kennel	0	0	0	0	0	0	0	0	0
	Brownhills	Kennel	0	0	0	0	0	0	0	0	0
		A46(E)	613	615	2	7	9	+1	91	113	+22
Brownhills Roundabout	A46 (W)	A1 (N)	36	35	-1						
		Lincoln Road	233	231	-2	191	193	+2	453	478	+24
		A46(E)	613	615	2	7	9	+1	91	113	+22
	A1 (N)	A46(E)	613	615	2	7	9	+1	91	113	+22

		Lincoln Road	100	100	0							
		A46 (W)	136	136	0							
	A46(E)	Lincoln Road	398	397	-1							
		A46 (W)	518	519	1							
		A1 (N)	603	602	-1	8	8	-0	123	118	-5	
	Lincoln Road	A46 (W)	221	220	-1							
		A1 (N)	197	196	-1							
		A46(E)	647	647	0	23	24	+1	130	126	-4	
Friendly Farmer Roundabout	A46 (W)	A46 (E)	953	951	-2							
		A17	439	439	0							
		A1 (S)	195	194	-1	68	70	+2	143	142	-1	
	A46 (E)	A17	21	21	0							
		A1 (S)	507	505	-2							
		A46 (W)	415	415	0	20	24	+5	111	191	+80	
	A17	A1 (S)	56	56	0							
		A46 (W)	948	949	1							
		A46 (E)	31	32	1	59	52	-7	223	207	-16	
	A1 (S)	A46 (W)	155	155	0							
		A46 (E)	139	139	0							
		A17	316	316	0	9	9	+0	88	85	-3	
Long Hollow Way Roundabout	A17 (W)	A17 (E)	730	728	-2							
		Long Hollow Way	45	45	0	0	0	-0	36	33	-3	
	A17 (E)	Long Hollow Way	2	2	0							
		A17 (W)	889	890	1	0	0	-0	22	19	-3	
	Long Hollow Way	A17 (W)	146	146	0							
		A17 (E)	5	5	0	0	0	+0	21	21	-0	
Winthorpe Roundabout	A46(W)	A1133	190	191	1							
		A46 (E)	1283	1300	17							
		Drove Lane	6	6	0							
		Old A46 (W)	0	0	0	11	11	-0	91	95	+4	
	A1133	A46 (E)	1	1	0							
		Drove Lane	36	36	0							
		Old A46 (W)	157	157	0							
		A46 (W)	134	134	0	1	1	+0	27	27	-0	
	A46(E)	Drove Lane	70	70	0	60	60	+1	157	152	-5	

		Old A46 (W)	783	782	-1						
		A46 (W)	1186	1197	11						
		A1133	2	2	0						
	Drove Lane	Old A46 (W)	7	7	0						
		A46 (W)	11	11	0						
		A1133	76	76	0						
		A46 (E)	60	60	0	14	15	+1	77	75	-3
	Old A46 (W)	A46 (W)	0	0	0						
		A1133	168	169	1						
		A46 (E)	912	948	36						
		Drove Lane	5	6	1	11	10	-1	94	88	-6
Lincoln Rd Junction	Lincoln Road (N)	Brunel Drive	263	262	-1						
		Lincoln Road (S)	338	338	0						
		Harvest Drive	129	129	0	31	30	-0	137	135	-3
	Harvest Drive	Lincoln Road (N)	119	120	1						
		Brunel Drive	13	13	0						
		Lincoln Road (S)	50	50	0	7	7	+0	49	47	-1
	Lincoln Road (S)	Harvest Drive	62	63	1						
		Lincoln Road (N)	516	518	2						
		Brunel Drive	23	23	0	33	33	-1	118	116	-2
	Brunel Drive	Lincoln Road (S)	64	64	0						
		Harvest Drive	17	17	0						
		Lincoln Road (N)	427	426	-1	57	58	+1	232	228	-4

Appendix D

2043 JT Summary

Direction	From	To	AM JT (s)			PM JT (s)		
			DS	New DS	Diff	DS	New DS	Diff
Northbound	Lodge Lane	Southern Link Road	200	200	+0	200	200	+0
	Southern Link Road	Farndon Roundabout	67	69	+2	68	68	+0
	Lodge Lane	Farndon Roundabout	267	269	+2	268	268	+0
	Farndon Roundabout	Cattle Market Roundabout	116	116	+0	115	115	-0
	Cattle Market Roundabout	Brownhills	191	190	-1	334	327	-7
	Friendly Farmer Roundabout	Winthorpe Roundabout	74	71	-4	73	73	-0
	Winthorpe Roundabout	Brough	130	128	-2	127	127	+0
	Cattle Market Roundabout	Winthorpe Roundabout	196	196	+0	194	194	-0
	Winthorpe Roundabout	Brough	122	123	+0	124	124	-0
Southbound	Brough	Winthorpe Roundabout	79	78	-1	71	71	-0
	Winthorpe Roundabout	Friendly Farmer Roundabout	218	199	-20	87	90	+3
	Friendly Farmer Roundabout	Brownhills Roundabout	41	42	+1	40	40	-0
	Brownhills Roundabout	Cattle Market Roundabout	140	140	+0	140	140	+0
	Cattle Market Roundabout	Farndon Roundabout	113	113	-0	112	112	+0
	Farndon Roundabout	Lodge Lane	277	278	+1	275	275	+0
	Farndon Roundabout	Southern Link Road	67	67	+0	71	71	-0
	Southern Link Road	Lodge Lane	210	211	+1	204	204	+0
Eastbound	Winthorpe Roundabout	Cattle Market Roundabout	218	219	+0	221	221	-0
	Ollerton Rd	Cattle Market Roundabout	196	199	+3	194	197	+3
	Cattle Market Roundabout	Brownhills Roundabout	212	213	+0	354	350	-5
	Brownhills Roundabout	Friendly Farmer Roundabout	67	70	+3	49	51	+2
	Friendly Farmer Roundabout	Long Hollow way roundabout	23	23	-0	23	23	-0
Westbound	Long Hollow way roundabout	Drove lane	86	86	+0	85	85	-0
	Drove lane	Long Hollow way roundabout	84	85	+2	80	80	-0
	Long Hollow way roundabout	Friendly Farmer Roundabout	111	133	+22	65	60	-5
	Friendly Farmer Roundabout	Brownhills Roundabout	35	35	+0	34	33	-0
	Brownhills Roundabout	Cattle Market Roundabout	177	179	+2	167	168	+1
	Cattle Market Roundabout	Ollerton Rd	186	186	+0	189	188	-1