The Norfolk County Council (Norwich Northern Distributor Road (A1067 to A47(T))) Order

Response to Spixworth Parish Council

Planning Act 2008

Infrastructure Planning

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

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1 SPC have carried out its own surveys in 2014 and compared against the 2012 base model flows for Crostwick Lane. They have highlighted that applicant's figures have been underestimated by between 33% and 318%.

Applicant's Response

1.1 SPC confirmed during the latest communications that the SPC traffic count location and the location at which Norfolk County Council (NCC) published data (i.e. site A24) are the same. Peak hour 2012 modelled data and SPC observed count data has been extracted and compared for sites A24 and A57 (on B1150) in the following table. The following should be noted regarding these comparisons.

1. SPC's daily peak hour flows reported in "NDR – TRAFFIC LEVEL COMPARISON" table have been used. The data have been averaged to reduce day to day variations.
2. SPC have made a mistake when using applicant's data for site A24 where they have used wrong directional data. This is corrected in the table below.

Location	Direction	AM		PM	
		1	2	1	2
NCC 2012 model base data (vph)					
A24	WB/EB	110	110	60	130
A57	NB/SB	330	600	660	390
SPC 2014 observed count data (vph)					
A24	WB/EB	187	167	173	223
A57	NB/SB	333	572	699	394
Absolute and (%) difference with modelled (vph)*					
A24	WB/EB	-77 (-41%)	-57 (-34%)	-113 (-65%)	-93 (-42%)
A57	NB/SB	-3 (-1%)	28 (5%)	-39 (-6%)	-4 (-1%)

*The % difference is calculated as "(modelled-observed)/observed" to be consistent with WebTAG validation criteria.

1.2 The results show that modelled flows in the base are lower than the counts by between 34%-65% compared with the observed for site A24.

However the absolute differences between modelled and observed flows are less than 100vph for three of the four instances. This satisfies WebTAG flow validation requirement for flows less than 700vph (i.e. individual flows within 100vph for flows < 700vph, see section 6.2 of Document Ref 5.9 for more information). Observed and modelled flows for site A57 matched well with differences of much less than 100 and within 6% for each direction.

1.3 On the basis of these counts the model matches the peak traffic flows well on B1150 North Walsham Road at site A57 but is low compared with the count on Crostwick Lane site A28, albeit it would meet validation targets as the hourly flows are relatively small (that is small relative to the range of flows considered in the targets). Crostwick Lane was not located on a calibration screen line and therefore some divergence from a subsequent count would be more likely than if the traffic flow had been used in calibration.

2 In addition SPC notes by referring to section 3.2 of Document Ref 5.9 that "Traffic data used in the NATS model were primarily taken from the surveys undertaken in 2002 and 2006 with a small number of additional traffic counts being undertaken in 2010".

Applicant's Response

2.1 Section 3.2 in Document Ref 5.9 refers to "Summary of existing traffic data" available and section 3.2.1 clearly says that the previous model update used data available from surveys conducted in 2002, 2006 and 2010. However for the latest 2012 model update use was made of the existing data but also new data was collected in 2012 as explained in sections 3.3, 3.4, 3.5 and 3.6.

3 *SPC also says that "it does have concerns about the ability for traffic to exit Crostwick Lane due to the predicted increase in traffic levels on the B1150". SPC also says that "the applicant should re-examine the proposal in the light of new accurate data and update the modelling. It has not, to corporate knowledge, undertaken a physical traffic count on the roads involved".*

Applicant's Response

3.1 Norfolk County Council (NCC) carried out turning counts at Crostwick Lane/B1150 junction on 30th of April and 1st of May 2013 for the period between 0700-1000 and 1600-1900. A comparison of modelled flows with the NCC count on Crostwick Lane at this location also showed that the modelled flows were lower than counted. A detailed examination showed that most of the major movements through the junction were very well represented in the model, but that movements between Crostwick Lane and North Walsham Road north and south were under represented. For the purposes of re-examining the junction adjustments were made to the turning flows as follows

1. Identify turning movements at Crostwick/B1150 junction that do not match well with observed by comparing 2012 modelled turning flows against the 2013 observed by the NCC. It's worth noting that the traffic survey SPC carried out at the junction had very similar results to the one carried out by NCC in April/May 2013 (also mentioned in NCC/EX/32). Observed and modelled turning movements are shown below and movements do not match well are highlighted in red in tables below for the modelled turning flows.

3.2 Observed turning flows April/May 2013:

AM peak hour (0800-0900)

	A	B	C	D	Total
A	0	99	617	50	766
B	51	0	13	96	159
C	281	13	0	63	357
D	44	128	89	0	260
Total	375	240	719	208	1542

PM peak hour (1700-1800)

	A	B	C	D	Total
A	0	49	361	56	466
B	81	0	16	173	269
C	591	21	0	123	736
D	40	90	40	0	170
Total	713	160	417	352	1641

Modelled turning flows – 2012:

	A	B	C	D	Total
A	0	107	588	2	697
B	60	0	10	104	174
C	328	20	0	2	350
D	3	85	27	0	115
Total	391	212	625	108	1336

	A	B	C	D	Total
A	0	55	345	2	402
B	63	0	16	62	141
C	644	17	0	9	670
D	1	94	33	0	128
Total	708	166	394	73	1341

A - B1150 North Walsham Road (n)
B - Rackheath Lane
C - B1150 North Walsham Road (s)
D - Crostwick Lane

2. Uplift those turning movements that do not match in 2017 and 2032 DM scenarios by applying a factor to 2013 observed turning flows. The factor was calculated based on the movements that match well in 2012 modelled turning movements and 2017/2032 forecast turning movements. It should be noted that the factors calculated for the AM peak have been used for PM peak as well. This is because the factors for PM peak were significantly lower than the AM peak factors and thus using the AM peak factors would be a conservative assumption producing higher 'worst case' PM peak turning movements.

3. For the Do something scenarios the uplifts to the movements between Crostwick Lane and North Walsham Road calculated for the Do Minimum were added to the modelled Do Something movements.

3.3 The resulting turning movements with the Scheme (DS scenario) are given in the table below for 2017 with those turning movements highlighted in red being the ones that were replaced as explained in point 3 above.

2017DS:

Turning flows (pcu/hr)

AM	A	B	C	Total
A	0	124	486	609
B	193	0	46	238
C	875	53	0	928
Total	1068	176	532	1776

PM	A	B	C	Total
A	0	218	770	988
B	93	0	43	136
C	554	59	0	613
Total	647	277	813	1737

A - B1150 North Walsham Road (s)
B - Crostwick Lane
C - B1150 North Walsham Road (n)

3.4 The proposed junction between Crostwick Lane and B1150 North Walsham Road has been reassessed with these revised turning movements using the PICADY model analysis. The results show that in 2017 the junction would operate within the theoretical capacity limits (the ratio of flow to capacity, RFC values are all below the 1.00 threshold) and within desirable capacity in the PM peak (RFC below 0.85) and just exceeding in the AM peak with a queue of 5 vehicles (in the worst 15 minute modelled time segment).

3.5 Junction analysis results

Arm	AM peak 0800-0900		PM peak 1700-1800	
	RFC	Queue (PCU)	RFC	Queue (PCU)
B-A	0.858	5	0.489	1
B-C	0.332	0	0.127	0
C-AB	0.093	0	0.131	0

3.6 The tables below show the forecast turning movements and the junction performance for 2032. The junction would exceed the desirable capacity limit but operate within theoretical capacity, with a queue of 8 vehicles.

3.7 2032DS:

Turning flows (pcu/hr)

AM	A	B	C	Total
A	0	168	589	757
B	199	0	46	244
C	795	56	0	851
Total	994	224	635	1853

PM	A	B	C	Total
A	0	191	836	1028
B	107	0	46	153
C	621	63	0	685
Total	728	255	882	1865

A - B1150 North Walsham Road (s)
B - Crostwick Lane
C - B1150 North Walsham Road (n)

3.8 Junction analysis results

Arm	AM peak 0800-0900		PM peak 1700-1800	
	RFC	Queue (PCU)	RFC	Queue (PCU)
B-A	0.967	8	0.652	2
B-C	0.920	3	0.173	0
C-AB	0.107	0	0.144	0

4 *SPC also says that "The base year in the application is taken as 2012, from which all modelling has been carried out, and the Council wishes to challenge these figures".*

Applicant's Response

4.1 As explained in the Section 3.3 of Document Ref 5.9, 2012 base traffic model was updated based on a large amount of traffic count data across Norwich. Also as can be seen from sections 6 and 7 of Document Ref 5.9 the base model has been calibrated and validated to an acceptable level and it formed a reasonable basis for forecasting the impact of the Scheme. The 2012 base model has already been calibrated and validated when Norfolk County Council (NCC) carried out Crostwick Lane/B1150 junction counts in April/May 2013. Therefore the count data could not be used in the base model calibration or validation.

4.2 The analysis undertaken in section 3 above reassessed the operational performance of Crostwick Lane/B1150 junction and the results indicate that the junction will operate within its theoretical capacity in both 2017 and 2032.

5 *SPC states that "traffic levels will increase on Crostwick Lane with an NDR". SPC also says that "Traffic flows in the major road (B1150) in 2017 are predicted to be 16,500 post NDR construction; those on Crostwick Lane are predicted to be 2,700; the SPCs monitoring indicates that the AADT on the latter has already reached 3,300."*

Applicant's Response

5.1 AADTs at site A24 were recalculated and are reported below. The base AADT figure was calculated based on SPC's AM and PM peak hour flows but by applying factoring to calculate IP and OP average hour flows. The

factors were derived by using the automatic traffic count data collected at a similar location (Site V21 in Table 3.3 of Document Ref 5.9). DM AADTs were derived by adding a proportion (as per point 2 in response to question 3 above) of the increased base AADT (3,600-2,100=1,500). DS AADTs were derived by taking the DM AADTs but by reducing them by the differences in the modelled flows between DM and DS before the adjustments (i.e. by 1,000 in 2017 and 1,400 in 2032)

Year	Scenario		
	Base	DM	DS
2012	3,600		
2017		5,300	4,300
2032		6,100	4,700

5.2 The traffic level will increase on Crostwick Lane compared to the base year with the Scheme. However the forecast DS flows are lower than the DM flows mainly because of the relief provided by the NDR and the developer link roads to orbital movements.

6 *SPCs main concern is for road safety throughout the village of Spixworth including a safe junction at the eastern end of Crostwick Lane where it meets the B1150 and (currently) Rackheath Lane.*

Applicant's Response

6.1 Forecast traffic flows through Spixworth will be lower in the Do Something compared to the Do Minimum because of the relief provided by the NDR and the developer link roads to orbital movements.

6.2 The issue at the Crostwick Lane junction with the North Walsham Road is that the junction stagger is below standard. The closure of Rackheath Lane is proposed to improve highway safety at the junction as this would simplify turning movements allowing drivers waiting at the Crostwick Lane arm to concentrate on the vehicle movements on the main road. A safety audit to confirm that this remains the case with the revised turning movements assessment as presented in this response is being undertaken and an update to confirm the position will be provided prior to the Issue Specific Hearings.

6.3 The operational assessment of the junction using the revised movements discussed in section 3 shows that the junction will operate within its theoretical capacity in both 2017 and 2032. NCC would monitor the junction following the improvement and implementation of NDR and if required further measures could be introduced.

7 *SPC also states that "if the proposed road closure of Rackheath Lane goes ahead, the traffic that now use the west-east route will increase the north and south turning traffic from Crostwick Lane onto the increasingly busy B1150."*

Applicant's Response

7.1 The revised turning flows calculated in section 3 allow for the rerouting of movements that previously used Rackheath Lane to use the B1150 North Walsham Road. The operational assessment of the junction using these revised movements shows that the junction will operate within its theoretical capacity in both 2017 and 2032.