

Lincoln Eastern Bypass Public Inquiry

Written Questions on Proof of Evidence of Mr Paul Smith

Paul Moore

Objector Number 489

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OBJ/489/3

1. This document lists a number of questions of detail regarding the Proof of Evidence of Lincolnshire County Council's (LCC) traffic modelling witness, Mr Paul Smith. The questions are being provided prior to the inquiry to assist LCC in providing answers of questions of detail.
2. Although I appreciate it is less desirable to ask questions at the Inquiry I would reserve the right to do so although I will aim to avoid asking further questions which may require a detailed answer unless these unavoidably arise from answers to the questions below.
3. Where a question relates directly to a paragraph in Mr Smith's evidence I have identified the paragraph number in brackets after the question.

Questions

Question 1: Based on an analysis of the 2015 Junction Turning Counts and the ANPR data collected in 2015 would you agree that there is little evidence of significant traffic rat running from the villages of Cherry Willingham and Reepham through the Carlton Estate to access Outer Circle Road.

Based on the data quoted I would agree with this.

Question 2 - (2.2.7): The 2015 traffic data shows what appears to be a significant rat run of around 250 vehicles in the AM peak travelling from Hawthorn Road (W), through the Carlton Estate, to access either the Carlton Centre Shops or Outer Circle Road.

There is a flow of 250 vehicles although I don't believe that there is sufficient data to conclude that it must be a rat run.

Question 2.1: This significant movement does not appear to be present in the 2018 Do Minimum model turning flows provided. Has this traffic movement being deliberately removed from the model or encouraged to re-route in order to model the effects of traffic calming through the Carlton Estate in the Do Minimum model?

The movement is present and has been provided to Mr Moore.

Question 2.2: If traffic calming in the Carlton Estate has been explicitly included in the Do Minimum model network this traffic model network change does not appear to have been included in the list of network changes added to the Do Minimum model network as listed in the Forecast and Economic Evaluation Update Note (CD84). If traffic calming has been explicitly included would it be possible to please provide details of how this was implemented or point me to where this is detailed in previous documentation if I have inadvertently missed it?

Traffic calming hasn't been explicitly included although the speed-flow relationship in the estate continues to reference the appropriate standard of road.

Question 2.3: If this traffic movement has not been explicitly removed how is the significant difference between the 2015 turning counts/ANPR data and the 2018 Do Minimum modelled flows explained for this movement?

There is no significant difference.

Question 3: How was development carried out between 2006 and 2018, in particular residential development in the Carlton Estate, included in the Do Minimum model?

This is outlined in the Forecast and Economics note. The additional phases of the Carlton Estate were advised by City of Lincoln Council and added into the matrix as specific developments, with generation based on difference between 2006 build and 2018 forecast build. Distribution was taken from a gravity model to represent the possibility of changed patterns of interaction since 2006 surveys.

Question 3.1: The Forecasting Report and other reports appear to suggest this development was added to the model based on forecast trip rates and size of development rather than from direct survey data. Was the 2015 survey data explicitly used to calculate trip rates from the Carlton Estate development or were estimated trip rates (for example from TRICS) used?

No localised calibration was used. TRICS is an industry standard data source.

Question 3.2: If estimated rates were used what process was used to compare estimated traffic generation from within the Carlton Estate with 2015 observed traffic data?

The adherence of 2018 flow values to 2015 surveys confirmed that TRICS was reasonable and appropriate and that behaviour in Lincoln was not significantly deviant from standard observation.

Question 4 - (2.4.4): In the Sensitivity Test Model several traffic flows from the 2015 traffic counts were used to improve the calibration of the model in the Hawthorn Road area. The Model Sensitivity Test Note (CD85) describes these counts in para 3.1 as “Wragby Road, St Augustine Road and Hawthorn Road west of Cherry Willingham”. Could you please identify exactly which 2015 turning movements from which counts and locations were used in this process and any other additional traffic data introduced during the production of the sensitivity test base model?

The counts used in the VISUM “T-flow fuzzy logic” matrix optimisation technique were the Hawthorn Road East of St Augustine Road link flows, link flows from the three arms of the A15 Wragby Road/ Hawthorn Road intersection and the link flows on St Augustine Road to the South of Hawthorn Road.

Question 4.1: Please confirm the exact values used in the model and the exact locations input (i.e. which turns and/or link counts were added, deleted or changed in the sensitivity test model.)

The values used were observed flows on the following links.

- Bunkers Hill northbound (south of Hawthorn Road)
- Bunkers Hill southbound (north of Hawthorn Road)
- Hawthorn Road in both directions between Bunkers Hill and St Augustine Road
- Hawthorn Road westbound (east of St Augustine Road)
- St Augustine Road in both directions

The observed flows on St Augustine Road were reduced by 25% to reflect development trips that were not present in 2006. The 25% reduction is based on the following assumptions.

- 50% of St Augustine Road traffic is through traffic
- 50% of traffic is associated with the Carlton Estate
- 50% of the Carlton Estate traffic was not present in 2006

The observed flows used, and the resultant modelled flows, are summarised in the Table below.

Link	Link Flow (pcus)					
	AM peak			PM peak		
	Observed	Model	GEH	Observed	Model	GEH
Bunkers Hill northbound (south of Hawthorn Road)	441	411	1.5	1000	885	3.7
Bunkers Hill southbound (north of Hawthorn Road)	915	872	1.5	562	493	3.0
Hawthorn Road eastbound between Bunkers Hill and St Augustine Road	395	398	0.2	338	319	1.1
Hawthorn Road westbound between Bunkers Hill and St Augustine Road	222	369	8.5	249	266	1.0
Hawthorn Road westbound (east of St Augustine Road)	256	333	4.5	172	157	1.2
St Augustine Road southbound*	391 (293)	322	1.7	176 (132)	136	0.3
St Augustine Road northbound*	147 (110)	74	3.8	235 (176)	208	2.3

*St Augustine Road flows have been reduced by 25%. Reduced flows shown in brackets.

Question 5: The 2011 LCC Report of Survey document states that no roadside interview, postcard or other trip pattern data collection was carried out for Hawthorn Road and trip patterns were synthesised or otherwise estimated.

Correct

Question 5.1: Bearing in mind the wider traffic origin-destination patterns using Hawthorn Road have not been directly surveyed for many years how much confidence can be attached to the trip patterns using Hawthorn Road (as opposed to the magnitude of traffic) and what factors determine this level of confidence in this case.

The survey origin-destination patterns are reaching life expiry and there has been growth in residential development in the vicinity. Confidence in the trip patterns will be lower than that of 2015 freshly collected data however it was not possible to collect updated data and it is not possible to quantify an absolute level of confidence in the data.

Question 5.2: Given that it would appear that the modelled pattern of traffic origins and destinations using Hawthorn Road is derived from synthetic data rather than direct observation could this affect the accuracy of forecasts of the magnitude of traffic diverting to other routes and which routes they will choose in the Do Something and Alternative models?

Synthetic origin-destination data derivation is a well-established technique. Given appropriate constraints it is possible to use this successfully to generate appropriate infill traffic patterns.

Question 6: Do you accept that bearing in mind that the main two alternative routes to Hawthorn Road both pass through the Greetwell Road/LEB roundabout the performance of this roundabout and the section of Greetwell Road to the west of the LEB is critical to the convenience of traffic movements between Cherry Willingham, Reephram and Fiskerton to and from Lincoln and many other destinations?

This section of route is important to a proportion of the local traffic, although given the number of alternative choices available (4) this is perhaps not "critical".

Question 7: In the ARCADY models presented in the Appendices to Mr Smith's proof a number of intercept corrections have been applied. Could you please confirm the rationale behind these intercept corrections and a brief example of their derivation for the Greetwell Road/LEB roundabout?

Intercept correction factors have been used to take account of unequal lane usage on roundabout entry arms. Appendix A contains the calculation of intercept correction factors for the Greetwell Road east approach.

Question 8: Given that traffic flows -particularly in the AM Peak on Greetwell Road - in some cases exhibit a significant peaked profile within the overall peak hour would you agree that the modelling of a peaked traffic

profile for some entries of roundabouts on the LEB in some cases should be regarded as a 'standard' scenario rather than a 'worst case'?

It should not always be 'standard' to model junctions with a peaked profile for example at existing junctions where a flat profile has been observed. In this case, as the LEB junctions are proposed junctions and no traffic flow profiles exist, it has been considered appropriate to undertake the 'worst case' scenario to provide a robust assessment.

Question 9: Could you please confirm that the intergreens used in the LinSig modelling of the Wragby Road/Outer Circle Road junction are appropriate? Zero intergreens have been used for toucan to traffic intergreens and it would appear that no allowance has been made for realistic traffic to pedestrian intergreens calculated from the toucan crossings parameters and pedestrian usage.

It is accepted that the zero intergreens used in the Wragby Road/Outer Circle Road LinSig model were not appropriate. Revised modelling has been undertaken with 8 second intergreens after toucan crossing phases used, in addition to the other suggestions made in Mr Moore's rebuttal.

Question 10: In the 2018 PM Peak Do Something model only 2 PCU turn left from Croft Lane to Hawthorn Road and only 2 PCU U-turns from the LEB northbound to the LEB southbound at the Wragby Road/LEB roundabout. This would appear to imply that very little traffic from the south appears to be accessing the Hawthorn Avenue area. If this interpretation is correct could you confirm the number of trips and approximate trip pattern to this area (model zone 102) in the PM Peak?

In this scenario 42 vehicles have zone 102 as the destination. Appendix B shows the distribution of these trips. It can be seen that a number of trips from the south and central Lincoln access the zone via the LEB.

Question 11: Could you confirm whether any development traffic (other than background Temprow growth) has been included in the Do-Minimum or Do Something models for developments accessing Hawthorn Road between the LEB and Cherry Willingham?

No development traffic.