A57/A628 Mottram – Tintwistle Bypass & A628/A616 Route Restraint Measures

Public Inquiry

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Response to Inspector's Request to Highways Agency to Explain the Error in the Traffic Model

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Day 12 Tuesday 11 Sept 2007

Transcript day 12 p22

REQUEST:
I would welcome a paper to explain what the mistake is and its significance and the reasons for it, because I think the parties are entitled to an explanation, particularly as the consequences seem to me to be likely to be in the Highways Agency's favour.

ANSWER:

1. Description of Error

1.1 A coding error occurred in the 'with scheme' network definition (Do-Something) and in particular affects the section of the A616(T) between Flouch and Stocksbridge, some 20 kilometres to the east of the Bypass.

1.2 Highway networks in a model are defined by a series of nodes connected by links. Nodes generally represent points at which road junctions occur or speed changes occur. Links represent sections of road (see **Figure 1**). The coding for the Do Minimum network (without the Scheme) includes the following:-

i. a series of nodes and links representing the Flouch roundabout (A on Figure 1);
ii. a link representing the A616(T) from Flouch to the change in speed limit at the start of the Stocksbridge Bypass (Link B);
iii. a node representing the change in speed limit at the start of the Stocksbridge Bypass (Node C);
iv. a link representing the A616(T) from the change in speed limit to the A616(T) A6102 junction east of Stocksbridge (Link D);

v. a node representing the A616(T) / A6102 junction (Node E).

1.3 The section of network was changed for the Do Something network in order to represent traffic restraint control measures by removing the single Link B above, and replacing it with the following:-

i. a link representing the A616(T) from Flouch to Langsett (Link F);
ii. a node representing the proposed traffic signal controlled junction at Langsett (Node G);
iii. a link representing the A616(T) from Langsett to Midhopestones (Link H);
iv. a node representing the proposed traffic signal controlled junction at Midhopestones (Node I);
v. a link representing the A616(T) from Midhopestones to the change in speed limit at the start of the Stocksbridge Bypass (Link J).

1.4 The error was made in the definition of Link J above. It was coded with the correct length (of the A616(T) between Midhopestones to the change in speed limit), but instead of being coded as connecting to Node C, was incorrectly coded as connecting to Node E.

1.5 This resulted in the A616(T) being represented in the traffic model as having a shorter length (effectively Link D was omitted) in the Do Something (with the Scheme) than in the Do Minimum.

2. Significance of the coding error

2.1 The coding error does not affect the validity of the highway traffic model of the existing network, which has been calibrated and validated in accordance with DfT guidance, and is appropriate for forecasting traffic effects of the Scheme. The model base year is 2005 and the modelled flows compared well with traffic flows observed

in the base year. However, the error does affect the future year traffic forecasts for the situation with the Scheme in place.

2.2 The A616(T) between Flouch and Stocksbridge in the Do Something network (with the Scheme) being shorter than it should have, resulted in an underestimate of journey times on this part of the A616(T).

2.3 The consequence of this for the traffic forecasts was that the model gave significant overestimates of traffic on the A628(T) / A616(T) trans-Pennine route with the Scheme in place. The route restraint at the Flouch, Langsett and Midhopestones junctions was set to make the route less attractive.

2.4 Correction of the error has now resulted in increased forecast journey times for traffic on the A628(T) / A616(T) trans-Pennine route with the Scheme in place, due to the increased road length.

2.5 The corrected model of the Do Something network (with the Scheme) has produced significant differences in the forecast traffic flows on some roads, largely to the east of the Pennines. The largest change occurs on the A616(T) between Flouch and the M1 which are now correctly forecast to increase much less than was the case with the incorrect network. The increase over the Do Minimum forecast in 2015 in the Most Likely scenario is some 1,400 AADT being 11% (previously the increase was forecast as some 4,100 AADT being 31%). There are smaller changes on other links in this area.

2.6 To the west of the Pennines, particularly the roads around the villages to be bypassed, the effect of the error was much smaller and the forecasts flows for all links reported change by less than 5 per cent. Revised traffic forecasts are given in the revised version of Table 6 of the Traffic, Safety and Economics evidence (HA/TSE/10/4) attached.

2.7 Differences between the revised forecast flows for 2015 in the most likely scenario and previous forecasts are given in Table A attached.

3. Reason for Error

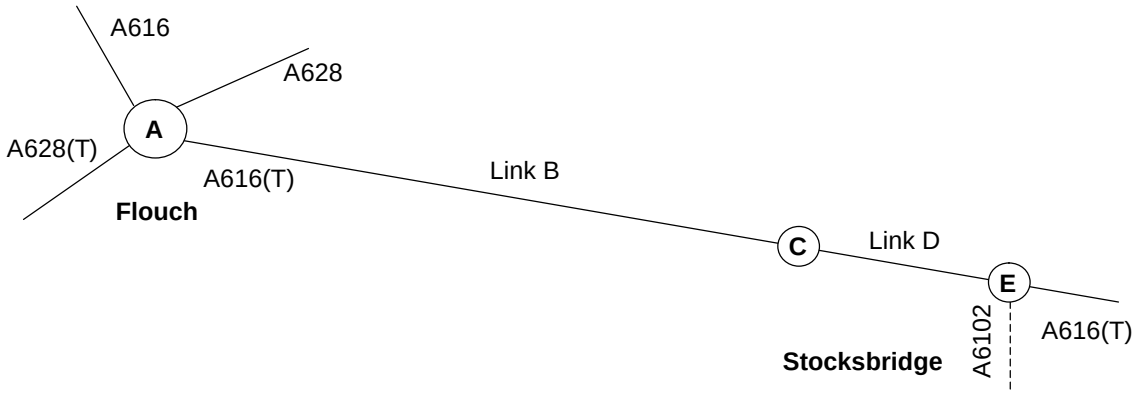
3.1 The highway network was edited to reflect proposed changes as a result of the Scheme. The link representing the A616(T) south east of Flouch was removed and replaced with a series of links and nodes as described above.

3.2 The coding error was an incorrect link length between Midhopestones and the A616(T) / A6102. It was not a systematic or methodological error.

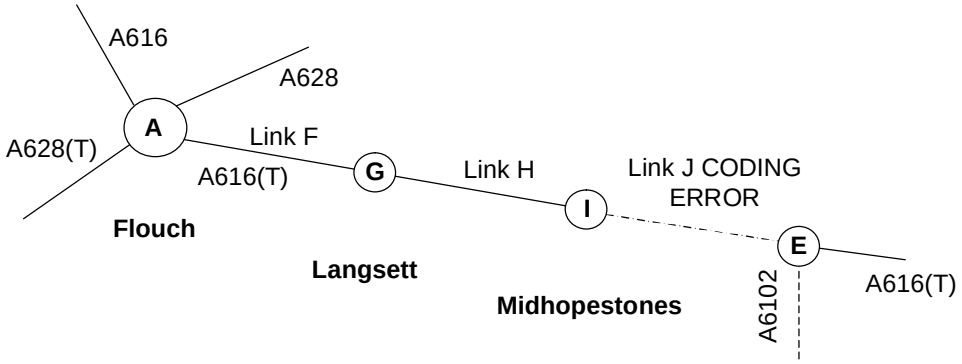
3.3 The highway network definition comprises a computer file with some 100,000 numbers. The total length of road represented is some 11,000 kilometres. Checks were carried out on the network definition, but in this case the error was missed.

3.4 The consequences of the inadvertent omission of the length of road were masked by the presence of restraint delays at traffic signals at Flouch, Langsett and Midhopestones. These delays effectively concealed the reduction in journey times that resulted from the omitted length of road.

Do Minimum network (without the Scheme)



Do Something network (representing the Scheme with the error)



Do Something network (representing the Scheme corrected)

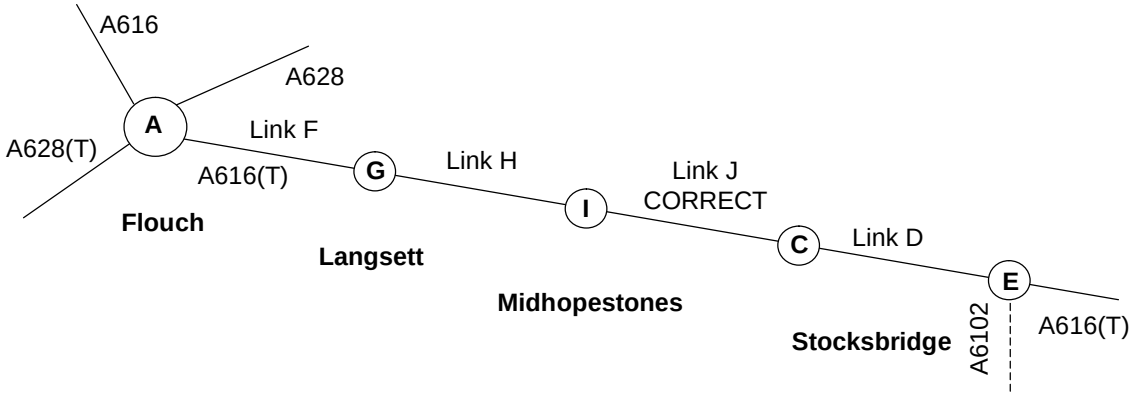


Figure 1

Table 6: Forecast Flows for 2015 and 2030

Location No	Location	2005 Flows	MOST LIKELY 2015 (AADT)				MOST LIKELY 2030 (AADT)			
			Do-Minimum	Do-Something	Difference	% Change	Do-Minimum	Do-Something	Difference	% Change
1	M62 Junc 22-23	103950	128950	127800	-1150	-1%	148000	146700	-1300	-1%
2	A640 West of Scammonden	1100	1200	1200	0	0%	1450	1450	0	0%
3	A62 near Marsden	4150	4850	4900	50	1%	5850	5850	0	0%
4	A635 Saddleworth Moor	4250	5750	4850	-900	-16%	7950	6800	-1150	-14%
5	A6024 Holme Moss	850	1050	2400	1350	129%	1300	2950	1650	127%
6	A628 Woodhead	11200	12500	14550	2050	16%	13700	15950	2250	16%
7	A57 Snake	4650	5350	5800	450	8%	5700	6450	750	13%
8	Old A625 Slack Hall	2450	2300	2300	0	0%	2300	2300	0	0%
9	A623 Barmoor Clough	6050	7600	7650	50	1%	9650	9750	100	1%
10	A6 (T) Taddington	6050	6850	6800	-50	-1%	8050	7900	-150	-2%
11	A515 Parsley Hay	5000	5300	5300	0	0%	5900	5950	50	1%
12	A52 west of Ashbourne	10300	11550	11550	0	0%	13450	13400	-50	0%
13	A50 between Derby and Stoke	48900	70300	69900	-400	-1%	85350	84900	-450	-1%
14	M67 west of Mottram	28300	31300	36500	5200	17%	33850	40450	6600	19%
15	A57 (T) Mottram Moor	39100	39450	35900	-3550	-9%	39450	37050	-2400	-6%
16	A628 (T) Crowden	10700	11850	15400	3550	30%	12650	16750	4100	32%
17	A628 East of Flouch	3950	4350	4550	200	5%	4800	4850	50	1%
18	A616(T) East of Flouch	11450	13200	14600	1400	11%	15400	16550	1150	7%
19	A616 North of Flouch	4200	5150	4450	-700	-14%	6450	5050	-1400	-22%
20	A629 (A616 to A628)	21200	21650	21550	-100	0%	23150	23250	100	0%
21	A635 (M1 to A629)	7150	7700	8100	400	5%	8650	9150	500	6%
22	A57(T) Hyde Road	26200	26650	7600	-19050	-71%	27000	8400	-18600	-69%
23	A635 East of A616	9450	10500	11050	550	5%	12000	12550	550	5%
24	Bypass (Eastern Section)	#N/A	#N/A	14450	#N/A	#N/A	#N/A	15200	#N/A	#N/A
25	Bypass (Western Section)	#N/A	#N/A	31850	#N/A	#N/A	#N/A	33900	#N/A	#N/A
26	Mottram Link	#N/A	#N/A	19200	#N/A	#N/A	#N/A	20400	#N/A	#N/A
27	A628(T) Hollingworth	14450	15200	11900	-3300	-22%	15450	12900	-2550	-17%
28	B6174 Stalybridge Road	10750	11300	11350	50	0%	11650	12600	950	8%
29	A6018 Back Moor	15250	15800	20900	5100	32%	16150	21050	4900	30%
30	A57 North of Proposed Glossop Spur	24450	24250	24800	550	2%	23600	24300	700	3%
31	A57 South of Proposed Glossop Spur	14000	13800	17150	3350	24%	13100	16200	3100	24%
32	M1 North of Junction 36	99850	126650	126350	-300	0%	145150	145100	-50	0%
33	M1 North of Junction 35A	85300	108550	108600	50	0%	125300	125750	450	0%
34	M1 South of Junction 35A	102900	129450	130100	650	1%	149650	150500	850	1%
35	Glossop Spur	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
36	Ashworth Lane	11550	13550	7350	-6200	-46%	14150	7050	-7100	-50%
37	Broadbottom Road	10250	11850	8300	-3550	-30%	13000	9650	-3350	-26%
38	Shaw Lane	3050	3500	2400	-1100	-31%	4200	3100	-1100	-26%
39	Woolley Bridge Road	10650	10600	7900	-2700	-25%	10950	8450	-2500	-23%
40	New Road, Tintwistle	6600	7000	8150	1150	16%	8100	9350	1250	15%
41	A628 Tintwistle	10900	12050	4200	-7850	-65%	12850	5550	-7300	-57%
42	A57 Glossop	13850	14400	14000	-400	-3%	14700	14400	-300	-2%
43	A6016 Glossop	4250	4550	5250	700	15%	4150	5050	900	22%
44	A624 Glossop	3050	3450	3050	-400	-12%	4250	3400	-850	-20%
45	A626 Chisworth	4100	4400	4350	-50	-1%	4550	4300	-250	-5%
46	A560 Gee Cross	5050	5000	5700	700	14%	4000	5100	1100	28%
47	A57 Hyde	1400	1450	2900	1450	100%	1200	3200	2000	167%
48	A57 Between Dinting Ln & Simmondly Ln	17000	17500	18400	900	5%	17050	18400	1350	8%

Note
1. AADT Values rounded to nearest 50

Table A - Differences between Revised and Previous Forecasts

Location No	Location	MOST LIKELY 2015 (AADT)			
		Previous Do Something	Revised Do Something	Difference	% Change
1	M62 Junc 22-23	127600	127800	200	0%
2	A640 West of Scammonden	1200	1200	0	0%
3	A62 near Marsden	4900	4900	0	-1%
4	A635 Saddleworth Moor	5650	4850	-800	-14%
5	A6024 Holme Moss	2500	2400	-100	-4%
6	A628 Woodhead	15050	14550	-500	-3%
7	A57 Snake	5600	5800	200	4%
8	Old A625 Slack Hall	2300	2300	0	0%
9	A623 Barmoor Clough	7350	7650	300	4%
10	A6 (T) Taddington	6750	6800	50	0%
11	A515 Parsley Hay	5350	5300	-50	0%
12	A52 west of Ashbourne	11550	11550	0	0%
13	A50 between Derby and Stoke	69500	69900	400	1%
14	M67 west of Mottram	36800	36500	-300	-1%
15	A57 (T) Mottram Moor	36000	35900	-100	0%
16	A628 (T) Crowden	15850	15400	-450	-3%
17	A628 East of Flouch	4600	4550	-50	-1%
18	A616(T) East of Flouch	17350	14600	-2750	-16%
19	A616 North of Flouch	6700	4450	-2250	-34%
20	A629 (A616 to A628)	21100	21550	450	2%
21	A635 (M1 to A629)	8250	8100	-150	-2%
22	A57(T) Hyde Road	7750	7600	-150	-2%
23	A635 East of A616	11200	11050	-150	-2%
24	Bypass (Eastern Section)	14450	14450	0	0%
25	Bypass (Western Section)	32000	31850	-150	0%
26	Mottram Link	19200	19200	0	0%
27	A628(T) Hollingworth	11950	11900	-50	0%
28	B6174 Stalybridge Road	11450	11350	-100	-1%
29	A6018 Back Moor	20650	20900	250	1%
30	A57 North of Proposed Glossop Spur	24600	24800	200	1%
31	A57 South of Proposed Glossop Spur	16850	17150	300	2%
32	M1 North of Junction 36	126000	126350	350	0%
33	M1 North of Junction 35A	108150	108600	450	0%
34	M1 South of Junction 35A	131750	130100	-1650	-1%
35	Glossop Spur	#N/A	#N/A	#N/A	#N/A
36	Ashworth Lane	7300	7350	50	0%
37	Broadbottom Road	8500	8300	-200	-2%
38	Shaw Lane	2450	2400	-50	-2%
39	Woolley Bridge Road	8000	7900	-100	-1%
40	New Road, Tintwistle	8000	8150	150	2%
41	A628 Tintwistle	4400	4200	-200	-4%
42	A57 Glossop	14000	14000	0	0%
43	A6016 Glossop	5100	5250	150	3%
44	A624 Glossop	3050	3050	0	0%
45	A626 Chisworth	4300	4350	50	1%
46	A560 Gee Cross	5750	5700	-50	-1%
47	A57 Hyde	2900	2900	0	1%
48	A57 betw. Dinting Ln & Simmondley Ln	18350	18400	50	0%

Note

1. AADT Values rounded to nearest 50