INFO NOTE

NEWGATE LANE APPEALS

NEWGATE LANE FURTHER ECONOMIC APPRAISAL

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1. INTRODUCTION

1.1.1 The Benefit Cost Ratio (BCR) of 1.88, upon which funding and implementation for the Newgate Lane Improvement Package was based, was calculated using the Solent Sub-Regional Transport model (SRTM). That application of the model was undertaken and reported in late 2014/ early 2015.

1.1.2 In November 2020, Hampshire County Council (HCC) requested further analysis to understand the impact of additional traffic signal based infrastructure on Newgate Lane/ Newgate Lane East as identified by a development planning application for a site adjacent to Newgate Lane.

1.1.3 In response to the request from HCC, the model scenario developed in 2014/15 has been used to calculate revised BCR values, including the delay forecast by the development proposals. However, given the timescales, a full model re-run was not possible, and a number of assumptions have been used in calculating the revised BCR. These are set out in full in the section 3 below.

2. OPTIONS

2.1.1 There are two sets of signals proposed on Newgate Lane East and we have provided adjusted BCRs for the following set:

1. Signalisation of old Newgate Lane/ Newgate Lane East junction
2. Introduction of a toucan crossing at Brookers Lane/ Woodcote Lane
3. 1 and 2 above combined.

2.1.2 Two sets of average delay per vehicle data was provided by HCC for each of the two options above, for three different lane use scenarios:

- 75 Households (Northern Site)
- 115 Households (Southern Site); and
- 190 Households (Both sites combined)

2.2 Newgate Lane/Newgate Lane East Junction

2.2.1 Delay per vehicle extracted from LinSig modelling for was provided by the Newgate Lane appellants, shown in the table below.

2.2.2 A second set of delay per vehicle was also provided from the Highway Authority (HCC) modelling, shown in the second table below.

	75 Dwellings	115 Dwellings	190 Dwellings
AM			
Newgate Lane East Northbound	10.9	11	11
Newgate Lane East Southbound	6.3	6.7	7.4
Newgate Lane	64.8	67.8	75.7
PM			
Newgate Lane East Northbound	4	4	4
Newgate Lane East Southbound	4.7	4.7	4.7
Newgate Lane	64.6	65.8	68.7

Table 14: Indicative Arrow Delay per vehicle (seconds)
Source: Appellant LinSig Modelling, October 2020 (CDA. 71 and CDA. 142)

	75 dwellings	115 dwellings	190 dwellings
AM			
Newgate Lane East northbound	11.8	11.8	12.0
Newgate Lane East southbound	6.0	6.5	7.2
Old Newgate Lane	68.0	72.6	85.7
PM			
Newgate Lane East northbound	4	4	4
Newgate Lane East southbound	4.7	4.7	4.7
Old Newgate Lane	64.6	65.8	68.7

Table 16: Indicative Arrow Delay per Vehicle (seconds) AM peak, HA Modelling
Source: HA Modelling Indicative Arrow (October 2020, (Appendix NG3)

2.3 Brookers Lane/Woodcote Lane Toucan Crossing

2.3.1 Two sets of delays per vehicle were also provide for the proposed Toucan Crossing. Table 1 provides the outcome of the Toucan Study modelling undertaken in 2018 (Note – the 2018 modelling did not account for the impact/ variation of development size on the Toucan Crossing signal timings). Table 2 provides the updated Toucan modelling delays that do account for development size (for 2024).

Table 1. 2018 Toucan Crossing Modelling

DELAY PER VEHICLE (SECS)	AM	PM	OFF-PEAK
Newgate Lane NB	11.7	4.9	4.5
Newgate Lane SB	4.2	109.3	6

Table 2. Update Toucan Modelling (2024)

	75 HOUSEHOLDS		115 HOUSEHOLDS		190 HOUSEHOLDS	
Delay per Vehicle (secs)	AM	PM	AM	PM	AM	PM
Newgate Lane NB	57.8	5	59.1	5	62.0	5.1
Newgate Lane SB	3.9	5.2	3.9	5.3	4	5.3

3. ASSUMPTIONS

3.1.1 Given the short timescales to complete the assessment for the approximation of the impact of signals or the toucan crossing, the calculations of revised benefits come with a set of assumptions and caveats;

- Full demand model runs adding the different signal options were *not* undertaken, therefore the impact of any mode shift or re-routing of traffic has not be captured in this assessment.
- The modeling runs from the Solent Transport Sub-regional Transport Model (SRTM) undertaken for the original calculation of the BCR were used to extract demand. Option DS2b, model run ARI vs the Do Minimum (ARH) has been used to determine AM, IP and PM flow difference. This run does not include the development housing options of 75, 11 or 190 households. Therefore, all calculations include 'no development' demand with only adjustments to the delay per vehicle as provided by HCC for the development scenarios.
- Demand is taken from the 2019 and 2036 SRTM model runs, and linear growth is assumed between 2019 and 2036, and no further growth in demand after 2036 (this is consistent with the 2014/15 analysis). Demand is split by 4 user classes: Work, Non-Work, LGV and HGV
- The existing model scenario does not sufficiently represent the Old Newgate Lane/Newgate Lane East junction, so the delays exiting Old Newgate Lane have not been included in the calculation and therefore the disbenefits of the signal options are underestimated. Delays on Newgate Lane East are captured fully.

- Benefit calculations are in line with TUBA 1.9.5, which references WebTAG Databook, November 2014. Consistent with the original Benefit calculations in 2014/15.
- The original benefit calculation only included benefits from the Fareham and Gosport modelled areas to exclude model noise. The adjustment does not remove benefits/trips from the area outside these locales, but a select link on the two-way approach to the roundabout suggests all demand on this link is travelling within these two areas.
- The assumed opening year is 2015. This assumes both the signal options are completed along-side the original interventions modelled in 2014/15 and only in the Do Something.
- Occupancy and purpose split are calculated at an average 12-hour level.
- No costs for the inclusion of either the signals or toucan crossing have been included in the PVC.
- Where the information was available, inter peak delay was included. The scenarios missing the IP data assumed a delay for the IP proportional to the AM peak. This was determined by reviewing modelled signals on Newgate Lane.
- No accounting for change in greenhouse gasses, operator benefits, or taxes has been made here – but the impact is considered to be minor in this instance.
- As per the original 2014/15 application, all monetary values reported are for a full 60-year appraisal period and discounted to 2010 prices.

3.1.2 On balance these assumptions are not expected to have a significant impact on the revised BCR figures and the approach taken is considered reasonable for forecasting the revised BCR.

4. RESULTS AND CONCLUSION

4.1.1 Results for the scenarios with 75, 115 and 190 households are shown in Tables 3 to 5.

4.1.2 The Department for Transport Value for Money Framework sets out categories to classify a standard scheme Value for Money. The categories are shown in the table below.

Box 5.1 Standard Categories
(Transport cost outlays exceed revenues or cost savings)

VfM Category	Implied by…*
Very High	BCR greater than or equal to 4
High	BCR between 2 and 4
Medium	BCR between 1.5 and 2
Low	BCR between 1 and 1.5
Poor	BCR between 0 and 1
Very Poor	BCR less than or equal to 0

**Relevant indicative monetised and/or non-monetised impacts must also be considered and may result in a final value for money category different to that which is implied solely by the BCR. This chapter provides guidance on how to select the final value for money category.*

(https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/918479/value-for-money-framework.pdf)

4.1.3 With the original BCR calculation of 1.88, the Newgate Lane scheme was within the Medium value for money category. The original BCR was driven predominantly by benefits in the PM period, with 67% of the benefits coming from this time period. Therefore, any significant delay to traffic in the PM period will have a noticeable effect on the BCR.

4.1.4 The individual schemes additional delay drop all the BCRs to below 1.5, with the Toucan crossing options modelling having the most significant impact, dropping the BCR below 1, due to the combination of high delay per vehicle in the PM peak (see Table 1) and high PM peak flow.

4.1.5 After the inclusion the Toucan crossing options, the adjusted BCR falls into the Poor Value for Money category.

4.1.6 Combining the options to include both the signals and toucan crossing drops the BCRs further below 1 and all combinations reside in the Low category.

Table 3. Adjusted Benefits with 75 Households Assumed (£m, 2010 prices)

	APPELLANT SIGS	HA SIGS	'18 TOUCAN	'24 TOUCAN	APPELLANT SIGS + TOUCAN ('18)	APPELLANT SIGS + TOUCAN ('24)	HA SIGS + TOUCAN ('18)	HA SIGS + TOUCAN ('24)
Original PVB (£m)	£19.9	£19.9	£19.9	£19.9	£19.9	£19.9	£19.9	£19.9
Original PVC (£m)	£10.6	£10.6	£10.6	£10.6	£10.6	£10.6	£10.6	£10.6
Original BCR	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88
Adjustment (£m)	£4.24	£4.30	£10.62	£11.66	£14.86	£15.90	£14.92	£15.97
Adjusted PVB (£m)	£15.66	£15.60	£9.28	£8.24	£5.04	£4.00	£4.98	£3.93
Adjusted BCR	**1.48**	**1.47**	**0.88**	**0.78**	**0.48**	**0.38**	**0.47**	**0.37**

4.1.7 Increasing the number of households built, and therefore the average delay per vehicle due to the additional volume of traffic, pushes the BCR down further in each scenario as shown in Table 4 and 5, although the additional impact is relatively small.

Table 4. Adjusted Benefits with 115 Households (£m, 2010 prices)

	APPELLANT SIGS	HA SIGS	'18 TOUCAN	'24 TOUCAN	APPELLANT SIGS + TOUCAN ('18)	APPELLANT SIGS + TOUCAN ('24)	HA SIGS + TOUCAN ('18)	HA SIGS + TOUCAN ('24)
Original PVB (£m)	£19.9	£19.9	£19.9	£19.9	£19.9	£19.9	£19.9	£19.9
Original PVC (£m)	£10.6	£10.6	£10.6	£10.6	£10.6	£10.6	£10.6	£10.6
Original BCR	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88
Adjustment (£m)	£4.37	£4.45	£10.62	£11.89	£14.99	£16.26	£15.07	£16.34
Adjusted PVB (£m)	£15.53	£15.45	£9.28	£8.01	£4.91	£3.64	£4.83	£3.56
Adjusted BCR	**1.47**	**1.46**	**0.88**	**0.76**	**0.46**	**0.34**	**0.46**	**0.34**

Table 5. Adjusted Benefits with 190 Households Assumed (£m, 2010 prices)

	APPELLANT SIGS	HA SIGS	'18 TOUCAN	'24 TOUCAN	APPELLANT SIGS + TOUCAN ('18)	APPELLANT SIGS + TOUCAN ('24)	HA SIGS + TOUCAN ('18)	HA SIGS + TOUCAN ('24)
Original PVB (£m)	£19.9	£19.9	£19.9	£19.9	£19.9	£19.9	£19.9	£19.9
Original PVC (£m)	£10.6	£10.6	£10.6	£10.6	£10.6	£10.6	£10.6	£10.6
Original BCR	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88
Adjustment (£m)	£4.57	£4.69	£10.62	£12.42	£15.19	£17.00	£15.31	£17.11
Adjusted PVB (£m)	£15.3	£15.21	£9.28	£7.48	£4.7	£2.90	£4.59	£2.79
Adjusted BCR	**1.45**	**1.44**	**0.88**	**0.71**	**0.44**	**0.27**	**0.43**	**0.26**

4.1.8 Incorporating signals, the toucan crossing or a combination of the two has a detrimental impact on the original scheme BCR with all levels of development moving all the BCR into the Low Value for Money category.

APPROVAL

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1	Author	Liz Hensby	Associate	16/11/2020	
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