

## **8.0 Low Cost Option**

### **8.1 Scheme Description**

- 8.1.1 Consideration has been given to ways of satisfying the objectives of the scheme at a considerably reduced cost. A preferred option was derived from numerous alternatives on the basis that it addressed the transport and wider problems identified in Hucknall town centre and most closely supported the objectives set out by the New Approach to Transport Appraisal (NATA). Each of the alternative schemes that were designed and which broadly met the objectives of NATA were rejected following consultation with major stakeholders and the general public rendering the schemes untenable (See Chapter 5.0).
- 8.1.2 Removal of traffic from the busiest section of High Street is a key element in addressing the traffic problems and halting the economic decline that Hucknall town centre is experiencing. The introduction of a pedestrianisation scheme to the core shopping area is essential in underpinning the design of any low cost alternative scheme. Traffic generated from new housing development sites in the area is already starting to impact on the town centre with increasing levels of congestion, and this combined with future displaced traffic, if the High Street were to be pedestrianised, would have a catastrophic effect on levels of traffic on the remaining road network.
- 8.1.3 Therefore, for a scheme design to have the potential to deliver tangible benefits to Hucknall town centre, the introduction of a pedestrianisation scheme to the High Street, combined with the construction of a short length of inner relief road, including a 'bus plug' feature, would be necessary. To fulfil the NATA objectives adequately at a lower cost leaves an alternative scheme which is essentially the same as the preferred option in layout but designed and developed to a lower quality specification.
- 8.1.4 The low cost alternative consists of a pedestrianisation scheme to the High Street between the Baker Street/South Street junction and Watnall Road junction, construction of a proposed inner relief road including a 'bus plug' and upgrading the existing roundabout to traffic signals at the junction of Station Road/Linby Road/Ashgate Road. This would provide a suitable scheme that delivers the transport benefits that Hucknall needs without a high standard of aesthetic improvements and design refinements.
- 8.1.5 Consideration has been given to the reduction of the engineering standards of the new relief road or the form and size of its terminal junctions. It has been concluded that neither would be appropriate. The proposed new carriageway is only being constructed as a 7.3m wide single carriageway road and a lesser standard would be inconsistent with the roads to which it connects and the needs of the likely traffic demands.
- 8.1.6 An assessment of whether it would be possible to retain the roundabout at the junction of Station Road / Linby Road / Ashgate Road (i.e. to reduce the costs of providing traffic signals) has been undertaken and it has shown that there is insufficient stacking space between this junction and the proposed relief road junction such that there would be regular occasions when traffic from one junction would block

back through the adjacent junction to the detriment of the safe and expeditious movement of traffic.

- 8.1.7 A potential cost saving has been considered by replacing the proposed Baker Street / relief road traffic signals with a mini roundabout, however this would have a detrimental impact on pedestrians and public transport operators alike who would lose the positive provision that would be included in the signal layout.
- 8.1.8 Reducing the costs of high quality materials can be achieved by specifying materials that meet basic standards but do not add value in terms of their visual appearance or sustainability. Sustainability may be compromised due to budgetary constraints when attempting to procure more environmentally-friendly, recycled products or products generated through the use of renewable resources. This may have an adverse longer term impact on the frequency and level of maintenance costs over the lifecycle of a low cost alternative scheme.
- 8.1.9 In engineering terms the design would comply with the standards set by the “Design Manual for Roads and Bridges” (DMRB) but time associated with efforts to optimise the design beyond basic standards would be minimised in order to reduce expenditure.
- 8.1.10 A drawing of the low cost alternative has not been deemed necessary at this stage as the scheme layout is identical to the preferred option. The majority of cost reducing savings that could be achieved would occur through detailed design and would be reflected in the drawings at this later stage.

## **8.2 Operational Overview**

- 8.2.1 The traffic and safety benefits of both the low cost alternative and the preferred option are identical. The dissimilarities occur from the difference in regeneration and quality of life benefits that may be achieved by either scheme.
- 8.2.2 Although the lower cost alternative has the potential to address the majority of the objectives that the scheme seeks to provide, the environmental benefits and journey ambience improvements would be far less than those likely to be achieved by the preferred scheme. These benefits have not been ascribed a monetary value and the following economic appraisal therefore flatters the low cost alternative vis a vis the preferred scheme.

## **8.3 Cost Estimate/Profile**

- 8.3.1 The cost estimate has been undertaken by Council's consultant Jacobs and a summary of the detailed cost is given in Table 8.3a below. The cost estimate for the low cost alternative includes for reductions in both the quality of materials used and a reduction in the area to be treated as explained in paragraph 8.1.8. Significant reductions in cost can be achieved if the pedestrianisation works to the High Street are all but removed and if the bus canopy were no longer provided.

**Table 8.3a: Scheme Costs Summary**

(2007 Quarter 2 prices)

**Low Cost Alternative**

<b>Total Works Costs (from Table 8.3b)</b>	3501
Accommodation	150
& Landscaping Works	75
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<b>Contract works cost</b>	<b>3726</b>
Supervision	400
Testing	25
Topographical survey	20
Soil and drainage surveys (2.5%)	93
<b>Works Total (1)</b>	<b>4265</b>
Publicity	50
Public Inquiry (1.5%)	64
Land / SRO plans (1%)	43
Part 1 claims	200
Design Fees (9%)	384
<b>Fees Total (2)</b>	<b>740</b>
Land purchase	
Council owned land	1820
Property to be acquired	1258
Land fees	189
<b>Total (3)</b>	<b>3267</b>
Risk allowance	787
<b>Total (4)</b>	<b>787</b>
<b>Grand Total (1+2+3+4)</b>	<b>9059</b>

Excludes optimism bias

**Table 8.3b: Construction Cost Estimate - Low Cost Alternative**

	Quantity	unit	rate £	cost £,000
Proposed Carriageway (new)	6077	m2	77	468
Proposed Carriageway (overlay)	5285	m2	57.2	302
Proposed Footway	2655	m2	53.9	143
Proposed cycleway / footway	2280	m2	53.9	123
Proposed Highway verge / landscape area	4223	m2	11	46
Proposed retaining wall	136	m2	660	90
Proposed culvert	68	m2	2500	170
Area of pedestrianisation	0	m2	57	0
Area of improvement	1150	m2	35	40
Enhanced pedestrian cycle route	1265	m2	18	23
Bus canopy		item		0
Baker Lane Brook diversion	40	m2	1150	46
Signalised junction installations		item		471
Demolition / site clearance		item		95
Signing / lining		item		90
Statutory undertakers diversions		item		450
Street Lighting		item		106
Offline TM measures		item		30
<b>Sub Total</b>				2693
Preliminaries		30%		808
Construction Cost	<b>TOTAL</b>			3501

- 8.3.2 The cost estimate produced at the preliminary design stage is based on recent tender prices for similar local contracts and is given at current prices (2007 Quarter 2). The derivation of the expected cost reflects the risk assessment that has been undertaken, see Chapter 13.0 for details.
- 8.3.3 The anticipated capital cost of constructing the low cost alternative is £9,059,000 at current prices.
- 8.3.4 The outturn costs by year, including the bid costs from central Government are given in Table 8.3c. It can be seen that the outturn cost is estimated at £ 11,364,000, of which £8,991,500 would need to be funded from the Government. The net cost requiring local transport funding represents 79% of the total project cost. The remaining 21% would be funded by the County Council. There are not expected to be any developer contributions forthcoming for this low cost project, see paragraph 8.6 for details.
- 8.3.5 The Present Value Cost calculations for the low cost alternative are given in Tables 5, 6 and 7.

**Table 8.3c Outturn Costs**

<b>Outturn Prices</b>	Pre 07/08	07/08	08/09	09/10	10/11	11/12	Total (£)
DfT Funding	0	77,500	99,000	127,000	3,794,000	4,894,000	8,991,500
NCC Funding	1,820,000	77,500	99,000	127,000	49,000	200,000	2,372,500
Developer Contributions	0	0	0	0	0	0	0
<b>Totals (£)</b>	<b>1,820,000</b>	<b>155,000</b>	<b>198,000</b>	<b>254,000</b>	<b>3,843,000</b>	<b>5,094,000</b>	<b>11,364,000</b>

## 8.4 Risk Assessment and Risk Register

8.4.1 A full risk assessment of both the preferred option and low cost alternative revealed no difference in risks to scheme delivery between each alternative. A quantified risk assessment (QRA) has been carried out by Nottinghamshire County Council's Highway Design Group to assign monetary values attributable to each risk. These values are included in a Risk Register which is enclosed in Appendix C. Details of key project risks identified by the Risk Register are discussed in Chapter 13.0.

## 8.5 Economic Results

8.5.1 The benefits of the scheme comprise savings in travel time, user costs and accidents as per the preferred option and explained in full in the Economic Appraisal Report. The difference between the two projects in monetised cost / benefit terms is the cost element only.

8.5.2 The main components of the economic evaluation are summarised in Tables 8, 9 and 10 i.e. the Transport Economic Efficiency (TEE), Public Accounts (PA) and Analysis of Monetised Costs and Benefits (AMCB).

8.5.3 The results show an expected Present Value of Benefits (PVB) of £78,595,000, a Present Value of Costs (PVC) of £7,445,000 and a Net Present Value (NPV) of £71,150,000. The Benefit to Cost Ratio (BCR) is calculated at 10.56. The Value / Cost to Government Ratio (VCGR) of the scheme is 9.56. These results exclude Optimism Bias, see paragraph 13.12 for details.

8.5.4 A comparison of the economic results with the preferred scheme shows that the low cost option would in fact give a marginally higher PVB and slightly lower PVC than the preferred scheme. In conclusion the BCR is 10.56 compared to 10.32 for the preferred scheme. There is very little difference between the two in economic terms and it is not considered a significant enough difference to justify the choice in favour of the low cost alternative.

8.5.5 Although these results have captured the most prominent project costs and benefits there would like the preferred scheme be wider economic regeneration impacts

arising from inward investment, particularly in the retailing sector. However the low cost alternative would be delivered on a significantly reduced budget and deliver an inferior product when compared to the preferred scheme. As such it is reasonable to assume that the regeneration benefits which may flow from the low cost alternative may be less or slower to arise than in the case of the preferred scheme.

- 8.5.6 In terms of the quality of both pedestrian and public transport facilities the low cost alternative is inferior to the preferred scheme. Unfortunately it has not proved possible to ascribe a monetary value to this difference in scheme quality between the two scheme options.
- 8.5.7 Table 11 is the assessment summary table for the low cost alternative and presents the summary findings against the Government's 5 over-arching criteria for transport appraisal. This shows that the low cost alternative would give a neutral impact on a wide range of environmental, safety and accessibility objectives and would not achieve the same level of benefits as the preferred scheme in respect of townscape, journey ambience, wider economic impacts and transport interchange (bus facilities).

## **8.6 Supporting Analyses – Low Cost Option**

- 8.6.1 The low cost alternative would need to be undertaken with the full support of the Ashfield District Council which is a key stakeholder in this project. The District Council support for a scheme which removes the traffic from the retail hub but leaves the existing street scene largely unchanged is not likely to be forthcoming. The District Council have recently invested heavily in environmental improvements around the market place and to undertake a 'cheap and cheerful' improvement of the High Street would be out of keeping with local aspirations. As a consequence their contribution of monies (developer contributions taken by the Local Planning Authority) towards the overall project cost is not likely to be forthcoming, should it be decided to pursue a low cost alternative. Furthermore the County Council may not wish to promote a scheme which did not have the support of the local Council.