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

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## Revised PT Option economic appraisal and breakdown of benefits

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Planning Act 2008

Infrastructure Planning

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

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## 1. Revised PT economic appraisal

### 1.1 Revisions to the appraisal

- 1.1.1 Problems were identified with the economic appraisal of the Public Transport Option reported in Appendix B of the Traffic and Economic Appraisal of NDR Alternatives (Document Ref. 5.12). These affect the public transport benefits reported. These problems were due to incorrect units used in transferring the bus journey times from the model to the appraisal and some public transport fares on links not being captured in the extraction for the appraisal. The economic appraisal has been rerun and the consequential amendments to Option B (Chapter 10) are shown below.

### 1.2 Appendix B – Public Transport (PT) Option

#### **Methodology**

No change

#### **Description of the PT Option**

No change

#### **PT Option Costs**

No change

#### **Traffic Analysis Results**

No change

#### **Junction Analyses**

No change

#### **Safety Analysis Results**

No change

#### **Economic Analysis Results**

- 1.2.1 Table 1 on the next page compares monetised costs and benefits including accident benefits for PT Option against the DCO scheme.

**Table 1: Analysis of Monetised Costs and Benefits – PT Option**

Item	Accidents Included (£000)	
	DCO	PT Option
Accidents (not assessed by TUBA)*	41,219	-11,718
Greenhouse Gases**	-22,756	-5,431
Economic Efficiency: Consumer Users (Commuting)	51,164	24,729
Economic Efficiency: Consumer Users (Other)	380,623	558,804
Economic Efficiency: Business Users and Providers	267,797	-700,988
Wider Public Finances (Indirect Taxation Revenues)	55,270	43,478
Present Value of Benefits (PVB)	773,317	-91,126
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Broad Transport Budget Present Value of Costs (PVC)	185,542	26,611
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OVERALL IMPACTS		
Net Present Value (NPV)	587,775	-117,737
Benefit to Cost Ratio (BCR)	4.168	-3.424

Notes: All monetary values are expressed in 2010 prices discounted to 2010

\*Detailed summary results can be found in Section 6. The lower conservative accident benefit is included based upon the use of local accident data, as explained in section 7 of Reference Document 5.7

\*\*Greenhouse gas impacts were calculated using TUBA1.9.2 since there was a bug in TUBA 1.9.1

1.2.2 The results show that the Present Value of Benefits (PVB) of the PT Option is estimated to be £-91m (inclusive of accident benefits). A major factor in this is the private sector costs which TUBA allocates as negative benefits rather than costs to public accounts as they are private sector funded. This includes the costs of the developer link roads and the additional bus services which amount to -£502m. The transport economic efficiency benefits comprise benefits of the extended link roads and the bus services with the effects of introducing city centre traffic management measures. Set against these PVB results is the £27m Present Value of Costs (PVC) to public accounts.

1.2.3 The Benefit Cost Ratio (BCR) of PT Option is -3.42 including accidents which does not represent good value for money.

1.2.4 Table 2 below compares summary economic appraisal results including wider impacts and journey time reliability for PT Option against the DCO scheme.

Table 2: Summary of Economic Appraisal including Wider Benefits – PT Option

Item	Scenario also including WEBs and JTR (£000)	
	DCO	PT Option
Present Value of Benefits (PVB)	989,063	-405,235
Present Value of Costs (PVC)	185,542	26,611
Net Present Value (NPV)	803,521	-431,846
Benefit to Cost Ratio (BCR)	5.331	-15.23

Notes: All monetary values are in £000's and expressed in 2010 prices discounted to 2010

1.2.5 The BCR of the PT Option deteriorates even further to -15.23 once journey time reliability benefits (£-30m) and wider economic benefits (£-284m) are included in the appraisal. These additional dis-benefits have been derived from the highway model and amount to £-314m (2010 prices discounted to 2010) and thus account for the impacts of the changes to the highway network, especially the city centre measures. The inclusion of these dis-benefits result in a more negative BCR although it should be noted that the BCR is not a meaningful term when the benefits are negative.

1.2.6 The economic appraisal results highlight that the performance of the PT Option is especially poor and does not offer good value for money. It should be noted however that the appraisal has not attempted to assess any development benefits that may arise with the link roads.

## Conclusion

1.2.7 **PT Option** (PT improvements and developer link roads) fails to reduce traffic on inappropriate routes and relieve the existing network. Whilst it includes the improvements to PT services and city centre traffic management measures the reductions of cross city centre traffic are much smaller compared with the DCO Scheme, especially for trips crossing the Outer Ring Road Cordon. The junction analyses show that the junctions between the developer link roads and North Walsham Road and Wroxham Road would operate substantially over their theoretical capacity with long queues and delays, with delays of over 9 minutes in the 2032 AM peak and 4 minutes in the 2032 PM peak. On these grounds the developer link roads would not operate satisfactorily and they would cause particularly severe difficulties in implementing the proposed shared use high street-type design envisaged in the development proposals. The delays would also mean that the PT Option would fail to meet the improved transport connectivity objective for the Scheme. The economic

appraisal results highlight that the performance of the PT Option is especially poor and does not offer good value for money. The calculated BCR is -3.42 with accidents included and even worse with JTR and WEBs giving -15.23, although the BCR is not a meaningful term when the benefits are negative.

## 2. Further breakdown of PT Option benefits

2.1.1 The breakdown of benefits are extracted from the Transport Economic Efficiency (TEE) table of TUBA and reported below in Table 3. This shows the benefits split between road and bus modes and also shows the private sector provider impacts separately from the business (user) impacts which are combined under Economic Efficiency: Business Users and Providers in the TUBA table Analysis of Monetised Costs and Benefits (Table 1).

Table 3: Transport Economic Efficiency (TEE)

Item	Benefit (£000s)		Road	Bus	
	All Modes				
Consumer - Commuting user benefits					
Travel Time	38,170		-20,293	58,463	
Vehicle operating costs	-11,863		-11,863	0	
User charges	-1,579		-626	-953	
During Construction & Maintenance	0		0	0	
<b>NET CONSUMER - COMMUTING BENEFITS</b>	<b>24,729</b>		<b>-32,782</b>	<b>57,510</b>	
Consumer - Other user benefits					
	All Modes		Road	Bus	
Travel Time	429,468		-93,104	522,572	
Vehicle operating costs	-20,270		-20,270	0	
User charges	149,606		164,731	-15,126	
During Construction & Maintenance	0		0	0	
<b>NET CONSUMER - OTHER BENEFITS</b>	<b>558,804</b>		<b>51,357</b>	<b>507,446</b>	
Business Impacts					
	All Modes	Road Personal	Road Freight	Bus Personal	Bus Freight
Travel Time	116,010	-102,121	-48,435	266,567	0
Vehicle operating costs	-17,001	-6,197	-10,804	0	0
User charges	2,392	2,733	0	-341	0
During Construction & Maintenance	0	0	0	0	0
<b>Sub Total</b>	<b>101,401</b>	<b>-105,585</b>	<b>-59,240</b>	<b>266,225</b>	<b>0</b>
Private Sector Provider Impacts					
Revenue	-300,357		-94,915	-205,442	
Operating costs	0		0	0	
Investment costs	-502,032		-20,355	-481,677	

Item	Benefit (£000s)		
	All Modes	Road	Bus
Grant/subsidy	0	0	0
Sub Total	-802,389	-115,270	-687,119
Other business Impacts			
Developer contributions	0	0	0
<b>NET BUSINESS IMPACT</b>	<b>-700,988</b>		
<b>TOTAL</b>			
Present Value of Transport Economic Efficiency Benefits (TEE)	-117,455		

Notes: All monetary values are in £000's and expressed in 2010 prices discounted to 2010



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