

Option		Description	Problems	Present Value cost to Government
A421 Great Barford Bypass		7.7km long all-purpose 2-lane dual carriageway, with 120kph design speed. Great Barford Bypass would link to A421 Bedford Southern Bypass removing a roundabout. There would be a new grade separated junction to A428 at Water End and a revised and improved at-grade roundabout with the A1 at Black Cat.	Traffic congestion and high accident frequency on existing A421, along with air quality and traffic noise problems deteriorating quality of life for villagers in Great Barford and Roxton. 23,000 vpd (15% HGV)	£30.9M (2002 Market Prices) August 2004 Estimate
OBJECTIVE	SUB OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE MEASURE	ASSESSMENT
ENVIRONMENT	Noise	Removal of through traffic from existing A421 through village of Great Barford and further away from the village of Roxton to a route away from concentrations of sensitive receptors. The bypass would be constructed with a quieter surface.	348 people experience a decrease in noise level. 19 people experience an increase in noise level. (The above figures are based on an average occupancy of 2.4 people per property.)	Net 333 people benefit (The above figures are based on an average occupancy of 2.4 people per property.)
	Local Air Quality (LAQ)	Removal of through traffic from existing A421 through village of Great Barford and further away from the village of Roxton to a route away from concentrations of sensitive receptors.	LAQ is improved at 504 properties and worsened for 2 properties.	Weighted difference in PM ₁₀ -1120 Weighted difference in NO ₂ -8715
	Greenhouse Gases	The benefits of relieving congestion are outweighed by higher average speeds on the bypass resulting in a 2.9% increase in carbon dioxide emissions.	-	Total change in CO ₂ emissions +3,320 tonnes due to scheme.
	Landscape	<i>No designated landscapes are affected. One local distinctive landscape would be adversely affected and three would be beneficially affected. The bypass would generally affect a large scale intensively farmed arable area of ordinary quality. Howbury Hall parkland would lose 3ha to the scheme.</i>	-	Slight Adverse
	Townscape	Significant traffic reduction in Great Barford and north of Roxton restoring a more rural village environment.	-	Moderate Beneficial
	Heritage of Historic Resources	Severance of nine areas of archaeological significance inevitable, agreed programme of further investigation proposed. Minor adverse effects on four listed buildings outweighed by greater gains adjacent to the existing road. Two SAMs located within 500m of the proposed route would not be materially affected by the Bypass.	-	Slight Adverse
	Biodiversity	Biodiversity value of the proposed route corridor generally low, due to predominance of intensively managed arable land of minor ecological value. Some protected species necessitate mitigation.	-	Neutral
	Water Environment	Only minor water courses to be crossed by the proposed scheme. Balancing facilities would control runoff rate and provide spillage containment.	-	Neutral
	Physical Fitness	No significant changes in numbers of pedestrians and cyclists envisaged. Removal of through traffic from Great Barford may encourage more walking due to the improved road safety. Not fully assessed.	Potential increase in number of pedestrians/cyclists in Great Barford not estimated.	Neutral
Journey Ambience	Reduced stress and wider views for vehicle travellers.	-	Beneficial	
SAFETY	Accidents	Reduced accidents.	Saving 152 PIAs. Casualty reductions of 19 Fatal, 94 Serious and 226 Slight ..	Present Value of Benefits (PVB) £27.881 Million in 2002 prices. Moderately Beneficial
	Security	No major change in facilities or surveillance. Emergency phones would be installed on the bypass (lay-bys).	-	Neutral
ECONOMY	Public Accounts	Central Government investment costs only. PVC is net of indirect tax revenues. Existing A421 is of sound condition therefore no major maintenance costs assumed.	Central Government PVC = £30.928 Million. Local Government PVC = £0 Million .	Present Value of Costs (PVC) £30.9 Million in 2002 prices
	Transport Economic Efficiency: Business Users & Transport Providers.	Positive net impact on business.	Users PVB = £112.206 Million Transport Providers PVB = -£0.712 Million Other PVB = £0 Million	Present Value of Benefits (PVB) £111.494 Million in 2002 prices.
	Transport Economic Efficiency: Consumers	Positive net impact to consumers.	Users PVB = £105.324 Million over 60 years..	Present Value of benefits (PVB) £105.324 Million in 2002 prices.
	Reliability	Greatly improved reliability for trunk road and local traffic.	am Peak Route Average stress difference (2020 Central Growth) 125% - 75% = 41%; Score = 2.1 Million	Moderately Beneficial
	Wider Economic Impacts		Serves designated regeneration area? No	Neutral
ACCESSIBILITY	Option Values	Parallel road corridor offers negligible modal change. Not fully assessed.	Great Barford parish population 1820, Roxton parish population 1210 (2001 Census data)	Neutral
	Severance	Significant benefit to the population of Great Barford. Residents of all the local communities would be segregated from the trunk road traffic at crossing points.		Beneficial
	Access to the Transport System	Access to other modes of transport aside from road transport not assessed. Number of households with cars not assessed.	N/A	N/A
INTEGRATION	Transport Interchange	New or changed transport interchange not features of the scheme.	-	Neutral
	Land-Use Policy	Generally compliant with national, regional and local land-use and transportation plans and policies. No significant non-compliances identified.	-	Neutral
	Other Government Policies	No significant issues identified. Environmental improvement for rural community (Rural Proofing).	-	Neutral

A421 Great Barford Bypass – Appraisal Summary Table (AST) According to GOMMMS Methodology