

Appraisal Summary Table		Date produced:	27/11/2017	Contact:						
Name of scheme:	A47 Wansford to Sutton Dualling - Option 3			Name	Brian Smith					
Description of scheme:	This option relates to the A47 between the A1 and Sutton. The section of single carriageway between Wansford and Sutton would be improved to current dual carriageway standard. The western end of Option 3 incorporates a free flow link from A1 South to A47 East. The alignment of the new dual carriageway would be offline to the North of the existing A47.			Organisation	Amey					
				Role	Transport Planner					
Impacts	Summary of key impacts	Assessment								
		Quantitative			Qualitative	Monetary £(NPV)	Distributional 7-pt scale/ vulnerable grp			
Economy	Business users & transport providers	The scheme results in significant journey time benefits for most users. At 2036 traffic levels the scheme benefits all journeys from the A1 north by up to 8 minutes, from the A47 west by up to 11 minutes and from Sutton Heath Road by up to 8 minutes. 57% of Transport Economic Efficiency (TEE) falls on business users. The link length from Wansford to Sutton in Option 3 is intermediate between those of Options 1 and 3 and therefore so is the TEE benefits.	Value of journey time changes(£)	£145.3m		Large Beneficial	£145.3m	Benefits are proportional to deprivation decile for all users		
	Net journey time changes (£)									
	0 to 2min			2 to 5min	> 5min					
	£33.1m			£39.6m	£72.5m					
	Reliability impact on Business users	Reliability impact cannot be quantified for a rural single carriageway using MyRIAD or methodologies from WebTAG Unit A1.3. Qualitative scores have been based on day-to-day variability (DDV) calculated in WebTAG's Scheme Assessment Report (SAR) Worksheet and incident-related variability (IRV) calculated from the COBALT accident analysis. The scheme results in additional link capacity on the A47 and junction capacity at Wansford; the dual carriageway also improves route resilience so the effect on reliability is positive.	DDV: 8,095 PCU per week benefit from congestion relief in opening year. IRV: 1,694 accidents prevented over appraisal period			Large Beneficial				
	Regeneration	The expected journey time benefits are likely to support planned regeneration in the Peterborough area, with associated reductions in unemployment levels.				Slight Beneficial				
	Wider Impacts	Reductions in user costs through journey time improvements will allow companies to profitably increase output. This output change owing to imperfect competition provides an economic benefit estimated at 10% of all journey time benefits for business users as per WebTAG A2.1 Paragraph 4.1.9. There will be a slight economic benefit for the wider area.				Slight Beneficial	£14.5m			
Environmental	Noise	Option 3 is predominantly offline and is located approximately 50m to the north of the existing A47. Option 3 moves the A47 traffic around 40m to the north of the existing A47 thereby potentially causing a reduction in noise levels at some representative receptors to the south of the existing A47 while increasing noise levels at some representative receptors to the north of the A47. The significance of effect for Option 3 is also expected to be between neutral and slight adverse as the proposals are expected to cause an increase in noise levels at sensitive receptors already above the Significant Observed Adverse Effect Level (SOAEL).	Households experiencing increased daytime noise in forecast year: 84 Households experiencing reduced daytime noise in forecast year: 2 Households experiencing increased night time noise in forecast year: 59 Households experiencing reduced night time noise in forecast year: 1			Slight Adverse	Cost £0.5m	Moderate adverse for vulnerable groups		
	Air Quality	Option 3 is considered to be the least favoured option because it would require the removal of R6 (Old Station House) on Sutton Heath Road where a major adverse impact is predicted. There are exceedances of the Air Quality Strategy objective for NOx predicted in the Sutton Heath and Bog Site of Special Scientific Interest (SSSI). Option 3 provides the lowest net route assessment because it has one fewer receptor than options 1 and 2 in the 150-200m. The overall impact is assessed as slight adverse.	Assessment Score PM10 = +51 NOx = -43  Emissions NOx (opening year) = 52.9 tonnes NOx (opening year change) = -3.4 tonnes			Slight Adverse	Cost £0.1m	For the opening year, there are adverse impacts for NO2, and beneficial impacts for PM10 in the 60-80% quintile and the 80-100% quintile. The presence of adverse effects in the higher category can have a disproportionate adverse impact on the lower category. This results in an overall neutral impact for this assessment year. For the operational year, there are beneficial impacts only for NO2 to the 80-100% quintile. This is offset by adverse impacts in all other categories and quintiles. This results in an overall moderate adverse impact for this assessment year. Adverse effects within the study area have a disproportionate effect on the young population in the area due to their increase vulnerability. The overall impact is moderate adverse.		
	Greenhouse gases	Greenhouse gas emissions are related to traffic flows and traffic speed, based on the amount of fuel consumed and the amount of vehicle kilometres travelled. Whilst traffic volumes and speed are expected to increase as a result of the option, congestion would be reduced. It is considered unlikely that there would be any significant change in the emissions of greenhouse gases.	Change in non-traded carbon over 60y (CO2e)	Not yet calculated		Neutral	Not calculated at this stage			
				Change in traded carbon over 60y (CO2e)	Not yet calculated					
		Landscape	Option 3 goes entirely offline within land to the north of the existing A47, affecting mostly arable fields in addition to hedges and small areas of woodland. In the context of national and local landscape character the option will result in impacts within a very small geographical area that will not affect key characteristics to the degree that distinctiveness or identity of character areas will be significantly affected.				Slight Adverse			
		Townscape	All options are located to the east of the A1, so the changes will not have an effect on Wansford; and none of the options will affect the physical townscape of Sutton.				Neutral			
		Historic Environment	Option 3 will have a direct adverse impact upon the Scheduled Monument and upon other undesignated archaeological assets including those potentially of national and also of regional interest. It will have a direct impact upon the undesignated Station House. Option 3 could have an indirect adverse impact upon the settings of the Listed Buildings, though it would probably be of negligible significance. Taking into account the effects upon the archaeological resource in particular Option 3 would have an overall Large Adverse impact.				Large Adverse			
		Biodiversity	Option 3 will have a very significant direct impact on Sutton Heath and Bog Site of Special Scientific Interest (SSSI) (and associated aquatic invertebrate species including the population of Desmoulin's Whorl Snail) - this directs the requirement for Large Adverse as this is contrary to the National Planning Policy Framework, National Networks National Policy Statement and wildlife legislation.				Large Adverse			
	Water Environment	Option 3 will comprise culvert over the Wittering Brook upstream of the current A47 culvert. This will be within flood zone 2; a Flood Risk Assessment will be required but it is anticipated that culvert sizing and drainage design will ensure no increase in flooding. The culverting works associated with Option 3 are expected to have a temporary adverse impact on the aquatic ecology due to loss or changes to the local biodiversity. Overall slight adverse.				Slight Adverse				
Social	Commuting and Other users	The scheme results in significant journey time benefits for most users. At 2036 traffic levels the scheme benefits all journeys from the A1 north by up to 8 minutes, from the A47 west by up to 11 minutes and from Sutton Heath Road by up to 8 minutes. 17% of TEE falls on commuters and 26% on non-commuting consumers. The link length from Wansford to Sutton in Option 3 is intermediate between those of Options 1 and 3 and therefore so is the TEE benefits.	Value of journey time changes(£)	£101.3m		Large Beneficial	£101.3m	Benefits are proportional to deprivation decile for all users		
	Net journey time changes (£)									
	0 to 2min			2 to 5min	> 5min					
	£25.4m			£30.0m	£45.9m					
		Reliability impact on Commuting and Other users	Reliability impact cannot be quantified for a rural single carriageway using MyRIAD or methodologies from WebTAG Unit A1.3. Qualitative scores have been based on DDV calculated in WebTAG's SAR Worksheet and IRV calculated from the COBALT accident analysis. The scheme results in additional link capacity on the A47 and junction capacity at Wansford; the dual carriageway also improves route resilience so the effect on reliability is positive.	DDV: 8,095 PCU per week benefit from congestion relief in opening year. IRV: 1,694 accidents prevented over appraisal period			Large Beneficial			
		Physical activity	There is limited use of the route by non-motorised users (NMUs) at present. The detrunked A47 has the potential to improve NMu route from Wansford to Sutton, potentially attracting more users. The repositioning of Sutton Roundabout increases the journey time on the cycle route between Sutton and Upton.				Moderate Beneficial			
		Journey quality	The reduction in queues and at-grade traffic conflicts reduces both driver frustration and the fear of accidents. Provision of a dual carriageway A47 allows vehicles to overtake safely, also reducing both frustration and fear of accidents. There is a slight disbenefit in that A47 eastbound travellers can no longer access the services east of Sacrewell and must U-turn at The Drift.				Moderate to Large Beneficial			
		Accidents	The number of accidents within the scheme extents is reduced by 54%. Removing conflicts for at-grade junctions on the A47, improving the A47 alignment to a modern standard and reducing queues on the A1 southbound mainline at Wansford generates significant road user safety benefits. The benefits in Option 3 are effectively identical to those in Option 1.	191 injury accidents and 1,492 non-injury accidents prevented. 7 fatal, 42 serious and 269 slight casualties prevented			Large Beneficial	£14.5m	Greater benefits for young road users who suffer disproportionately from injuries at present	
		Security	The realigned A47 allows for slightly improved sightlines. A reduction in vehicle idling reduces vulnerability to roadside crime but the risk at present is minimal. The overall magnitude of impacts is negligible.				Neutral		No impacts on NMUs measured	
		Access to services	No changes in access to services are expected.				Neutral		No impacts on any user group	
	Affordability	Personal affordability is slightly improved as vehicle operating costs are reduced due to an overall fall in fuel use but the benefit per journey is negligible.	£0.3 million of private user VOC benefits			Neutral		Benefits per journey are negligible		
	Severance	The provision of an overbridge at Sacrewell Farm allows NMUs to safely cross the A47 and provides additional links to Peterborough, Sutton and Wansford. There is the potential to bring the old A47 alignment into use to reduce NMu severance between Wansford and Sutton.				Moderate Beneficial		Number of no-car households below average but no significant distributional impacts		
	Option and non-use values	The scheme does not involve the loss or introduction of a new mode of transport and option values are unaffected.				Neutral				
Public Accounts	Cost to Broad Transport Budget	Costs of £58.3 million (at 2010 prices and values) are estimated and account for construction, but not maintenance, of the scheme. These are met directly from central government's broad transport budget. Option 3 is the lowest cost option as it can be constructed almost entirely without interaction with the existing carriageway.	£58.3 million cost to central government's broad transport budget				Cost £58.3m			
	Indirect Tax Revenues	Indirect tax revenues to the Exchequer are increased due to overall increases in fuel use due to higher vehicle speeds.	£0.2 million benefit to wider public finances				£0.2m			