

Appraisal Summary Table		Date produced:	27/11/2017	Contact:				
Name of scheme:	A47 Wansford to Sutton Dualling - Option 2			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 2 incorporates a free flow link from A1 South to A47 East. The alignment of the new dual carriageway would be part offline to the north and part offline to the south of the existing carriageway.			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. Option 2 has the longest A47 link from Wansford to Sutton, and average journey times are a few seconds longer than in Option 1, resulting in slight reductions in benefits.	Value of journey time changes(£)	£145.0m	Large Beneficial	£145.0m	Benefits are proportional to deprivation decile for all users	
	Net journey time changes (£)							
	0 to 2min	2 to 5min	> 5min					
	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: 8,110 PCU per week benefit from congestion relief in opening year. IRV: 1,660 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	The proposed horizontal realignment associated with Option 2 is expected to result in a change in noise levels at some of the representative receptors including Deep Springs Old Leicester Road, Old Station House Sutton Heath Road and Heath House Sutton Heath Road. Option 2 moves the traffic noise source further away from Old Station House and Heath House potentially causing a reduction in noise levels at these receptors; similarly, there will be a beneficial effect at the Noise Important Area (NIA). One of the receptors (Old Station House) is potentially above the Significant Observed Adverse Effect Level (SOAEL) but Heath House is likely to be below the SOAEL. Option 2 is expected to significantly increase noise levels at the southwest façade of Deep Springs which is currently the relatively quiet façade but will become the noisy façade as a result of the proposals. The significance of effect for Option 2 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 SOAEL.	Households experiencing increased daytime noise in forecast year: 102 Households experiencing reduced daytime noise in forecast year: 1 Households experiencing increased night time noise in forecast year: 61 Households experiencing reduced night time noise in forecast year: 0		Slight Adverse	Cost £0.5m	Moderate adverse for vulnerable groups	
	Air Quality	Option 2 is considered to be the preferred option. Like option 1 the route provides no reason to acquire properties and no unacceptable exposures at new or existing sensitive receptors. The scores for option 2 are lower and this option has the highest beneficial impact of which is moderate at the commercial receptor R8 Snax 24. The overall impact is assessed as slight adverse.	Assessment Score PM10 = +72 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 2 proposes an offline realignment with land take to the south of the existing road resulting in impacts upon the River Nene valley and the long-distance walking route of Nene Way. 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.				Moderate 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 2 avoids effects upon the Scheduled Monument, but will directly impact upon undesignated potentially nationally and regionally important archaeological assets. The option will require the removal of the undesignated Royal Observer Corps bunker. It could result in a minor indirect adverse impact upon the setting of listed buildings and the Conservation Area, although overall it would probably be of slight significance. The overall impact upon the historic environment, taking into account the effects upon the archaeological resource would be a Moderate Adverse impact.				Moderate Adverse		
	Biodiversity	Option 2 has been identified as the second preferred option when considering ecological receptors. Land-take from A47/A1 Interchange Road Verges County Wildlife Site (CWS), Sutton Disused Railway CWS and Sutton Meadows North CWS is significant and likely to impact the local biodiversity of these sites resulting in an over Moderate adverse score. It is not considered that there will be any impact on the Site of Special Scientific Interest (SSSI) or associated Desmoulin's Whort Snail population. Other impacts are local and temporary.				Moderate Adverse		
Water Environment	Option 2 will result in a significant infringement into the planning flood zones alongside the River Nene, hence Option 2 could have a potential moderate adverse impact on flood risks. Proximity of earthworks and embankment construction to the River Nene increases risk of pollution events. Overall moderate adverse				Moderate 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. Option 2 has the longest A47 link from Wansford to Sutton, and average journey times are a few seconds longer than in Option 1, resulting in slight reductions in benefits.	Value of journey time changes(£)	£101.6m	Large Beneficial	£101.6m	Benefits are proportional to deprivation decile for all users	
	Net journey time changes (£)							
	0 to 2min	2 to 5min	> 5min					
	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: 8,110 PCU per week benefit from congestion relief in opening year. IRV: 1,660 accidents prevented over appraisal period			Large Beneficial		
	Physical activity	There is limited use of the route by non-motorised users (NMUs) at present. The routing of the A47 dual carriageway severs the old route so no new connectivity between Wansford and Sutton is permitted. The repositioning of Sutton Roundabout increases the journey time on the cycle route between Sutton and Upton, but most users are unaffected.				Neutral		
	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. Option 2 has the longest A47 link and because vehicles spend longer on the link, the accident rate is slightly greater than the other options.	189 injury accidents and 1,473 non-injury accidents prevented. 6 fatal, 41 serious and 266 slight casualties prevented			Large Beneficial	£14.3m	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.	£0.2 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, but the lack of an improved onward link adjacent to the A47 limits benefits. The detrunked A47 does not impact severance as it is severed where the new dual carriageway crosses.				Slight 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 £63.0 million (at 2010 prices and values) are estimated and account for construction, but not maintenance, of the scheme. These costs are met directly from central government's broad transport budget. Option 2 is intermediate in terms of cost; it is constructed offline but construction is required to cross the existing carriageway while it remains open.	£63.0 million cost to central government's broad transport budget			Cost £63.0m		
	Indirect Tax Revenues	Indirect tax revenues to the Exchequer are increased due to overall increases in fuel use due to higher vehicle speeds.	£0.3 million benefit to wider public finances			£0.3m		