

Appraisal Summary Table										Contact:																																																			
Name of scheme:		North Tuddenham Option 3								Name																																																			
Description of scheme:		A47 North Tuddenham to Easton Dualling								Organisation																																																			
										Role	Promoter/Official																																																		
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 journey time benefits for all road users with a reduction in total time travelled across the network between the Do Minimum and Do Something in both 2021 and 2036 future year scenarios. The greatest journey time savings are for trips that have a journey time of between 2 to 5 minutes but there are still savings for trips greater than 5 mins.		Value of journey time changes(£)				£70.6million																																																					
	Net journey time changes (£)																																																												
	0 to 2min			2 to 5min	> 5min																																																								
			£18,879,000	£66,183,000	£8,440,000																																																								
	Reliability impact on Business users	The scheme is expected to improve journey time reliability due to increased capacity and network resilience due to proposed A47 dualling increasing road space, better visibility and improved safety.		-			Slight Benefit																																																						
	Regeneration	The expected journey time benefits are likely to support regeneration along the A47, with associated reductions in unemployment levels.					Slight Benefit																																																						
	Wider Impacts	Not assessed					N/A																																																						
Environmental	Noise	There is an overall adverse impact to the noise environment as shown by the negative value of the NPV for change in noise.		Households experiencing increased daytime noise in forecast year: 185 Households experiencing reduced daytime noise in forecast year: 63 Households experiencing increased night time noise in forecast year: 22 Households experiencing reduced night time noise in forecast year: 17			N/A	-£109,518	Moderate adverse for vulnerable groups																																																				
	Air Quality	In the opening and assessment years, exceedances of the Air Quality Strategy objective values are not predicted at any sensitive human receptors. Overall, the scheme will lead to an imperceptible improvement in predicted NO ₂ concentrations and an imperceptible improvement in predicted PM ₁₀ concentrations across the whole study area. The highest impacts from individual road links are moderate adverse and major benefits. Specific to the assessed scenarios, the results show: Opening Year 2021: A net improvement in property weighted concentrations of NO ₂ and a net deterioration in property weighted concentrations of PM ₁₀ between the Do-Something and Do-Minimum scenarios. There is an overall increase in NO _x emissions in both the areas exceeding the limit values and the areas not exceeding the limit values. Operational Year 2036: A net improvement in property weighted concentrations of NO ₂ and net deterioration in property weighted concentrations of PM ₁₀ between the Do-Something and Do-Minimum scenarios. There is an overall increase in NO _x emissions in the areas not exceeding the limit values. Overall the impact of the scheme is considered to be minor adverse.		<table><tr><th rowspan="2">Scenario</th><th colspan="3">Properties</th><th rowspan="2">Score</th><th colspan="2">Change in Emissions (t)</th></tr><tr><th>Improvement</th><th>No Change</th><th>Deterioration</th><th>Not exceeding</th><th>Exceeding</th></tr><tr><td>NO₂ 2021</td><td>253</td><td>33</td><td>1059</td><td>-58.08</td><td></td><td></td></tr><tr><td>PM₁₀ 2021</td><td>276</td><td>0</td><td>1069</td><td>40.76</td><td></td><td></td></tr><tr><td>NO₂ 2036</td><td></td><td></td><td></td><td></td><td>9.33</td><td>0.63</td></tr><tr><td>NO₂ 2036</td><td>70</td><td>0</td><td>1275</td><td>1766.73</td><td></td><td></td></tr><tr><td>PM₁₀ 2036</td><td>526</td><td>0</td><td>819</td><td>25.95</td><td></td><td></td></tr><tr><td>NO₂ 2036</td><td></td><td></td><td></td><td></td><td>10.04</td><td>0.00</td></tr></table>		Scenario	Properties			Score	Change in Emissions (t)		Improvement	No Change	Deterioration	Not exceeding	Exceeding	NO ₂ 2021	253	33	1059	-58.08			PM ₁₀ 2021	276	0	1069	40.76			NO ₂ 2036					9.33	0.63	NO ₂ 2036	70	0	1275	1766.73			PM ₁₀ 2036	526	0	819	25.95			NO ₂ 2036					10.04	0.00	-	Present value of change in NO _x emissions: £-383,711 Present value of change in PM ₁₀ concentrations: £-86,306 Total value of change in air quality: £-450,017 (Positive values indicate a net benefit)
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	Improvement	No Change	Deterioration		Not exceeding	Exceeding																																																							
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	Greenhouse gases	Emissions of CO ₂ e are predicted to increase as a result of the scheme over Carbon Budget periods 3 and 4. The change in emissions for the opening year with the scheme in place is an increase of 11,149tCO ₂ e over the opening year without the scheme in place.		Change in non-traded carbon over 60y (CO2e)		175,118	-	Net Present value of CO ₂ e emissions of proposal: £-6,966,206 (Positive values indicate a net																																																					
				Change in traded carbon over 60y (CO2e)		0																																																							
	Landscape	The option passes to the north and south of the existing road, impinging upon the River Tud valley in the west and crossing it in the east. The option passes through a well wooded area in the northeast of the study area which has an enclosure pattern dominated by woodland and belts of trees. The introduction of infrastructure into this area will result in substantial impacts upon the quality of landscape.		N/A			Large Adverse																																																						
	Townscape	The Option will take the mainline of the A47 further away from both villages passing 0.2km to the south of Hockering and 0.5km to the north of Hoiningham. The old alignment of the A47 will remain. While there may be a discernible decrease in the amount of traffic using the old A47 alignment the overall effects on townscape character are assessed as neutral for both villages.		N/A			Neutral																																																						
	Historic Environment	Option 3 will impact upon the remains of medieval settlement, which survives as upstanding earthworks altering their overall form. It will also cut a site of Roman settlement, of medium value, as well as other archaeological features of local value. The construction of the main carriageway will sever the non designated historic parkland, Honingham Park, including key landscape features and result in the demolition of its walled garden. The large adverse effect is due to the cumulative direct and indirect impacts of the road upon the identified key heritage assets such that it will adversely affect the appreciation of the character of the parkland and its historic and aesthetic relationship with the Grade II* St Andrew's church.		N/A			Large Adverse																																																						
	Biodiversity	As a consequence of the proposed local connection to existing A47 Option 3 has a greater direct impact on Church Meadow, Alder Carr, Three Corner Thicket and Nursery Plantation pCWS than option 1. This contains elements of ancient woodland the loss of which is irreversible and not possible to mitigate. Also impacts priority habitat alongside the Tud to the west of the study area. Other impacts as a result of a new crossing of River Tud and on protected species generally is similar to other offline options: overall with mitigation - Moderate		N/A			Moderate adverse																																																						
	Water Environment	Option 3 will require two new crossings of the River Tud which will likely result in adverse impacts for surface water and aquatic ecology, particularly during construction. Option 3 has a high risk to groundwater as its alignment intercepts the groundwater SPZ on two separate occasions while also running through the groundwater NVZ. During operation, the option runs through areas designated as flood zone 3 and also intersects three areas of flood zone 2 and three points where the risk of surface water flooding is high.		N/A			Moderate adverse																																																						
Social	Commuting and Other users	The scheme results in journey time benefits for cars with a reduction in total time travelled across the network between the Do Minimum and Do Something in both 2021 and 2036 future year scenarios. The greatest journey time savings are for trips that have a journey time of between 2 to 5 minutes. Benefits are higher in 2036 than in 2021 but there are still savings for trips greater than 5 mins.		Value of journey time changes(£)				£85.9million																																																					
	Net journey time changes (£)																																																												
	0 to 2min			2 to 5min	> 5min																																																								
			£36,984,000	£74,289,000	£9,571,000																																																								
	Reliability impact on Commuting and Other users	The CRF is increased significantly due to additional running lanes in each direction and the increased capacity of each lane in one-way traffic. This more than accommodates the trip attraction due to the scheme. Resulting stress levels are below the WebTAG calculation threshold of 75%		Without scheme stress: 115% With scheme stress: 56% AADT: 48,185			Moderate benefit																																																						
	Physical activity	Journey time benefits for trips to and from Honingham and Easton		-			Slight Benefit																																																						
	Journey quality	Reduction in driver frustration and fear of accidents. Neutral impact on other aspects of journey quality		-			Moderate benefit	-																																																					
	Accidents	The scheme results show a theoretical decrease in accidents with the new dual carriageway and roundabout junction designed to modern standards and indicate a reduction in overall accidents of all types.		Predicted accident savings: Fatal: 6.83 Serious: 50.48 Slight: 137.92			Moderate benefit	£12.6million																																																					
	Security	The security impacts have been assessed based upon various security indicators looking at site perimeters, surveillance, landscaping, lighting and visibility and emergency call facilities for road users and NMU's. The assessment shows that the the scheme's security measures do not change from DM and therefore a "neutral" score has been given.		-			Neutral																																																						
	Access to services	No impacts on user accessibility					Neutral																																																						
Affordability	Personal affordability is worsened as private user costs are increased, mostly due to an overall increase in non-fuel vehicle operating costs.					Moderate adverse																																																							
Severance	The scheme has not yet been designed to a level where pedestrian provision has been finalised. However, the severance of the scheme from the proposed alignment is broadly similar to the existing situation					Neutral																																																							
Option and non-use values	The scheme does not involve the loss or introduction of a new mode of transport. Option values are unaffected.					Neutral																																																							
Public Accounts	Cost to Broad Transport Budget	Construction costs will be met directly from central government's broad transport budget.						£87.4million																																																					
	Indirect Tax Revenues	There is a small benefit to wider public finances due to increased fuel use resulting in a net increase in tax revenues.						£21.6million																																																					