

# Appendix 3D

AST



Appraisal Summary Table: Core Growth scenario		Date produced:	23-May-21	Contact:		
Name of scheme:	Norwich Western Link	Name		Organisation	Norfolk County Council	
Description of scheme:	The Norwich Western Link will comprise a new dual carriageway all-purpose road to the west of Norwich, from the A47 to the A1067/A1270, including a new viaduct bridge over the River Wensum and its floodplain. The scheme will provide a direct connection between the Strategic Road Network and the A1270 Broadland Northway through the west of Norwich. This will complete an orbital route around Norwich, which forms part of the Major Road Network.	Role				
Impacts	Summary of key impacts	Assessment				
		Quantitative	Qualitative	Monetary (£NPV)	Distributional 7-pt scale/ vulnerable grp	
Economy	Business users & transport providers	Value of journey time changes(£)		81,766,000		
		Net journey time changes (£)			£88,569,000	
		0 to 2min	2 to 5min	> 5min		
		37,958	9,860	33,950		
Regeneration	Wider Impacts	W11: Agglomeration impacts £89.26m W12: Output change in imperfectly competitive markets impacts £7.88m W13: Tax revenues arising from labour market impacts £0.33m			£97,471,000	
Environmental	Noise	Households experiencing increased daytime noise in forecast year: 33 Households experiencing reduced daytime noise in forecast year: 10 Households experiencing increased night time noise in forecast year: 3 Households experiencing reduced night time noise in forecast year: 10		NA	£38,490	Noise impacts are experienced by those in the middle income quintiles. Children and young people experience noise. Air quality impacts are experienced across all quintiles. Children and young people experience air quality benefits
		The appraisal has been undertaken using the Impact Pathways approach. Overall, with the Proposed Scheme there are modest improvements in local air quality in terms of NO2 and PM2.5 at locations with relevant human exposure. The overall monetary valuation takes into account ecosystem damage costs. No Air Quality Management Areas are included in the air quality study area. The Proposed Scheme links map onto PCM links which are all compliant with the NO2 limit value both with and without scheme. No exceedances of air quality standards are predicted.		NO2 Change in NO2 assessment score over 60 year appraisal period: -10,684.21 (between 'with scheme' and 'without scheme' scenarios). In 2025 there are 7,860 properties with improvement, 35 properties with no change, and 2,180 properties with deterioration. In 2040 there are 7,733 properties with improvement, 32 properties with no change, and 2,310 properties with deterioration. PM2.5 Change in PM2.5 assessment score over 60 year appraisal period: -1,172.63 (between 'with scheme' and 'without scheme' scenarios). In 2025 there are 8,002 properties with improvement, 6 properties with no change, and 2,067 properties with deterioration. In 2040 there are 7,747 properties with improvement, 282 properties with no change, and 2,046 properties with deterioration.	N/A	NPV of change in NO2: £9,803 NPV of change in PM2.5: £62,165 Total NPV of change in air quality: £71,968
Greenhouse gases	Greenhouse gases	Change in non-traded carbon over 60y (CO2e)		-443,429		
		Change in traded carbon over 60y (CO2e)		-13,005	£19,474,620	
Landscape	Landscape	There would be subdivision of fields, disrupting field patterns locally. There would be sections of embankment and cutting through the landscape which would affect the pattern locally but the viaduct would have a wider impact. Field patterns are easily substitutable, although loss of mature hedgerow trees would take much longer to re-establish. The viaduct across the River Wensum will introduce a new feature into this landscape and will have a significant impact on tranquillity in the north. The road will also alter tranquillity locally along its entire length, although more limited than the viaduct due to it largely being at-grade or in cutting. The alignment, which is dualled, is larger than the existing road infrastructure through this landscape and therefore out of character. There will be some loss of woodland and arable farmland altering land cover locally.		N/A	Moderate Adverse	N/A
		Townscape	Townscape	Scoped out of WebTAG and AST appraisal.		N/A
Historic Environment	Historic Environment			The Proposed Scheme would have a moderate adverse effect on the setting (context) of nearby listed buildings, and will adversely affect the appreciation and understanding of the characteristic historic environmental resource in the area of proposed road construction. The Proposed Scheme would have a low, moderate or major adverse effect on known non-designated assets. The Proposed Scheme would have a low, moderate or major direct impact on previously unrecorded significant historic environment non-designated assets, resulting in loss of features such that their integrity is substantially compromised. The heritage significance of such assets would depend on their nature, date, extent and survival but might be local or regional (potentially national if extensive and well preserved).		N/A
		Biodiversity	Biodiversity	The possible biodiversity impacts include loss of woodland, hedgerows and wetland, degradation of habitats and impacts to protected species through loss of habitat, disturbance, severance of habitat, fragmentation and killing/injury of individuals. Impacts could occur during construction and operation of the Proposed Scheme. Mitigation and compensation strategies are being developed to reduce the identified possible impacts. Mitigation measures include a range of design features such as sensitive timing of construction works and the use of green bridges and underpasses. Compensation measures include planting new areas of woodland and enhancing existing woodlands. The most significant impact which cannot be mitigated for, in the short term, is the loss of woodland which bats use as foraging habitat.		N/A
Water Environment	Water Environment			No structures are proposed within the channel of the River Wensum or within 10m of the River Wensum. This is expected to minimise impacts to the river flow and channel morphology of the River Wensum. The Proposed Scheme requires the construction of a maintenance access track immediately adjacent to the proposed viaduct to enable inspection of the viaduct over its design life. The track will not require crossing of the River Wensum but will need to be constructed within the floodplain of the River Wensum and cross the land drains located within this area. The access track will be constructed at grade to prevent adverse effects to floodplain storage or flood flow conveyance. Structures such as culverts into a watercourse can potentially remove natural bed substrate and bank-side habitat, as well as change flow dynamics and sediment transport through the Tributary of the River Tud. Crossings of watercourses and any new watercourse channels are expected to maintain the capacity of the channel, ensure no increased flood risk up to the 1 in 100-year event considering the potential effects of climate change, be designed in accordance with DMRB guidance, and be sensitive to ecological requirements. The Drainage Strategy at this stage of the assessment indicates that infiltration to ground and discharge to nearby watercourses will be utilised to discharge road runoff. A robust surface water drainage system will be expected to ensure discharge from the Proposed Scheme does not increase flood risk elsewhere up to and including the 1 in 100-year event and allowing for climate change effects and provides sufficient attenuation to restrict the rate and volume of discharge to those agreed with Norfolk County Council (NCC) as the Lead Local Flood Authority (LLFA). A broad range of potential runoff pollutants, such as hydrocarbons (fuel and lubricants), fuel additives, metal from corrosion of vehicles, de-icer and gritting material, can accumulate on road surfaces. These can subsequently be washed off the road during rainfall events, polluting the receiving groundwater water bodies. Implementation of a Construction Environmental Management Plan (CEMP) and passive treatment incorporated into sustainable drainage systems (SuDS) should be considered and adhered to during construction and operation of the Proposed Scheme, to reduce the risk of contamination to the water environment. Mitigation for reduced groundwater recharge due to the introduction of hardstanding should be considered during detail design stage of the Proposed Scheme.		N/A
		Social	Commuting and Other users	Value of journey time changes(£)		149,873
Net journey time changes (£)					£226,292,000	
		0 to 2min	2 to 5min	> 5min		
		67,061	16,721	66,091		
Reliability impact on Commuting and Other users	Reliability impact on Commuting and Other users					
Physical activity	Physical activity	The impacts on Physical Activity has been assessed with DIT's AMAT for three of the four wider walking and cycling interventions. The NWL is forecast to have a beneficial impact of £8.876 million.			£8,876,000	
		Journey quality	Journey quality	Journey Quality has been assessed for traveller care, traveller views and traveller stress. Traveller care impacts have been assessed as moderately beneficial. Traveller views impacts have been assessed as neutral to beneficial, and traveller stress impacts have been assessed as large beneficial.		Moderate Beneficial
Accidents	Accidents			COBALT (Cost and Benefit to Accidents - Light Touch) has been used to understand the likely impact of the scheme on accidents in the study area. The impacts on users and road safety (accidents) has been appraised for a period of 60 years from the first year of scheme opening. The results indicate that the scheme will result in a reduction of 529 accidents over the 60 year appraisal period, leading to a reduction of 674 casualties (2 Fatal, 56 Serious and 616 Slight).		
		Security	Security	Based on the assessment undertaken, the security impacts have been assessed as moderate/large beneficial. This is due to the provision of lighting and illuminated signs on the new link, and the reduction in junctions and stop start traffic.		Moderate Beneficial
Access to services	Access to services			The scheme has not been designed to address accessibility, there is no change in the routes served by the public transport system, although there may be complementary public transport measures considered separately to the NWL at a later time.		Neutral
		Affordability	Affordability	The scheme has not been designed to address the affordability of the transport system, there will be no change in fares/travel costs in users apart from those already identified through TUBA via Car Fuel and Non-Fuel operating costs		Neutral
Severance	Severance			There are more roads forecast to experience decreases in flow rather than increases in flow in the study area, thus, showing a beneficial impact of the scheme on traffic flow, therefore the change in vehicle flows are not anticipated to negatively impact pedestrian movement. Where existing routes are severed, new crossing facilities will be provided, which should mitigate the impact of the new road.		Slight Beneficial
		Option and non-use values	Option and non-use values	The scheme will not substantially change the availability of transport services within the study area.		Neutral
Public	Cost to Broad Transport Budget			The cost to the broad transport budget is £127,129m		£127,128,461
		Public	Indirect Tax Revenues	The indirect tax revenues are £53,272m		-£53,272,000