

# A428 Black Cat to Caxton Gibbet improvements

TR010044

Volume 7

7.10 Combined Modelling and Appraisal Report

Appendix E: Appraisal Summary Table

Planning Act 2008

Regulation 5(2)(q)

Infrastructure Planning (Applications: Prescribed Forms and  
Procedure) Regulations 2009

26 February 2021

Infrastructure Planning

Planning Act 2008

**The Infrastructure Planning  
(Applications: Prescribed Forms and  
Procedure) Regulations 2009**

**A428 Black Cat to Caxton Gibbet  
improvements  
Development Consent Order 202[ ]**

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**Appendix E: Appraisal Summary Table**

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<b>Regulation Reference:</b>	Regulation 5(2)(q)
<b>Planning Inspectorate Scheme Reference</b>	TR010044
<b>Application Document Reference</b>	TR010044/APP/7.10
<b>Author</b>	A428 Black Cat to Caxton Gibbet improvements Project Team, Highways England

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# 1 INTRODUCTION AND OVERVIEW

## 1.1 Background

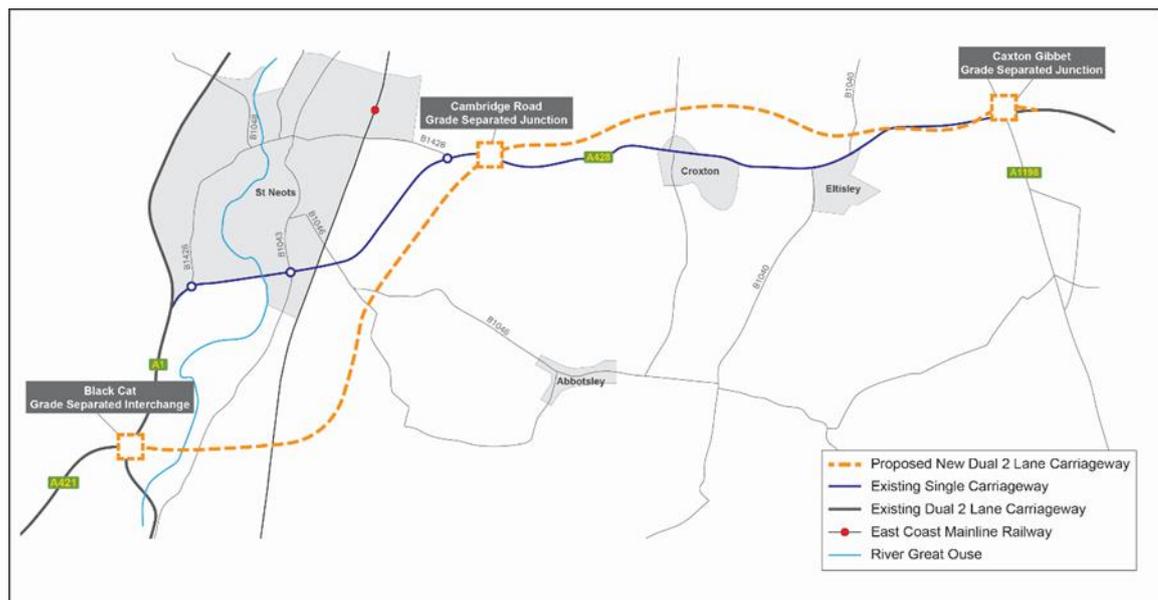
1.1.1 AECOM was commissioned in April 2017 by Highways England under the Collaborative Delivery Framework (Consultancy) 2016-2017 Annex D, to carry out PCF Stage 3 and 4 works for the proposed A428 Black Cat to Caxton Gibbet Improvements Scheme (“the Scheme”). This included the provision of transportation, environmental and other services through preliminary design and statutory procedures and powers.

1.1.2 AECOM had previously produced Stage 2+ traffic forecasts that were used in the public consultation process in June and July 2019. These forecasts have been updated following the development of the Stage 3 Strategic Traffic Model. This has underpinned the traffic modelling and assessment of the Scheme in association with delivery of the relevant Project Control Framework (PCF) Products through Stage Gate Assessment Review (SGAR) 3 and 4.

## 1.2 Scheme Description

1.3 The purpose of the Scheme is to address the problems of congestion, poor journey time reliability and poor resilience against incidents between the Black Cat and Caxton Gibbet roundabouts. The Scheme seeks to address these problems through construction of a new 10 mile (16km) dual 2-lane carriageway from the Black Cat roundabout to Caxton Gibbet roundabout, to be known as the A421 (hereafter referred to as the ‘new dual carriageway’), and in addition approximately 1.8 miles (3km) of tie-in works shown in schematic form in Figure 1 below.

**Figure 1: The Scheme**



The Scheme includes the following components:

- a. A new three-level grade separated junction at Black Cat roundabout, with the A1 at the lower level, the new dual carriageway on the upper level and a roundabout between the two at approximately existing ground level. In addition to slip roads a new free flowing link between the A421 eastbound carriageway and the A1 northbound carriageway will also be provided.
- b. A new grade separated all movements junction will be constructed to the east of the existing Cambridge Road roundabout to provide access to the new dual carriageway and maintain access to the existing A428.
- c. At the Caxton Gibbet roundabout, a new grade separated all movements junction will be constructed, incorporating the existing roundabout on the south side of the new dual carriageway and a new roundabout on the north side. The new dual carriageway will then tie-in to the existing A428 dual carriageway to the east of the new Caxton Gibbet junction.
- d. In the vicinity of the new Black Cat junction, direct access onto the A1 from some local side roads and private premises will be closed for safety reasons. A new local road will provide an alternative route. The existing Roxton Road bridge will be demolished and replaced with a new structure to the west to accommodate the realigned A421.
- e. New crossings will be constructed to enable the new dual carriageway to cross the River Great Ouse, East Coast Main Line railway, Barford Road, the B1046/Potton Road, Toseland Road and the existing A428 at Eltisley.
- f. The existing A428 between St Neots and Caxton Gibbet will be de-trunked and retained for local traffic and public transport with maintenance responsibility transferred to the local highway authorities.
- g. An alternative access will be provided to side roads at Chawston, Wyboston and Eltisley.
- h. There will be safer routes for walkers, cyclists and horse riders.

## 1.4 Purpose of Report

1.4.1 This report presents the Appraisal Summary Table (AST) and the supporting Transport Appraisal Guidance (TAG) worksheets for the impacts assessed. The AST provides a summary of the Scheme's impacts and estimates of costs and benefits to transport users and providers.

1.4.2 This report is part of a series of products that form the Economic Appraisal Package (EAP). Other elements included within the EAP in addition to this report include the economic assessment files, supplementary technical notes (TN) and reports as listed below:

- Economic Appraisal Package: Economic Assessment Report<sup>1</sup>

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<sup>1</sup> HE551495-ACM-GEN-GEN\_SW\_Z\_ZZ-RP-TR-0009\_P02

- TN52 – Operating and Maintenance Costs<sup>2</sup>
  - TN34 – Economics Masking<sup>3</sup>
  - TN35 – Accident Assessment<sup>4</sup>
  - TN43 – Construction Modelling Assessment<sup>5</sup>
  - TN33 – Wider Economic Impacts<sup>6</sup>
  - TN37 – Calculation of Reliability Benefits<sup>7</sup>
  - Distributional Impacts Report<sup>8</sup>
- 1.4.3 The appraisal presented in this report is based upon the traffic forecasts from the Stage 3 Strategic Traffic Model that was a development of the Highways England South East Regional Traffic Model (SERTM). The development and validation of the base year Strategic traffic model is described in the Local Model Validation Report (LMVR) that forms part of the Transport Model Package (TMP), which is included as Appendix B to the Combined Modelling and Appraisal (ComMA) Report.
- 1.4.4 The development of the future year models and preparation of the Do Minimum and Do Something forecasts are described in the Traffic Forecasting Report (TFR), that forms part of the Transport Forecasting Package (TFP), which is included as Appendix C to the ComMA. These scenarios are elsewhere also referred to as the Without-Scheme/Do Minimum (DM) and With-Scheme/Do Something (DS) scenarios.
- 1.4.5 The procedures and data used for the production, within Stage 3, of the economic appraisal of the Scheme that is required for Stage 4 of the PCF process, which covers the statutory processes is described in the Economic Assessment Report (EAR), that forms part of the Economic Appraisal Package (EAP), which is included as Appendix D to the ComMA.
- 1.4.6 Whilst based upon the same appraisal, there are a small number of instances where the monetised benefits quoted in the AST differ from figures quoted in the EAR;
- Total user benefits quoted in the AST include the impact of delays during construction.
  - Net journey time benefits in the AST do not include Vehicle Operating Costs (VoCs).
  - In the AST, reliability benefits for Business users are presented separately to the reliability benefits for Commuting and Other users. The EAR quotes the total reliability benefits for all users.

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<sup>2</sup> TN52 - A428 BC\_to\_CG - Operating & Maintenance Costs (Final)

<sup>3</sup> TN34 - A428 BC\_to\_CG - Stage 3 Economics Masking\_FINAL\_v2

<sup>4</sup> TN35 - A428 BC\_to\_CG - CoBALT Assessment\_v6

<sup>5</sup> TN43 - A428 BC\_to\_CG - Construction Modelling Assessment (Final)

<sup>6</sup> TN33 - A428 BC\_to\_CG - Stage 3 WITA (Final)\_rev1

<sup>7</sup> TN37 - Calculation of Reliability Benefits\_Stage3\_v3

<sup>8</sup> HE551495-ACM-GEN-GEN\_SW\_Z\_ZZ-RP-TR-0006\_v1.12

## **1.5 Opening Year**

- 1.5.1 The Assessment described in this Report has been based on an opening year of 2025; this being the year assumed at the time of modelling when Scheme construction is expected to be completed (see the Transport Assessment Report [TR010044/APP/7.2]).
- 1.5.2 However, since this report was prepared, Highways England has defined a reasonable worst case scenario construction programme. This assumes that the 'advanced works' and the 'enabling works' being undertaken prior to the commencement of the main construction programme and prior to the grant of the A428 Order would be carried out post grant of the A428 Order and may result in a 2026 opening year.
- 1.5.3 This difference between the opening years does not invalidate the conclusions of the Assessment as the forecast flows on the road network in years 2025 and 2040 are considered to be reasonably representative of the traffic flows that would exist on the network in 2026 and 2041 (opening and design years assumed for the reasonable worst case scenario) respectively.

## **1.6 Scope of Appraisal**

- 1.6.1 TAG Unit A1.1 lists all the impacts included within the AST and groups them into three categories:
- Impacts that are typically monetised and reported in the Transport Economic Efficiency (TEE), Public Accounts (PA) and Analysis of Monetised Costs and Benefits (AMCB) tables;
  - Impacts that can be monetised but their monetary values are not reported in the AST as the underlying evidence base is considered less robust; and
  - Impacts for which it is currently infeasible to monetise so qualitative or quantitative non-monetised analysis should be reported in the AST.
- 1.6.2 TAG Unit A1.1 Table 1 sets out the impacts generally included in the AST. These are split into three categories as presented in Table 1.

**Table 1: Appraisal Summary Table Impacts and Categories**

Category of impact	Monetised Impact reported in AMCB table	Monetised Impact not reported in AMCB table	Not feasible or practical to monetise
Economy	Business users and private sector providers,	Reliability impact on business users, Wider Economic Impacts,	n/a
Environment	Noise, Air quality, Greenhouse gases,	Landscape,	Townscape, Historic Environment, Biodiversity, Water environment,
Social	Commuting and other users, Accidents, Physical Activity Journey Quality	Reliability impact on commuting and other users, Option and non-use values,	Physical activity, Journey Quality, Security, Access to services, Affordability, Severance,
Public Accounts	Cost to broad transport budget, Indirect tax revenues,	n/a	n/a

Source: TAG A1.1 Table 1

1.6.3 In some cases impacts, for which TAG Unit A1.1 categorises as possible to monetise, have only been assessed qualitatively for the Scheme. These impacts and the rationale behind each approach are listed below:

- Option and non-use values have not been monetised, as there are no changes to existing public transport services associated with the Scheme.
- Physical activity has not been monetised. Although the Scheme will provide safer routes for walkers, cyclists and horse riders, the main objective of the scheme is not specifically at increasing active modes.
- Journey Quality has not been monetised, as the Scheme is not aimed at directly influencing quality factors.
- A Landscape monetisation exercise was undertaken at Stage 2 to inform the route choice decision.

1.6.4 Personal Affordability is primarily a distributional issue, so the methodology to derive the appraisal score for the AST is covered in the Distributional Impacts Report (DIR).

## 2 APPRAISAL SUMMARY TABLE

<b>Date produced:</b>	January 2021
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<b>Contact:</b>	
<b>Name</b>	Alistair Shepherd
<b>Organisation</b>	AECOM
<b>Role</b>	Senior Consultant

<b>Name of scheme:</b>		A428 Black Cat to Caxton Gibbet improvements scheme																		
<b>Description of scheme:</b>		<p>A new 10 mile dual 2-lane carriageway from west of the A421/A1 Black Cat roundabout through to east of the A428/A1198 Caxton Gibbet roundabout.</p> <p>A new three-level grade separated junction at Black Cat roundabout, with the A1 at the lower level, the new dual carriageway on the upper level and a roundabout between the two at approximately existing ground level. In addition to slip roads a new free flowing link between the A421 eastbound carriageway and the A1 northbound carriageway would also be provided. A new grade separated all movements junction would be constructed to the east of the existing Cambridge Road roundabout to provide access to the new dual carriageway and maintain access to the existing A428.</p> <p>At the Caxton Gibbet roundabout, a new grade separated all movements junction would be constructed, incorporating the existing roundabout on the south side of the new dual carriageway and a new roundabout on the north side. The new dual carriageway would then tie-in to the existing A428 dual carriageway to the east of the new Caxton Gibbet junction.</p>																		
<b>Impacts</b>		<b>Summary of key impacts</b>		<b>Assessment</b>																
				<b>Quantitative</b>	<b>Qualitative</b>	<b>Monetary £m (NPV)</b>	<b>Distributional 7-pt scale/ vulnerable grp</b>													
<b>Economy</b>	Business users & transport providers	The Scheme provides journey time and vehicle operating cost (VOC) benefits which have been monetised in TUBA. Although there is a net VOC benefit to business users and transport providers, freight does experience a VOC disbenefit due to increased fuel consumption. Journey time savings of over five minutes accrue the highest proportion of benefits for business users. Large transport benefits are realised for peak and off-peak travel and short and long-distance journeys.		<table border="1"> <tr> <td colspan="2"><b>Value of journey time changes (£ms)</b></td> <td>£257.8m</td> </tr> <tr> <td colspan="3"><b>Net journey time changes (£m)</b></td> </tr> <tr> <td>0 to 2min</td> <td>2 to 5min</td> <td>&gt; 5min</td> </tr> <tr> <td>£36.6m</td> <td>£85.9m</td> <td>£135.3m</td> </tr> </table>		<b>Value of journey time changes (£ms)</b>		£257.8m	<b>Net journey time changes (£m)</b>			0 to 2min	2 to 5min	> 5min	£36.6m	£85.9m	£135.3m		£250.3m	
	<b>Value of journey time changes (£ms)</b>		£257.8m																	
	<b>Net journey time changes (£m)</b>																			
	0 to 2min	2 to 5min	> 5min																	
£36.6m	£85.9m	£135.3m																		
Reliability impact on Business users	Journey time reliability has been highlighted as a key problem and the scheme would significantly improve the consistency of journey times, along both the A428/A421 corridor and along the A1 (due to the planned improvements at Black Cat). This was calculated using a bespoke method based on that used for the A303 Stonehenge scheme.		Assessment based on comparison of journey time reliability performance of single and dual carriageway sections of the A428.			£32.4m														
Regeneration	Not assessed <sup>9</sup>																			
Wider Impacts	The scheme is located partially inside the Cambridge Functional Urban Area. The Scheme forms an integral part of the east-west strategic route link to Milton Keynes which is also designated as a Functional Urban Area. The scheme is expected to significantly reduce travel times to these functional urban areas, both of which have an above average concentration of knowledge-based industries. This will lead to increased business productivity, measured by agglomeration. Business output in imperfectly competitive markets and labour supply are also expected to increase.		<p>Wider Impacts values were quantified using DfT software WITA. Three components were assessed;</p> <ul style="list-style-type: none"> <li>• Agglomeration, which produced a benefit of £230.5M,</li> <li>• Increased output in imperfectly competitive markets, which produced a benefit of £26.3M</li> <li>• Labour supply impact, which produced a benefit of £1.9M.</li> </ul>			£258.7m														
<b>Environmental</b>	Noise	There are a total of 2,425 residential buildings in the DMRB quantitative noise prediction study area. In the 2040 forecast year 704 residences change 3dB band in daytime and 409 residences at night. A larger number of households are predicted to experience reduced noise levels than those predicted to experience an increase which gives a net benefit.				N/A	£2.2m	Beneficial residential impacts close to roads bypassed by the scheme are slightly greater than adverse impacts from increased traffic elsewhere. Identified amenities are mostly unaffected.												

<sup>9</sup> Regeneration impacts have been integrated into the assessment of wider economic impacts. Refer to the Department for Transport (DfT) Updating Wider Economic Impacts Guidance, September 2016.

	Air Quality	<p>There are 5 Air Quality Management Areas (AQMA) within 200m of the DMRB Affected Road Network (ARN): Bedford Town Centre AQMA, AQMA No. 4 Sandy, Brampton AQMA, Huntingdon AQMA and A14 Corridor AQMA. These AQMAs were designated for exceedances of the annual mean objective value for NO<sub>2</sub> in all AQMAs, as well as the 1-hour mean objective value for NO<sub>2</sub> in AQMA No. 4 Sandy, and the 24-hour mean objective value for PM<sub>10</sub> in A14 Corridor AQMA. At all receptors considered within these AQMAs, changes are negligible or small. As a result of the proposed scheme, no receptors, are predicted to experience an increase of more than 0.4 µg/m<sup>3</sup> in NO<sub>2</sub> with concentrations of NO<sub>2</sub> below the objective value of 40 µg/m<sup>3</sup>. At all receptors considered, the change in PM<sub>10</sub> concentration is negligible or small. Regional emissions of PM<sub>2.5</sub> are predicted to increase by 4.3 tonnes/year in the proposed scheme opening year. Regional emissions of NO<sub>x</sub> are predicted to increase by 62.2 tonnes/year in the opening year. The increase in regional emissions of PM<sub>2.5</sub> and NO<sub>x</sub> is due to an increase in the distance travelled by vehicles on regional affected roads within the Area of Influence.</p>	<p>A total of 14,254 properties are located within 200m of the road network. For PM<sub>2.5</sub> 3,410 would experience an improvement, 5,368 would experience no change, and 5,476 would experience a worsening in pollutant concentrations in the opening year. For NO<sub>2</sub>, 5,196 would experience an improvement, 1,288 would experience no change, and 7,770 would experience a worsening in pollutant concentrations in the opening year. Net Total Assessment score for PM<sub>2.5</sub>: -739.90 Net Total Assessment score for NO<sub>2</sub>: -1042.00</p>		N/A	-£0.8m	NO <sub>2</sub> impacts are consistently adverse. PM <sub>2.5</sub> impacts are small and variable. No significant changes at amenities.
	Greenhouse gases	<p>Predictions carried out using DMRB V7 Emissions Factor Toolkit (EFT) V9 calculations indicate that there would be an increase of 2,900,519 tonnes of carbon over 60 years with the scheme in place. With the Proposed Scheme there is a predicted opening year increase of 35,279 tonnes. There are no traded carbon emissions. The overall increase in emissions is due to an increase in vehicle kilometres travelled with the scheme over the appraisal period compared to without the scheme. The negative impacts are likely to be overstated due to EFT v9 using an out-of-date vehicle fleet mix. Although not currently a TAG requirement and therefore not included within the Scheme's Core economics, a High Carbon Sensitivity analysis was undertaken. This is reported due to the consideration DfT are giving to future changes to the greenhouse gas assessments. The High Carbon Sensitivity test gave greenhouse gas disbenefit of £196.4M.</p>	Change in non-traded carbon over 60y (CO <sub>2</sub> e)	2.9m tonnes	N/A	-£127.0m	
	Landscape	<p>The Scheme will have moderate adverse landscape effects at year 15 for LLCA02 Settled Ouse Valley, LLCA06 Alington Hill Clay Farmland, LLCA08 Settled Clay Valley and LLCA11 Wintringham and Weald Clay Farmland. This is as a result of the increase in size and scale of Black Cat junction, the introduction of new infrastructure in the landscape across the River Great Ouse and heading east through Alington Hill. The Scheme will sever existing landscape patterns across rural landscapes and introduce new road infrastructure away from existing roads, settlements or other built influences. Similarly, east of Cambridge Road junction the Scheme will cut through gently undulating landscape with overbridges sitting above the surrounding landscape. Effects on the other 12 LLCAs identified will not be significant.</p> <p>The Scheme will be visible in the views for residents of Roxton, Tempsford, Wintringham, Potton Road and Little Barford Road having moderate adverse visual effects during year one. Users of public rights of way such as those at Wintringham, Yelling and Eltisley, where the route is truncated or permanently realigned, will also experience significant visual effects.</p>			Moderate Adverse	N/A	
	Townscape	<p>The townscape of most settlements in proximity to the Scheme will not be affected. Wyboston and Chawston will experience some adverse effects related to the widening of the existing A1, the introduction of noise fences, and the construction of a new link road which will divide part of the settlement and alter circulation patterns. In the case of Roxton and Tempsford, the increased size and scale of the Black Cat junction will indirectly impact the perceptual characteristics of the townscape, although this will be limited to areas with intervisibility. At Croxton the Scheme will be located approximately 700m further north than the existing A428, enhancing tranquillity of the townscape of the settlement. At Eltisley the Scheme will also be further away to the north on the western side of the settlement, but slightly closer on the eastern side. As the village is nucleated, effects on the perceptual characteristics of townscape will be limited to the edges. There will be no perceptible changes to the townscape character of the other settlements in proximity to the Scheme.</p>			Slight Adverse	N/A	

	Historic Environment	There will be impacts on a number of archaeological sites, as well as on the Grade II Brook Cottages. This building will be demolished. Archaeological sites which are affected by the scheme can be mitigated. There will be impacts on the setting of some assets. While most are adverse, there are some beneficial effects to the setting of Croxton Park and assets within it. The overall assessment score is based on the worst case impact on Brook Cottages and an archaeological site deemed to be of high significance. Impacts on other assets will be lower. The impact levels may change as the assessment progresses.		Large Adverse	N/A		
	Biodiversity	Employing the Highways England biodiversity net gain calculation, a habitat based metric, the Scheme will result in a net increase in biodiversity units of 20.5%. In addition, enhancements will be achieved within the Scheme for certain habitats and species which, due to nature of the enhancements, will not be reflected in the calculated value for biodiversity net gain.		Slight Adverse			
	Water Environment	No significant effects on the water environment are predicted with the application of embedded mitigation and essential mitigation to control operational impacts. A moderate adverse impact is predicted where new culverts (and associated realignments) are proposed as these will result in the partial loss of a section of channel and riparian habitat, and disconnection with the floodplain. However, the importance of water bodies in hydromorphological terms is low, and thus the impact is insignificant with mitigation (i.e. culvert design, replacement riparian habitat along road and land drainage ditches, and a commitment to provide compensatory enhancement of watercourses within the Order Limits). In the case of the River Great Ouse, which is of very high importance, a viaduct is proposed for its crossing with negligible impacts predicted from highway runoff and spillage risk, and permanent dewatering in the vicinity of the A1 underpass, which are only of low significance. Sustainable measures have been proposed to treat highway runoff with ponds, swales and ditches (from some outfalls to avoid unnecessary engineered outfalls). Improvement to the existing road drainage network have also been provided where practical to do so (e.g. the existing A421 pond). Finally, the Flood Risk Assessments (FRA) concluded there would be no significant increase in flood risk to the adjacent land uses or an increase in surface water runoff as a result of the proposed Scheme.	N/A	Neutral	N/A		
Social	Commuting and Other users	Scheme provides journey time benefits and vehicle operating cost disbenefits which have been monetised in TUBA. Around a third of the benefits are for commuting with two thirds for other users. The majority of the benefits are accrued for journey time savings of over two minutes, with benefits for time savings of over five minutes marginally higher than those for time savings of between two and five minutes. Benefits are realised for both short and long-distance journeys.	Value of journey time changes (£m)		£453.9m	£303.6m	
			Net journey time changes (£m)				
			0 to 2min	2 to 5min	> 5min		
			£9.1m	£204.1m	£240.7m		
	Reliability impact on Commuting and Other users	Journey time reliability has been highlighted as a key problem on the routes and this scheme would be likely to significantly improve the consistency of journey times, both on the A428/A421 corridor and along the A1.	Assessment based on comparison of journey time reliability performance of single and dual carriageway sections of the A428.			£50.6m	
Physical activity	Scheme is likely to impact a number of Walkers, Cyclists and Horse Riders (WCHR) routes, but is expected to maintain or improve current access to Public Rights of Way (PRoW). More formal crossing points will be introduced to maintain PRoWs, for instance at Eltisley and Caxton Gibbet; but in some instances existing PRoW's will be curtailed or diverted, such as at Wintringham Park. At Black Cat, new WCHR links will help improve connections with existing routes. Traffic on most of the existing A428 is expected to significantly reduce making it more appealing to cyclists, but given the Scheme and the section of the A428 it affects are largely inter-urban routes, this is not expected to have a big effect.		Neutral				
Journey quality	The Scheme is expected to have a moderate beneficial impact on traveller frustration through providing a better free flowing standard and a greatly reduced flow at existing junctions making turning more straightforward. The Scheme is likely to have a slight beneficial impact on route uncertainty by providing more consistent east-west and north-south travel routes. The Scheme is expected to have a slight beneficial impact on fear of potential accidents as the road standard for the A428 is significantly improved, although some travellers will have more potential conflict points.		Moderate Beneficial				

	Accidents	The scheme removes at-grade junctions and provides a higher standard off line dual two lane carriageway removing traffic from local roads leading to accident savings. These were assessed using standard CoBALT software.	The Scheme is forecast to save 600 accidents over the 60 year assessment period. This saving consists of 8 fatal, 116 serious and 805 slight casualties.		£29.5m	Most vulnerable group casualties occur away from the Scheme. This results in insignificant accident changes for these vulnerable groups due to the Scheme.
	Security	Changes in security measures are minor and relatively few users can be confidently identified. The only notable changes are: <ul style="list-style-type: none"> <li>relocation of bus stops for the X5 service in Wyboston;</li> <li>relocation of bus stops for the H service at Caxton Gibbet; and</li> <li>re-routeing of infrequent services and school services around Wyboston.</li> </ul>		Neutral		
	Access to services	The scheme is unlikely to impact on availability and cost of public transport, which will have a neutral effect on the existing ability of non-car users to access services.		Neutral		
	Affordability	Analysis using TUBA shows that Commuting and Other purpose uses will have significantly higher vehicle operating costs due to the scheme, therefore impacting on affordability of travel.		Moderate Adverse		
	Severance	Numerous villages would benefit slightly from reductions in traffic as through traffic is transferred onto the new dual carriageway, reducing the hindrance to foot journeys, such as Toseland and Yelling and Potton, Wrestlingworth, Tadlow and Eltisbury.		Slight Beneficial		Children and Young People, Older People, Disabled and No Car, slight beneficial.
	Option and non-use values	No changes to existing public transport services are associated with the proposed scheme.		Neutral		
Public Accounts	Cost to Broad Transport Budget	A scheme cost, based on a Regional Delivery Partnership (RDP) procurement route, was developed by Highways England Commercial Services Division (HECSD) for this scheme in May 2019 with an expected outturn cost of £812.5m including Portfolio Risk which when discounted to 2010 market prices gave a cost of £435.6m. The Operating and Maintenance costs were provided by HECSD in July 2020. The net outturn cost for the Scheme is estimated to be £380.5m (2019 Quarter 1 prices). This is equivalent to £27.5m in discounted 2010 market prices.			£463.2m	
	Indirect Tax Revenues	Indirect Tax impacts were calculated in TUBA and result in an increase in revenue accrued to Government.			£83.8m	

### 3 SUPPORTING WORKSHEETS

#### 3.1 Economic Efficiency of the Transport System (TEE)<sup>10</sup>

<b>Non-business: Commuting</b>	<b>ALL MODES</b>	<b>ROAD</b>		<b>BUS and COACH</b>	<b>RAIL</b>	<b>OTHER</b>
		<b>Private Cars and LGVs</b>		<b>Passengers</b>	<b>Passengers</b>	
<b>User benefits</b>	<b>TOTAL</b>					
Travel time	141,956	141,956		0	0	0
Vehicle operating costs	-17,757	-17,757				0
User charges	0	0		0	0	0
During Construction & Maintenance	-8,405	-8,405		0	0	0
<b>NET NON-BUSINESS BENEFITS: COMMUTING</b>	<b>115,794</b> (1a)	<b>115,794</b>		<b>0</b>	<b>0</b>	<b>0</b>
<b>Non-business: Other</b>	<b>ALL MODES</b>	<b>ROAD</b>		<b>BUS and COACH</b>	<b>RAIL</b>	<b>OTHER</b>
		<b>Private Cars and LGVs</b>		<b>Passengers</b>	<b>Passengers</b>	
<b>User benefits</b>	<b>TOTAL</b>					
Travel time	311,952	311,952		0	0	0
Vehicle operating costs	-110,157	-110,157				0
User charges	0	0		0	0	0
During Construction & Maintenance	-14,036	-14,036		0	0	0
<b>NET NON-BUSINESS BENEFITS: OTHER</b>	<b>187,759</b> (1b)	<b>187,759</b>		<b>0</b>	<b>0</b>	<b>0</b>
<b>Business</b>		<b>Business Cars &amp; LGVs</b>		<b>Passengers</b>	<b>Freight</b>	<b>Passengers</b>
<b>User benefits</b>		<b>Goods Vehicles</b>	<b>Passengers</b>	<b>Freight</b>	<b>Passengers</b>	<b>Passengers</b>
Travel time	257,763	136,973	120,790	0	0	0
Vehicle operating costs	4,810	-923	5,732			0
User charges	0	0	0	0	0	0
During Construction & Maintenance	-12,300	-6,825	-5,475	0	0	0
<b>Subtotal</b>	<b>250,273</b> (2)	<b>129,225</b>	<b>121,048</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Private sector provider impacts</b>				<b>Freight</b>	<b>Passengers</b>	
Revenue	0			0	0	0
Operating costs	0			0	0	0
Investment costs	0			0	0	0
Grant/subsidy	0			0	0	0
<b>Subtotal</b>	<b>0</b> (3)			<b>0</b>	<b>0</b>	<b>0</b>
<b>Other business impacts</b>						
Developer contributions	0	0		0	0	0
<b>NET BUSINESS IMPACT</b>	<b>250,273</b> (5) = (2) + (3) + (4)					
<b>TOTAL</b>						

<sup>10</sup> Subtotals and totals include the impact of delays during construction

Present Value of Transport Economic Efficiency Benefits (TEE)

553,826

(6) = (1a) + (1b) + (5)

Notes: Benefits appear as positive numbers, while costs appear as negative numbers.  
All entries are discounted present values, in 2010 prices and values

### 3.2 Public Accounts (PA) Table<sup>11</sup>

	ALL MODES	ROAD	BUS and COACH	RAIL	OTHER
	TOTAL	INFRASTRUCTURE			
<b>Local Government Funding</b>					
Revenue	0	0			n/a
Operating Costs	0	0			n/a
Investment Costs	0	0			n/a
Developer and Other Contributions	0	0	n/a	n/a	n/a
Grant/Subsidy Payments	0	0	n/a	n/a	n/a
<b>NET IMPACT</b>	0 (7)	0	n/a	n/a	n/a
<b>Central Government Funding: Transport</b>					
Revenue	0	0			n/a
Operating costs	27,550	27,550			n/a
Investment Costs	435,603	435,603			n/a
Developer and Other Contributions	0	0	n/a	n/a	n/a
Grant/Subsidy Payments	0	0	n/a	n/a	n/a
<b>NET IMPACT</b>	463,153 (8)	463,153	n/a	n/a	n/a
<b>Central Government Funding: Non-Transport</b>					
Indirect Tax Revenues	-83,777 (9)	-83,777	n/a	n/a	n/a
<b>TOTALS</b>					
<b>Broad Transport Budget</b>	463,153 (10) = (7) + (8)				
<b>Wider Public Finances</b>	-83,777 (11) = (9)				

Notes: Costs appear as positive numbers, while revenues and 'Developer and Other Contributions' appear as negative numbers.  
All entries are discounted present values in 2010 prices and values.

<sup>11</sup> Indirect tax revenues include the impact of delays during construction

### 3.3 Analysis of Monetised Costs and Benefits<sup>12</sup>

Noise	2,157	(12)
Local Air Quality	-777	(13)
Greenhouse Gases	-127,043	(14)
Journey Quality	0	(15)
Physical Activity	0	(16)
Accidents	29,528	(17)
Economic Efficiency: Consumer Users (Commuting)	115,794	(1a)
Economic Efficiency: Consumer Users (Other)	187,759	(1b)
Economic Efficiency: Business Users and Providers	250,273	(5)
Wider Public Finances (Indirect Taxation Revenues)	83,777	- (11) - sign changed from PA table, as PA table represents costs, not benefits
Present Value of Benefits (see notes) (PVB)	541,468	(PVB) = (12) + (13) + (14) + (15) + (16) + (17) + (1a) + (1b) + (5) - (11)
Broad Transport Budget	463,153	(10)
Present Value of Costs (see notes) (PVC)	463,153	(PVC) = (10)
<b>OVERALL IMPACTS</b>		
<b>Net Present Value (NPV)</b>	78,315	NPV=PVB-PVC
<b>Benefit to Cost Ratio (BCR)</b>	1.2	BCR=PVB/PVC

Note: This table includes costs and benefits which are regularly or occasionally presented in monetised form in transport appraisals, together with some where monetisation is in prospect. There may also be other significant costs and benefits, some of which cannot be presented in monetised form. Where this is the case, the analysis presented above does NOT provide a good measure of value for money and should not be used as the sole basis for decisions.

<sup>12</sup> Values include impact of delays during construction

### 3.4 Noise

<b>Present Value Base Year</b>	2010
<b>Current Year</b>	2020
<b>Proposal Opening year:</b>	2025
<b>Project (Road, Rail or Aviation):</b>	road

<b>Net present value of change in noise (£):</b>	<b>£2,156,784</b>
	*positive value reflects a <b>net benefit</b> (i.e. a reduction in noise)

<b>Net present value of impact on sleep disturbance (£):</b>	<b>£1,035,450</b>
<b>Net present value of impact on amenity (£):</b>	<b>£741,715</b>
<b>Net present value of impact on AMI (£):</b>	<b>£237,270</b>
<b>Net present value of impact on stroke (£):</b>	<b>£56,806</b>
<b>Net present value of impact on dementia (£):</b>	<b>£85,543</b>

#### Quantitative results

Households experiencing increased daytime noise in forecast year:	307
Households experiencing reduced daytime noise in forecast year:	397
Households experiencing increased night time noise in forecast year:	106
Households experiencing reduced night time noise in forecast year:	303

#### Qualitative Comments:

Total of 2425 residential buildings in DMRB quantitative noise prediction study area.  
In the forecast year 1721 don't change 3dB band in the daytime and 2016 at night

#### Data Sources:

DMRB detailed noise assessment predicted  $L_{A10,18h}$  dB façade (day) and  $L_{Aeq,8h}$  dB free-field (night)  
 $L_{A10,18h}$  dB façade (day) converted to  $L_{Aeq,16h}$  dB façade (day) by subtraction of 2 dB as per TAG guidance  
 $L_{Aeq,8hr}$  free-field predicted based on daytime traffic flows using TRL method 3  
Residential buildings identified via address base and aerial photography  
Results are provided for façade with the greatest absolute magnitude of change in  $L_{A10,18h}$  traffic noise level in opening year

### 3.5 Air Quality

#### ASSESSMENT SUMMARY - 2025

PM2.5, SUMMARY OF ROUTES: THE AGGREGATED TABLE	0-50m (i)	50-100m (ii)	100-150m (iii)	150-200m (iv)	0-200m (v=i+ii+iii+iv)
Total properties across all routes (DM)	2,973	3,529	3,930	3,902	14,334
Total properties across all routes (DS)	2,948	3,518	3,908	3,880	14,254
Do Minimum PM <sub>2.5</sub> assessment across all routes	28,361.50	33,292.00	36,755.00	36,366.40	Total assessment PM2.5 (I): 134,774.90
Do Something PM <sub>2.5</sub> assessment across all routes	28,062.30	33,201.00	36,603.80	36,167.90	Total assessment PM2.5 (II): 134,035.00
Net total assessment for PM <sub>2.5</sub> , all routes (II-I)					-739.90
Number of properties with an improvement					3,410
Number of properties with no change					5,368
Number of properties with a deterioration					5,476

**Reference Sources:**

TAG Unit 3.3: Local Air Quality. DMRB V7 Emission Factor Toolkit V9 spreadsheet.

**Quantitative Measures:**

There are 3,410 properties predicted to experience an improvement, 5368 properties predicted to experience no change, and 5,476 properties are predicted to experience a deterioration.

**Assessment Scores:**

There is a net total assessment score of -739.90 across all routes.

**Qualitative Comments:**

DMRB predictions are not verified as the focus of the plan level appraisal is on the overall change in pollutants. Verified concentrations are described within the AST.  
A net benefit is observed due to the scheme.

NO <sub>2</sub> , SUMMARY OF ROUTES: THE AGGREGATED TABLE	0-50m (i)	50-100m (ii)	100-150m (iii)	150-200m (iv)	0-200m (v=i+ii+iii+iv)
Total properties across all routes (min)	2,973	3,529	3,930	3,902	14,334
Total properties across all routes (some)	2,948	3,518	3,908	3,880	14,254
Do-minimum NO <sub>2</sub> assessment across all routes	35,044.80	41,328.10	44,810.90	43,504.10	Total assessment NO <sub>2</sub> (I): 164,687.90
Do-something NO <sub>2</sub> assessment across all routes	34,580.50	41,169.30	44,565.20	43,330.90	Total assessment NO <sub>2</sub> (II): 163,645.90
Net total assessment for NO <sub>2</sub> , all routes (II-I)					-1,042.00
Number of properties with an improvement					5,196
Number of properties with no change					1,288
Number of properties with a deterioration					7,770

**Reference Sources:**

TAG Unit 3.3: Local Air Quality. DMRB V7 Emission Factor Toolkit V9 spreadsheet.

**Quantitative Measures:**

There are 5,196 properties predicted to experience an improvement, 1,288 properties predicted to experience no change, and 7,770 properties predicted to experience a deterioration.

**Assessment Scores:**

There is a net total assessment score of -1,042.0 across all routes.

**Qualitative Comments:**

DMRB predictions are not verified as the focus of the plan level appraisal is on the overall change in pollutants. Verified concentrations are described within the AST.  
A net benefit is observed due to the scheme.

ASSESSMENT SUMMARY - 2040

<b>PM2.5, SUMMARY OF ROUTES: THE AGGREGATED TABLE</b>	<b>0-50m (i)</b>	<b>50-100m (ii)</b>	<b>100-150m (iii)</b>	<b>150-200m (iv)</b>	<b>0-200m (v=i+ii+iii+iv)</b>
Total properties across all routes (min)	2,973	3,529	3,930	3,902	14,334
Total properties across all routes (some)	2,948	3,518	3,908	3,880	14,254
<i>Do-minimum PM<sub>2.5</sub> assessment across all routes</i>	28,368.50	33,189.30	36,665.80	36,191.40	Total assessment PM2.5 (I): 134,415.00
<i>Do-something PM<sub>2.5</sub> assessment across all routes</i>	28,146.10	33,161.30	36,512.20	36,058.70	Total assessment PM2.5 (II): 133,878.30
<b>Net total assessment for PM<sub>2.5</sub>, all routes (II-I)</b>					<b>-536.70</b>
<i>Number of properties with an improvement</i>					<b>3,685</b>
<i>Number of properties with no change</i>					<b>2,797</b>
<i>Number of properties with a deterioration</i>					<b>7,772</b>

**Reference Sources:** TAG Unit 3.3: Local Air Quality. DMRB V7 Emission Factor Toolkit V9 spreadsheet.

**Quantitative Measures:** There are 3,685 properties predicted to experience an improvement, 2,797 properties predicted to experience no change, and 7,772 properties are predicted to experience a deterioration.

**Assessment Scores:** There is a net total assessment score of -536.70 across all routes.

**Qualitative Comments:** DMRB predictions are not verified as the focus of the plan level appraisal is on the overall change in pollutants. Verified concentrations are described within the AST.  
A net benefit is observed due to the scheme.

<b>NO<sub>2</sub>, SUMMARY OF ROUTES: THE AGGREGATED TABLE</b>	<b>0-50m (i)</b>	<b>50-100m (ii)</b>	<b>100-150m (iii)</b>	<b>150-200m (iv)</b>	<b>0-200m (v=i+ii+iii+iv)</b>
Total properties across all routes (min)	2,973	3,529	3,930	3,902	14,334
Total properties across all routes (some)	2,948	3,518	3,908	3,880	14,254
<i>Do-minimum NO<sub>2</sub> assessment across all routes</i>	31,619.40	37,539.20	40,846.10	39,796.60	Total assessment NO <sub>2</sub> (I): 149,801.30
<i>Do-something NO<sub>2</sub> assessment across all routes</i>	31,266.40	37,520.30	40,754.90	39,650.80	Total assessment NO <sub>2</sub> (II): 149,192.40
<b>Net total assessment for NO<sub>2</sub>, all routes (II-I)</b>					<b>-608.90</b>
<i>Number of properties with an improvement</i>					<b>4,238</b>
<i>Number of properties with no change</i>					<b>1,713</b>
<i>Number of properties with a deterioration</i>					<b>8,303</b>

**Reference Sources:** TAG Unit 3.3: Local Air Quality. DMRB V7 Emission Factor Toolkit V9 spreadsheet.

**Quantitative Measures:** There are 4,238 properties predicted to experience an improvement, 1,713 properties predicted to experience no change, and 8,303 properties predicted to experience a deterioration.

**Assessment Scores:** There is a net total assessment score of -608.90 across all routes.

**Qualitative Comments:** DMRB predictions are not verified as the focus of the plan level appraisal is on the overall change in pollutants. Verified concentrations are described within the AST.  
A net benefit is observed due to the scheme.

**AIR QUALITY VALUATION WORKBOOK – WORKSHEET 2**

The 'Impact Pathway' approach has been taken for this Scheme and therefore the Regional Air Quality worksheet was not completed.

**AIR QUALITY VALUATION WORKBOOK – WORKSHEET 3**

**Scheme Name:** A428 Black Cat to Caxton Gibbet improvements

**Present Value Base Year**

**Current Year**

**Proposal Opening year:**

**Project (Road/Rail or Road and Rail):**

**Overall Assessment Score:**

**Damage Costs Approach (Emissions)**

<b>Present value of change in NOx emissions (£):</b>	<input type="text" value="£0"/>
<b>Present value of change in PM2.5 emissions (£):</b>	<input type="text" value="£0"/>
<b>OR</b>	
<b>Present value of change in PM10 emissions (£):</b>	<input type="text" value="£0"/>

**Impact Pathways Approach (Concentrations)**

<b>Present value of change in NO2 concentrations (£):</b>	<input type="text" value="-£2,365,950"/>
<u>Of which:</u>	
Concentration costs:	<input type="text" value="£263,806"/>
Other impacts:	<input type="text" value="-£2,629,756"/>
<b>Present value of change in PM2.5 concentrations (£):</b>	<input type="text" value="£1,589,369"/>
<u>Of which:</u>	
Concentration costs:	<input type="text" value="£1,746,724"/>
Other impacts:	<input type="text" value="-£157,355"/>

**Total Change**

<b>Total value of change in air quality (£):</b>	<input type="text" value="-£776,581"/>
	<small>*positive value reflects a <b>net benefit</b> (i.e. air quality improvement)</small>

**Quantitative Assessment:**

**Impact Pathways Approach (Concentrations)**

<b>Change in NO2 assessment scores over 60 year appraisal period:</b> (between 'with scheme' and 'without scheme' scenarios)	<input type="text" value="-39,998.80"/>
<b>Change in PM2.5 assessment scores over 60 year appraisal period:</b> (between 'with scheme' and 'without scheme' scenarios)	<input type="text" value="-33,827.60"/>

**Damage Costs Approach (Emissions)**

<b>Change in NOX emissions over 60 year appraisal period (tonnes):</b> (between 'with scheme' and 'without scheme' scenarios)	0
<b>Change in PM2.5 emissions over 60 year appraisal period (tonnes):</b> (between 'with scheme' and 'without scheme' scenarios)	0
<b>OR</b>	
<b>Change in PM10 emissions over 60 year appraisal period (tonnes):</b> (between 'with scheme' and 'without scheme' scenarios)	0

**Qualitative Comments:**

DMRB predictions are not verified.  
Overall a net detrimental change is predicted as a result of the Scheme.  
For PM<sub>2.5</sub> there is a beneficial change in concentration, a worsening from other impacts, and overall there is a net beneficial change as a result of the scheme.  
For NO<sub>2</sub> there is a beneficial change in concentration, a worsening from other impacts, and overall there is a net detrimental change as a result of the Scheme.

**Sensitivity Analysis:**

-	
Upper estimate net present value of change in air quality (£):	-£1,695,958
Lower estimate net present value of change in air quality (£):	-£739,568

**Data Sources:**

NO<sub>2</sub> and PM<sub>2.5</sub> emissions data from DMRB V7 Emission Factor Toolkit V9 spreadsheet.  
NO<sub>2</sub> and PM<sub>2.5</sub> assessment scores from Plan Level TAG local air quality workbook.

### 3.6 Greenhouse Gases

Present Value Base Year	2010
Current Year	2020
Proposal Opening year:	2025
Project (Road/Rail or Road and Rail):	road

#### Overall Assessment Score:

Net Present Value of carbon dioxide equivalent emissions of proposal (£):	-£127,043,016
	*positive value reflects a <b>net benefit</b> (i.e. CO2E emissions reduction)

#### Quantitative Assessment:

Change in carbon dioxide equivalent emissions over 60 year appraisal period (tonnes): (between 'with scheme' and 'without scheme' scenarios)	2,900,519
---	-----------

Of which Traded	0
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Change in carbon dioxide equivalent emissions in opening year (tonnes): (between 'with scheme' and 'without scheme' scenarios)	35,279
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Net Present Value of traded sector carbon dioxide equivalent emissions of proposal (£):	£0
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(N.B. this is not additional to the appraisal value in cell I17, as the cost of traded sector emissions is assumed to be internalised into market prices. See TAG Unit A3 for further details)

\*positive value reflects a **net benefit** (i.e. CO2E emissions reduction)

#### Change in carbon dioxide equivalent emissions by carbon budget period:

	Carbon Budget 1	Carbon Budget 2	Carbon Budget 3	Carbon Budget 4
Traded sector	0	0	0	0
Non-traded sector	0	0	0	108,851

#### Qualitative Comments:

There is a net increase in carbon emissions over the 60 year appraisal period of 2,900,519 tonnes and in the opening year of 35,279 tonnes.

#### Sensitivity Analysis:

Upper Estimate Net Present Value of Carbon dioxide Emissions of Proposal (£):	-£196,411,700
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Lower Estimate Net Present Value of Carbon dioxide Emissions of Proposal (£):	-£57,747,089
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**Data Sources:**

CO<sub>2</sub> emissions data from DMRB V7 Emission Factor Toolkit V9 spreadsheet.

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### 3.7 Landscape Impacts Worksheet

Features	Step 2	Step 3				Step 4
	Description	Scale it matters	Rarity	Importance	Substitutability	Impact
Pattern	Woodland blocks are small and infrequent to the west with the A1, River Great Ouse and the East Coast Main Line (ECML) railway forming linear features passing north south through the landscape. Urban and industrial built form is focussed around St Neots, north of the Scheme. South of Wintringham pylons cross the landscape east west, leading to Little Barford Power Station on the southern edge of St Neots. The landscape is less settled east of St Neots as the character becomes open and more rural heading towards Caxton Gibbet. Alington Hill, east of the ECML and south of St. Neots is a notable topographical feature locally. Arable fields tend to be large across the area. Larger areas of broad-leaved and mixed woodland lie in central and eastern sections of the study area. Intermittent and broken hedgerows define the boundaries of fields in this area. Smaller pockets of pasture are clustered around villages at Croxton, Toseland, Yelling and Eltisley, divided and enclosed by hedgerows and mature trees.	Open undulating landscape is relatively consistent across the area. Large agricultural fields form the most common features of the landscape. The River Great Ouse and Greensands Ridge at Everton form large landscape features informing landscape character and visual amenity. The existing Black Cat junction of the A1/A421 is a large signalled junction with Cambridge Road and Caxton Gibbet junctions also forming smaller highway features by comparison.	The Scheme does not cross any statutory designated landscapes. The landscape is common nationally, regionally and locally with the exception of Croxton Park and ancient woodlands. The Everton Greensand Ridge has been identified locally as being of higher landscape value.	Ancient woodland includes Sir John's Wood east of the Black Cat roundabout and Eltisley Wood, south of Eltisley village. Croxton Park is a historic park of regional importance. Most of the remaining landscape is large agricultural fields, woodland blocks separated by field drains and brooks. There is a small number of Tree Preservation Order (TPO) trees with one being a veteran Elm tree. Some of these features are visually prominent and have amenity value.	Any trees/vegetation lost as part of the scheme can be replaced as part of the landscape mitigation. The scheme is not expected to have impacts on the landscape or visual amenity of Croxton Park.	The disruption of agricultural field patterns and landscape elements beyond the highway corridor are expected to have an impact on the local landscape. Loss of vegetation as a result of the Scheme would be offset by the landscape mitigation proposals. Diverting the route away from features such as the veteran Elm tree and Croxton Park would reduce impacts on these receptors. The Scheme will extend beyond the existing highway boundary across the rural landscape and increase the footprint of the junctions at Black Cat, Cambridge Road and Caxton Gibbet.  <b>Moderate adverse (negative) effect</b>
Tranquillity	Levels of tranquillity vary depending upon the distance to the existing road infrastructure as well as the close proximity of the urban edge of St Neots. There is noticeably less tranquillity in the west of the study area as a result of the existing A1, A421, ECML and edge of St Neots. The busy A1, ECML and A421 reduce tranquillity experienced from public rights of way across Roxton, Chawston and Tempsford. These areas are impacted upon by noise and visual intrusion including from lighting of junctions at night. Overhead powerlines also detract from the sense of tranquillity in the area. The land east of the River Great Ouse is generally more tranquil. Alington Hill is the most tranquil, where the openness of the landscape is higher and there is a greater perceived naturalness and lower noise and visibility of urban development. However, public access in this area is limited. In conclusion, tranquillity within the study area is reduced by existing major infrastructure and human influences.	New junctions at Black Cat, Cambridge Road and Caxton Gibbet will be of larger scale than the existing junctions they replace.	The sense of tranquillity is low in proximity to existing infrastructure, but relatively higher in the rural landscape between the ECML and Abbotsley and north of the existing A428 east of St. Neots.	Tranquillity is of limited importance at a local level in the sections of the Scheme adjacent to St Neots and in proximity to major infrastructure. This increases south of the Scheme at Tempsford and east of Cambridge Road junction.	There is no potential to substitute loss of tranquillity.	The Scheme is proposed broadly in and crossing existing major infrastructure corridors such that at the western end of the Scheme and in proximity to St. Neots changes in tranquillity will be barely noticeable. There will be a minor impact on tranquillity east of the ECML, across Alington Hill and in the eastern sections of the study area north of Croxton.  <b>Slight adverse (negative) effect</b>
Cultural	A small number of Grade II listed buildings lie in close proximity to the Scheme. Brook Cottages is a Grade II listed building and will be demolished during the construction phase. Croxton Park lies beyond the immediate boundary of the Scheme with existing vegetation sufficient to minimise impacts. Two public rights of way on the eastern edge of St Neots will be permanently closed. One public right of way from Toseland and one from Eltisley will be permanently diverted. Heritage features include Scheduled Monuments, for example the deserted villages at Weald and Wintringham, and conservation areas within settlements.	The new junction at Black Cat will be larger than the existing junction and will require the demolition of Brook Cottages.	The majority of the landscape features of cultural relevance are not rare with the exception of Croxton Park which is recognised regionally.	The majority of the study area is of limited cultural importance. Croxton Park is regionally important.	Planting is proposed to reflect the prevailing character of the landscape through which the Scheme passes.	Indirect impacts of the Scheme will be noticeable on the setting of a small number of the listed buildings and their settings due to their close proximity to the Scheme. A small number of PRoWs will be permanently truncated and realigned. Overall the Scheme is assessed as having a minor impact on these features.  <b>Slight adverse (negative) effect</b>

Landcover	A more industrial/post-industrial mixed land use pattern is focused along the A1/A428 corridor between the Black Cat roundabout and St Neots, which extends to the River Great Ouse in places. Larger areas of broad-leaved and mixed woodland also exist throughout the study area to the east. Scattered woodland east of the ECML extend into the open landscape in the eastern sections of the Scheme. Large scale agricultural fields with few boundary features are common. Minor brook corridors influence topography and landcover patterns, for example Hen Brook and Wintringham Brook east of St. Neots and Gallow Brook north of Croxton. At the eastern end of the Scheme the land forms a broad plateau above the sedimentary bedrock upon which the settlements of Toseland, Yelling, Papworth Everard, Croxton, Eltisley and Caxton are situated. Subtle variations in landform create a series of lowland plateaux areas divided by broad, shallow valleys and ridge lines.	The landscape is of local importance.	Generally common nationally, regionally and locally. Croxton Park is regionally distinctive.	Common, although woodland cover is locally important.	The loss of features contributing to land cover are substitutable. New features such as hedgerows can be created in a reasonably short timescale. Woodland is substitutable in the longer term.	Existing vegetation will be lost where the route of the Scheme intersects existing field boundaries, woodland blocks and water courses. Although some severance will remain, planting proposed as mitigation will mature to replace lost habitat and reinforce the landscape framework.  <b>Moderate adverse (negative) effect</b>
Summary of character	This is a well settled, low lying landscape included by the River Great Ouse. The proximity of settlement, intensive agriculture and major transport infrastructure mean that this is often a busy, rural landscape. The evolving land-uses and extensions to the active, large scale quarrying, particularly adjacent to Black Cat junction contribute to the landscape character. The Scheme includes a cutting through Alington Hill, A1 underpass and the earth works associated with the grade separated junctions. Elevated sections at Toseland Road and Eltisley in a relatively flat landscape. Sites designated for ecology and natural heritage contribute to the character of the landscape within the study area.	The landscape within the study area is typical of the landscape character areas as assessed in the local landscape character assessments.	Areas of locally characteristic landscape.	The rural landscape east of St Neots to Caxton Gibbet is likely to be appreciated at a local level.	The existing highway corridor already impacts on landscape character, therefore there is a relatively good degree of substitutability for the western and central sections of the Scheme. Trees/vegetation lost as part of the scheme can be replaced as part of landscape mitigation.	There are a number of public rights of way which will be severed or require redirection within the Scheme. Raised embankments and bridges will be more visible from elevated viewpoints within the local landscape. Gantries, signs and lighting will become additional features on the skyline. Changes to the perception of the landscape character will be noticeable due to the scale and extent of the Scheme. There will be a noticeable increase in fragmentation of the landscape, but broadly in the existing A428 corridor. Exceptions are the route through Alington Hill and north of the existing A428 between Croxton and Toseland.  <b>Moderate adverse (negative) effect</b>

**Reference Sources**

This document has included a review of landscape character assessments at various levels and fieldwork. Visual amenity has been considered with respect to receptors on public rights of way and views from residential and commercial premises.

**Step 5 - Summary Assessment Score**

There are no nationally recognised or protected landscapes within proximity of the Scheme. There will be landscape impacts between Roxton and Tempsford. Impacts are anticipated on the landscape character of the Ouse Valley as a result of the scale of new infrastructure, particularly the introduction of the new three tier Black Cat junction and the River Great Ouse viaduct and embankments. The lowering of the A1 corridor through this area via an underpass and the new flyover across the Black Cat junction will represent a change in the topography of the local landscape, in addition to the loss of some buildings adjacent to the Scheme. Effects on landscape features and character are also occur where the Scheme diverts from the route of the existing A428. The new grade-separated junctions, viaducts, bridges and the new dual carriageway will introduce substantial earthworks and structures into the local landscape, which are likely to appear out of character with the surrounding topography and land cover patterns in the short to medium term, until proposed planting has established. Other impacts where the new dual carriageway will pass through more remote areas at Alington Hill and the section on embankment across the valley of Hen Brook east of St Neots will sever existing landscape patterns. The will be a small reduction in tranquillity in the central and eastern parts of the Scheme.

There will be adverse effects on the views and visual amenity of residents on the fringes of settlements and scattered rural properties in the open countryside, and on people using PRoWs in close proximity to the Scheme. Visual impacts are likely to affect residential and PRoW receptors in close proximity to the new Black Cat, Cambridge Road and Caxton Gibbet junctions due to the scale and height of these new features. Some beneficial effects on visual amenity are likely to result from reduction in traffic visible on existing roads, for example the A428 and the A1 at Black Cat as it heads through the underpass.

**Moderate adverse (negative) effect**

**Qualitative Comments**

The route of the Scheme will pass through both rural and urban landscapes, consisting of common landscape features and elements and is not recognised for its landscape quality. The A1, A428, A421 and ECML and the associated infrastructure which serves them, already form detracting features. The Scheme will be largely within this context, but where it diverts from these existing infrastructure corridors there will be impacts of local landscape character, such as at Alington Hill and north of Croxton.

### 3.8 Townscape Impacts Worksheet

Features	Step 2	Step 3					Step 4
	Description	Scale it matters	Rarity	Importance	Substitutability	Changes in Without-scheme case	Impact
Layout	The principal settlement in the study area is St Neots, a traditional market town which has expanded rapidly since the end of the Second World War. Smaller settlements are distributed across the study area and include, from west to east, Roxton, Tempsford, Wyboston, Chawston, Abbotsley, Wintringham, Toseland, Croxton, Yelling, Eltisley, Papworth Everard and Cambourne. The shape of St Neots has been heavily influence by the River Great Ouse which passes through the centre of the town. Urban expansion has taken place on both banks of the River Great Ouse restricted by the ECML in the east and the A1 to this west. The location and access to transport routes has been a contributing factor to the expansion of St Neots. Papworth Everard lies over 1km north of the Scheme. The central part of the village is defined by a historic settlement pattern, including the southern extent of Papworth Hall. Cambourne lies 0.5km east of the Scheme and is a modern residential development with a planned layout. Both Cambourne and Papworth Everard lie within the district of South Cambridgeshire.	Settlements are generally small, rural villages and hamlets, with the exception of St. Neots.	The pattern of settlements is common	Some settlements are covered in part by conservation areas, which generally define the historic core.	For areas of the built form outside of the conservation area substitutability is achievable.		No changes to the pattern of the townscape have been identified with the exception of Wyboston and Chawston, where a new link road will be created. This will divide parts of the townscape but also remove dangerous access points onto the existing A1.  <b>Slight adverse (negative) effect</b>
Density and mix	The majority of built form in St Neots is low density two storey residential development with large industrial buildings to the southern and eastern edges. Smaller rural settlements of Roxton, Tempsford, Wyboston, Chawston, Abbotsley, Wintringham, Toseland, Croxton, Yelling, Eltisley, Papworth Everard and Cambourne comprises mostly low density houses.	St. Neots is a large market town and the largest settlement. Villages are distributed across the area	The density and mix of development is common.	The density and mix of local importance.	The density and mix of development within the settlements is substitutable.		No changes to the density or mix of development have been identified. <b>Neutral effect</b>
Scale	The majority of buildings within the settlements are two storey and in scale with their surroundings. Areas where buildings are slightly larger in height and mass are located on the southern edges of St Neots and Papworth Everard, as well as the western edge of Cambourne. Existing views and vistas seen from within the settlements. Views of residents on the A1, Roxton, Chawston and Tempsford include existing major road infrastructure.	The scale of the Scheme will impact on views from Roxton, Tempsford, Chawston and rural dwellings at Potton Road.	The scale of the Scheme is larger than any other infrastructure currently within the study area. It will introduce new features into the landscape but will not affect the scale of existing settlements.	The scale of local development is common to many of the settlements within the study area.	The scale and massing of buildings within the settlements is substitutable.		There will be no direct impacts to the scale of the townscape.  <b>Neutral effect</b>
Appearance	Local distinctiveness is recognised within conservation area appraisals. These detail the materials, architecture, styles, colours, textures and craftsmanship of the buildings. Other buildings not included within the appraisal recognised for their local distinctiveness include listed buildings in St. Neots and villages in the rural landscape.	The Scheme will not result in impacts on the appearance or distinctiveness of the townscape character of St. Neots or villages in the rural landscape.	The appearance of buildings within conservation areas are considered locally important. For the buildings outside these areas, the majority are considered common.	The majority of the built form is located outside the conservation areas and are considered common.	For buildings within the conservation area there is no potential to substitute the loss of these buildings and their appearance as they are of local importance.		There will be no direct impacts to appearance of locally important or common buildings of the townscape.  <b>Neutral effect</b>
Human interaction	The larger settlements of St Neots, Papworth Everard and Cambourne all have high streets which attract pedestrian activity. These high streets are the commercial centre for pedestrians and have well considered pavements and pedestrian access. Human activity in smaller settlements is lower with fewer amenities.	The scale of St Neots, Papworth Everard and Cambourne gives rise to higher amounts of human interaction.	The levels of pedestrian activity in these settlements is common.	The levels of human interaction are identified as of local importance.	There is no potential to substitute the loss of pedestrian activity and human interaction.		There will be no direct impacts to the human interactions identified within the townscape.  <b>Neutral effect</b>

Cultural	A number of settlements in proximity to the Scheme have conservation areas, reflecting their cultural importance. This includes Roxton, Tempsford, St. Neots and Papworth Everard.	The scale of conservation areas relative to the size of existing settlements is generally small. Exceptions include Roxton and Tempsford, where conservation areas cover a larger part of the settlement area with limited later expansion.	Some features are protected in recognition of their cultural importance, such as listed buildings tree preservation orders and the conservation area protect features which contribute to the character of existing settlements.	The features of cultural importance identified are of local importance.	There is no potential to substitute the loss of historical features of cultural importance.		There will be no direct impacts to cultural aspects of the townscape.  <b>Neutral effect</b>
Land use	The town of St Neots is formed of three main parts; the two extensive residential areas east and west separated by the river and flood plain of the River Great Ouse. The major landcover in St Neots is residential development which has expanded substantially in the post war era bounded by the ECML in the east and the A1 in the west. St. Neots includes many open spaces, particularly along the River Great Ouse. Other settlements are predominantly residential interspersed with open space, with other uses such as industrial and commercial generally on the edge.	The scale of development is common for settlements in the area	Landcover patterns are common for settlements in the area	Landcover patterns are common for settlements in the area	The majority of the landcover is substitutable. With the exception of the nature reserve at Cambourne and SSSI at Papworth Everard. The conservation areas in Papworth Everard and St Neots will not be substitutional.		There will be no direct impacts to landcover of the townscape.  <b>Neutral effect</b>
Summary of character	<p>St Neots has developed on both sides of the River Great Ouse from its early origins as a small settlement on the eastern river bank. The urban area has increased significantly through post war development and is now physically constrained by road and rail lines. A single crossing of the river at the centre of the town connects the two urban areas and provides a gateway into the historic core where the market place provides a key node in the urban fabric. The greatest diversity of character is found around the original settlement to the east of the river. Here, the historic centre is connected to areas of 19th and early 20th Century housing at Phoenix Square and Avenue Road. The original village of Eynesbury is distinct in character from the surrounding and more recent housing development. To the west of the River Great Ouse 18th and 19th Century buildings dominate the road frontage between Eaton Socon and Eaton Ford creating an historic route through the surrounding peripheral estates. Priory Park and Hen Brook provide important areas of open space. Roman roads such as the A1 form important historical references for the town. Landmarks include St Mary's in St Neots, Pains Mill, St. Mary's in Eynesbury, St Mary's in Eaton Socon.</p> <p>The settlements of Roxton, Tempsford, Toseland, Yelling, Croxton and Eltisley have experienced little post-war expansion and retain an historic character and rural setting. Wyboston and Chawston have been expanded by incremental infill development and lack distinct centres. Cambourne is a new settlement, developed since the 1990s. It continues to expand through new development towards the Caxton Gibbet junction. Papworth Everard is located in an undulating landscape which rises up to an elevated settlement edge, which is defined by new housing estates and industrial estates and business parks, enclosed by the A1198 Papworth bypass. Views extend south towards prominent farm units and outbuildings which are prominent on higher ground. The southern fringe of Papworth Everard is defined by an area of new housing on high ground to the southwest and by an area of industrial and commercial buildings to the southeast.</p>	The scale of the Scheme will not result in impacts on the townscape character of settlements within proximity to the Scheme	The settlements in proximity to the Scheme include some elements which are recognised for their townscape value, although these tend to be associated with the historic core and are located away from the Scheme.	The townscape character is common with the exception of features recognised for their townscape value, which include listed buildings and conservation areas.	There are elements which are not substitutable, but these are located away from the Scheme		The Scheme will not noticeably change the character of the existing townscape.  <b>Slight adverse (negative) effect</b>

#### Reference Sources

Huntingdonshire Landscape and Townscape Assessment SPD (June 2007). The Campaign to Protect Rural England (CPRE 2020).

#### Step 5 - Summary Assessment Score

The townscape of most settlement in proximity to the Scheme will not be affected. Wyboston and Chawston will experience some adverse effects related to the widening of the existing A1, the introduction of noise fences, and the construction of a new link road which will divide part of the settlement and alter circulation patterns. In the case of Roxton and Tempsford, the increased size and scale of the Black Cat junction will indirectly impact the perceptual characteristics of the townscape, although this will be limited to areas with intervisibility. At Croxton the Scheme will be located approximately 700m further north than the existing A428, enhancing tranquillity of the townscape of the settlement. At Eltisley the Scheme will also be further away to the north on the western side of the settlement, but slightly closer on the eastern side. As the village is nucleated, effects on the perceptual characteristics of townscape will be limited to the edges. There will be no perceptible changes to the townscape character of the other settlements in proximity to the Scheme.

**Slight adverse (negative) effect**

#### Qualitative Comments

The route of the Scheme will pass through areas of St Neots, Wyboston, Chawston townscapes, consisting of common landscape features which are not recognised for their townscape quality. The A1, A428, A421 and ECML and the associated infrastructure which serves them, already form detracting features. The Scheme will be seen largely within this context, but will follow the periphery of Roxton, Wintringham and Eltisley with no significantly adverse impacts identified on townscapes.

### 3.9 Historic Environment Impacts Worksheet

Step 2		Step 3			Step 4
Feature	Description	Scale it matters	Significance	Rarity	Impact
Form	There are 580 previously recorded heritage assets within a 1km study area, including 14 scheduled monuments, 133 listed buildings (seven are Grade II* and 126 are Grade II), one entry on the Register of Parks and Gardens (Croxtan Park, Grade II*) and three conservation areas. The scheduled monuments include a Bronze Age barrow and two post-medieval bridges. The remainder are all sites of medieval date, including moated sites and deserted medieval villages. The listed buildings comprise a range of farms and associated buildings, churches, milestones and residential properties, including the Grade II Brook Cottages adjacent to the A1. Along the route sites have been identified through analysis of aerial photographs, geophysical survey and evaluation trenching. Sites include a number of Iron Age and Roman enclosures and the site of a medieval windmill. Two Roman roads cross the study area, and medieval and post-medieval ridge and furrow has also been identified across the scheme.	National, Regional and Local	The assets contain archaeological significance regarding information about past settlement patterns and other activity. The listed and non-listed buildings contain historic and architectural significance.	Site types relatively common, although some are rarer. Number of Iron Age and Roman sites is less common.	There will be impacts on a number of archaeological sites and elements of the historic landscape, including Brook Cottages. This building will be demolished. <b>Large adverse (negative) effect.</b>
Survival	The survival of sites varied. Designated assets survive well, while other sites survive less well. Some enclosures have been truncated by ploughing, affecting their survival. Urban areas and regional travel networks represent multiple phases of development and land use which impacts on the survival of the historic landscape.	National, Regional and Local	Good survival means that more information can be gained from extant heritage assets. Poor survival restricts the amount of knowledge that could be gained.	Common	There will be physical impacts on a number of archaeological sites, as well as on Brook Cottages. The Scheme will result in the demolition of Brook Cottages and the destruction of a number of archaeological sites. There is mitigation that can be undertaken to ensure recording of sites. <b>Large adverse (negative) effect.</b>
Condition	The condition of the sites and buildings varies. Some are in good condition, particularly those that are designated and maintained, such as listed buildings. Other sites are in poorer condition.	National, Regional and Local	The assets in good condition will ensure their survival for future generations. Those in poorer condition are likely to lead to a loss of information.	Common	There will be physical impacts on a number of archaeological sites, as well as on Brook Cottages. Other sites may only have a small part of the site affected, but this is unlikely to affect their condition. The condition of other assets outside the scheme boundary will not be affected. <b>Moderate adverse (negative) effect.</b>
Complexity	There are a range of site types recorded in the study area. These include a variety of Iron Age enclosure types and a range of Roman sites, as well as other types of sites. There is also a variety of building types. Many of the sites recorded have a range of features and phases of work, and many of the buildings have different phases of construction.	National, Regional and Local	More complex sites may contain greater information on phases and development of archaeological sites and historic buildings. Sites with multiple phases may have increased significance.	Common	Many of the archaeological sites will have their complexity affected as they will be removed by the scheme. <b>Moderate adverse (negative) effect.</b>
Context	The majority of assets are in a rural or semi-rural location. Some are located in a roadside setting.	Regional and Local	The context of some sites does not contribute to their significance. The setting of others does, including some designated assets (e.g. listed milestones, churches).	Common	Some assets will have their setting adversely affected by the scheme, while others, such as Croxtan Park and assets within it, will have a beneficial effect. <b>Slight adverse (negative) effect.</b>
Period	There are a range of dates recorded for the assets in the study area, dating from the Palaeolithic onwards. Most assets recorded in the scheme boundary date to the Iron Age, Roman, medieval and post-medieval.	Regional and Local	The period of most sites does not contribute greatly to their significance, although some assets are from rarer periods on the scheme, such as those of Bronze Age date.	Common	There will be impacts on a range of sites of different periods, most of which are Iron Age and Roman in date. <b>Slight adverse (negative) effect.</b>

#### Reference Sources

HER records, historic mapping, aerial photographic survey, geophysical survey, evaluation excavation.

#### Step 5 - Summary Assessment Score

**Large adverse**

**Qualitative Comments**

There will be impacts on a number of archaeological sites, as well as on Brook Cottages. This building will be demolished. Archaeological sites which are affected by the scheme can be mitigated. There will be impacts on the setting of some assets. While most are adverse, there are some beneficial effects to the setting of Croxton Park and assets within it. The overall assessment score is based on the worst case impact on Brook Cottages. Impacts on other assets will be lower. The impact levels may change as the assessment progresses.

### 3.10 Biodiversity Impacts Worksheet

Step 2		Step 3			Step 4	Step 5	
Area	Description of feature/attribute	Scale (at which attribute matters)	Importance (of attribute)	Trend (in relation to target)	Biodiversity and earth heritage value	Magnitude of impact	Assessment Score
Biodiversity (overall)	Habitat biodiversity within the Scheme boundary	Local	Low	Probably stable in recent years though in decline post Second World War. The Scheme includes mitigation and enhancement.	Lower	Minor negative	Slight Adverse
Woodland	Small areas of woodland of limited biodiversity value	Local	Low. Woodland has remained stable within the wider landscape for a number of decades. Lowland deciduous woodland is a feature of National Character Area.	Woodland has remained stable within the wider landscape for a number of decades. The Scheme will mitigate and enhance woodland area.	Lower	Minor negative	Slight Adverse
Veteran tree	One veteran elm tree	Local	Low. Veteran trees are a feature of the National Character Area	The only veteran tree found. It has been avoided by design amendment	Lower	Neutral	Neutral
Hedgerows	A feature of the landscape but most of low value.	Local	Low	Hedgerow has decreased significantly in length within the landscape. The Scheme will mitigate and enhance hedgerow length.	Lower	Minor negative	Slight Adverse
Arable fields/field margins	A feature of the landscape but most of low value.	Local	Low	Arable fields/field margins have deteriorated post Second World War.	Neutral	Minor negative	Slight Adverse
Brooks	A diminishing feature of the landscape due to agricultural impact, e.g. drying out	Local	Low	Condition of these watercourses has deteriorated in past decades. The Scheme will mitigate habitat and provide underpasses	Lower	Minor negative	Slight Adverse
Bats	Low density of roosting but high movement activity in parts of Scheme	District	Medium	Probably stable in recent years though in decline post Second World War. The Scheme includes significant mitigation and some enhancement.	Medium	Minor negative	Slight Adverse
Barbastelle bat	Low density of roosting but medium movement activity in parts of Scheme	District	Medium. A feature of the National Character Area.	Probably stable in recent years though in decline post Second World War. The Scheme includes significant mitigation and some enhancement.	Medium	Minor negative	Slight Adverse
Badger	Moderate activity in the landscape	Local	Low	Probably stable in recent years though in decline post Second World War. The Scheme includes significant mitigation.	Lower	Minor negative	Slight Adverse
Brown Hare	Widespread in the landscape	Local	Low	Probably stable in recent years though in decline post Second World War. The Scheme includes significant mitigation.	Lower	Minor negative	Slight Adverse
Otter	Moderate activity in parts of the landscape, primarily Great Ouse corridor	District	Medium. Otters are a feature of National Character Area.	Probably stable in recent years. The Scheme includes mitigation.	Medium	Minor negative.	Slight Adverse

Wintering birds	Typical lowland avifauna for arable landscape.	Local	Low	Probably stable in recent years though in decline post Second World War. The Scheme includes significant mitigation and some enhancement.	Lower	Minor negative	Slight Adverse
Breeding birds	Typical lowland avifauna for arable landscape.	Local	Low	Probably stable in recent years though in decline post Second World War. The Scheme includes significant mitigation and some enhancement.	Lower	Minor negative	Slight Adverse
Barn Owl	Present along parts of the route	District	Medium. Listed on Schedule 1 of Wildlife and Countryside Act 1981 (as amended)	Probably stable in recent years though in decline post Second World War. The Scheme includes mitigation.	Medium	Minor negative	Slight Adverse
Hobby	Present in two locations along the route	District	Medium. Listed on Schedule 1 of Wildlife and Countryside Act 1981 (as amended)	Probably stable in recent years though in decline post Second World War. The Scheme includes mitigation.	Medium	Minor negative	Slight Adverse
Red Kite	Present along the route and probably breeding locally.	District	Medium. Listed on Schedule 1 of Wildlife and Countryside Act 1981 (as amended)	Increasing frequency of occurrence having been extinct in the region for centuries. The Scheme includes mitigation.	Medium	Minor negative	Slight Adverse
Great Crested Newt	Present primarily in field ponds across the landscape.	District	Low. A feature of National Character Area.	Probably stable in recent years though in decline post Second World War. The Scheme includes mitigation.	Lower	Minor negative	Slight Adverse
Fish	Present in River Great Ouse and some sections of brooks	Local	Low	Probably stable in River Great Ouse though condition of the brooks has deteriorated in last decades.	Lower	Neutral	Neutral
Terrestrial invertebrates	Typical lowland arable landscape.	Local	Low	Probably stable in recent years though in decline post Second World War. The Scheme includes mitigation.	Lower	Minor negative	Slight Adverse
Aquatic invertebrates	A diminishing feature of the landscape due to agricultural impact, e.g. drying out	Local	Low	Condition of watercourse habitats has deteriorated in last decades.	Lower	Minor negative	Slight Adverse

**Reference Sources**

Historical records, ecological survey results.

**Summary Assessment Score**

Slight Adverse

**Qualitative Comments**

Employing the Highways England biodiversity net gain calculation, a habitat based metric, the Scheme will result in a net increase in biodiversity units of 20.5%. In addition, enhancements will be achieved within the Scheme for certain habitats and species. The information in the table assumes that:

- the implementation of an Biodiversity Management Plan and a First Iteration Environmental Management Plan (EMP)
- construction activities will be conducted in accordance with Environment Agency's Pollution Guidelines;
- the drawing up and lighting strategy for the Scheme

### 3.11 Water Environment Impacts Worksheet

Description of study area/ summary of potential impacts	Key environmental resource	Features	Quality	Scale	Rarity	Substitutability	Importance	Magnitude	Significance
<p><b>Study area:</b> Watercourses crossed by the Scheme, and within Study Area, as described in Chapter 13 of the ES.</p> <p><b>Potential Impacts:</b> Impacts on surface water quality due to routine runoff from the highway</p>	River Great Ouse	Conveyance of Flows, dilution, provision of water for surface water abstraction, and biodiversity	The River Ouse is a Water Framework Directive (WFD) waterbody, with Q95 at Roxton 1.99 m3/s, and there are associated tributary watercourses and ditches. Moderate Ecological Potential. Countryside Wildlife Site (CWS).	Local and Regional	Abundant	Low	Very High	Negligible adverse - routine runoff directed through Sustainable Drainage Systems (SuDS) treatment train	Low Significance
	Begwary Brook, South Brook, Hen Brook, Stone Brook, West Brook tributaries, and Bourn Brook	Conveyance of Flows, dilution, provision of water for surface water abstraction, and biodiversity	<p>Begwary Brook is a WFD waterbody, with an estimate Q95 of 0.002m3/s. Surveys have shown evidence of Otter.</p> <p>South Brook is a tributary to River Great Ouse, and surveys have shown evidence of Otter. Hen Brook is a WFD waterbody, with a Q95 of 0.002m3/s close to point of discharge, and has shown evidence of Otter.</p> <p>Hen Brook is a WFD designated waterbody that is at Moderate Ecological Potential (with an objective of Moderate by 2015). Q95 of 0.002m3/s. Evidence of Otter, which is a protected species under Annex II of the Habitats Directive.</p> <p>Bourn Brook is a WFD designated waterbody, and fish surveys have shown the presence of Bullhead, a species listed under Annex II of the Habitats Regulations.</p> <p>Stone Brook is a WFD waterbody, with an estimated Q95 close to point of discharge in a tributary of 0.001 m3/s.</p> <p>West Brook is a WFD designated waterbody with a Q95 at a point downstream on its tributary of 0.004m3/s.</p>	Local and Regional	Abundant	Low	High	Negligible adverse - routine runoff directed through SuDS treatment train	Insignificant
	Rockham Ditch, Wintringham Brook and its tributary, Fox Brook, and Gallow Brook.	Conveyance of Flows, dilution, provision of water for surface water abstraction, and biodiversity	Rockham Ditch, Wintringham Brook, Fox Brook, and Gallow Brook are not WFD waterbodies, but are tributaries of Hen Brook.	Local and Regional	Abundant	Low	Medium	Negligible adverse - routine runoff directed through SuDS treatment train	Insignificant
	Groundwater - superficial Secondary A aquifer and Secondary Undifferentiated aquifer	Baseflow support to local watercourses; used as a water resource for abstraction	Areas of superficial Secondary A aquifer (and potentially localised areas of undifferentiated aquifer) that may support water supply at a local level. However, groundwater does not have WFD waterbody status in the study area.	Local and Regional	Abundant	Low	Medium	Negligible - no soakaways are proposed. Some runoff may infiltrate along low flowing ditches but only after treatment.	Insignificant
	River Great Ouse	Conveyance of Flows, dilution, provision of water for surface water abstraction, and biodiversity	The River Ouse is a WFD waterbody, with Q95 at Roxton 1.99 m3/s, and there are associated tributary watercourses and ditches. Moderate Ecological Potential. CWS.	Local and Regional	Abundant	Low	Very High	Negligible adverse - routine runoff directed through SuDS treatment train with penstocks on the majority of strategic road network outfalls	Low Significance
Begwary Brook, South Brook, Hen Brook, Stone Brook, West	Conveyance of Flows, dilution,	Begwary Brook is a WFD waterbody, with an estimate Q95 of 0.002m3/s. Surveys have shown	Local and Regional	Abundant	Low	High	Negligible adverse - routine runoff directed	Insignificant	

<p><u>Study area:</u> Watercourses crossed by the Scheme, plus groundwater as described in Chapter 13 of the ES. <u>Potential Impacts:</u> Impacts on surface water quality during accidental spillage</p>	<p>Brook tributaries, and Bourn Brook</p>	<p>provision of water for surface water abstraction, and biodiversity</p>	<p>evidence of Otter.</p> <p>South Brook is a tributary to River Great Ouse, and surveys have shown evidence of Otter. Hen Brook is a WFD waterbody, with a Q95 of 0.002m<sup>3</sup>/s close to point of discharge, and has shown evidence of Otter.</p> <p>Hen Brook is a WFD designated waterbody that is at Moderate Ecological Potential (with an objective of Moderate by 2015). Q95 of 0.002m<sup>3</sup>/s. Evidence of Otter, which is a protected species under Annex II of the Habitats Directive.</p> <p>Bourn Brook is a WFD designated waterbody, and fish surveys have shown the presence of Bullhead, a species listed under Annex II of the Habitats Regulations.</p> <p>Stone Brook is a WFD waterbody, with an estimated Q95 close to point of discharge in a tributary of 0.001 m<sup>3</sup>/s.</p> <p>West Brook is a WFD designated waterbody with a Q95 at a point downstream on its tributary of 0.004m<sup>3</sup>/s.</p>					<p>through SuDS treatment train with penstocks on the majority of strategic road network outfalls</p>	
	<p>Rockham Ditch, Wintringham Brook and its tributary, Fox Brook, and Gallow Brook.</p>	<p>Conveyance of Flows, dilution, provision of water for surface water abstraction, and biodiversity</p>	<p>Rockham Ditch, Wintringham Brook, Fox Brook, and Gallow Brook are not WFD waterbodies, but are tributaries of Hen Brook.</p>	<p>Local and Regional</p>	<p>Abundant</p>	<p>Low</p>	<p>Medium</p>	<p>Negligible adverse - routine runoff directed through SuDS treatment train with penstocks on the majority of strategic road network outfalls</p>	<p>Insignificant</p>
	<p>Groundwater - superficial Secondary A aquifer</p>	<p>Baseflow support to local watercourses; used as a water resource for abstraction</p>	<p>Areas of superficial Secondary A aquifer that may support water supply at a local level. However, groundwater does not have WFD waterbody status in the study area.</p>	<p>Local and Regional</p>	<p>Abundant</p>	<p>Low</p>	<p>Medium</p>	<p>Negligible - no soakaways are proposed. Any spillage would be captured either within the road drainage network or within the treatment SuDS.</p>	<p>Insignificant</p>
	<p>Groundwater - secondary undifferentiated aquifer</p>	<p>Baseflow support to local watercourses; used as a water resource for abstraction</p>	<p>Areas of Secondary undifferentiated aquifer. Groundwater does not have WFD waterbody status in the study area.</p>	<p>Local and Regional</p>	<p>Abundant</p>	<p>Low</p>	<p>Low</p>	<p>Negligible - no soakaways are proposed. Any spillage would be captured either within the road drainage network or within the treatment SuDS.</p>	<p>Insignificant</p>
<p><u>Study area:</u> Watercourses crossed by the Scheme, plus groundwater, as described in Chapter 13 of the ES. <u>Potential Impacts:</u> Impacts on surface water quality due to road runoff associated with de-icing/salting operations</p>	<p>River Great Ouse</p>	<p>Conveyance of Flows, dilution, provision of water for surface water abstraction, and biodiversity</p>	<p>The River Ouse is a WFD waterbody, with Q95 at Roxton 1.99 m<sup>3</sup>/s, and there are associated tributary watercourses and ditches. Moderate Ecological Potential. CWS.</p>	<p>Local and Regional</p>	<p>Abundant</p>	<p>Low</p>	<p>Very High</p>	<p>Negligible adverse - Large flow for dilution available.</p>	<p>Low Significance</p>
	<p>Begwary Brook, South Brook, Hen Brook, Stone Brook, West Brook tributaries, and Bourn Brook</p>	<p>Conveyance of Flows, dilution, provision of water for surface water</p>	<p>Begwary Brook is a WFD waterbody, with an estimate Q95 of 0.002m<sup>3</sup>/s. Surveys have shown evidence of Otter.</p> <p>South Brook is a tributary to River Great Ouse, and surveys have shown evidence of Otter. Hen</p>	<p>Local and Regional</p>	<p>Abundant</p>	<p>Low</p>	<p>High</p>	<p>Minor adverse</p>	<p>Low Significance</p>

		abstraction, and biodiversity	<p>Brook is a WFD waterbody, with a Q95 of 0.002m<sup>3</sup>/s close to point of discharge, and has shown evidence of Otter.</p> <p>Hen Brook is a WFD designated waterbody that is at Moderate Ecological Potential (with an objective of Moderate by 2015). Q95 of 0.002m<sup>3</sup>/s. Evidence of Otter, which is a protected species under Annex II of the Habitats Directive.</p> <p>Bourn Brook is a WFD designated waterbody, and fish surveys have shown the presence of Bullhead, a species listed under Annex II of the Habitats Regulations.</p> <p>Stone Brook is a WFD waterbody, with an estimated Q95 close to point of discharge in a tributary of 0.001 m<sup>3</sup>/s.</p> <p>West Brook is a WFD designated waterbody with a Q95 at a point downstream on its tributary of 0.004m<sup>3</sup>/s.</p>						
	Rockham Ditch, Wintringham Brook and its tributary, Fox Brook, and Gallow Brook.	Conveyance of Flows, dilution, provision of water for surface water abstraction, and biodiversity	Rockham Ditch, Wintringham Brook, Fox Brook, and Gallow Brook are not WFD waterbodies, but are tributaries of Hen Brook.	Local and Regional	Abundant	Low	Medium	Minor adverse	Insignificant
<p><u>Study Area:</u> Watercourses crossed by the Scheme will receive new drainage from the proposed Scheme</p> <p><u>Potential Impacts:</u> Loss of channel and impacts on hydromorphological processes from new road outfalls</p>	Rockham Ditch, South Brook, Begwary Brook, Stone Brook and tributaries, Hen Brook and tributaries, Wintringham Brook and tributaries, Gallow Brook and tributaries, headwater tributaries of West Brook, and headwater tributaries of Bourn Brook (via Eastern Brook), and other unnamed tributaries of the River Great Ouse	Conveyance of Flows, dilution, provision of water for surface water abstraction, and biodiversity	Morphology importance is based on desk study and site surveys details of which are provided in Chapter 13 and Appendix 13.1 of the Environmental Statement.	Local and Regional	Abundant	Low	Low (morphology)	Minor adverse	Insignificant
<p><u>Study Area:</u> Watercourses crossed by the Scheme will receive new drainage from the proposed Scheme</p> <p><u>Potential Impacts:</u> Loss of channel and impacts on hydromorphological processes from new watercourse crossing structures</p>	River Great Ouse	Conveyance of flows and Biodiversity	Morphology importance is based on desk study and site surveys details of which are provided in Chapter 13 and Appendix 13.1 of the Environmental Statement.	Local and Regional	Abundant	Limited	Low (morphology)	Negligible with open span viaduct	Insignificant
	Rockham Ditch, South Brook, Begwary Brook, tributaries of Stone Brook, Hen Brook and tributaries (HB1/2/3/4), Wintringham Brook and tributaries (WB1/2), Gallow Brook and tributary (GB2), Fox Brook and tributaries (FxB 1/2/4/5), headwater tributaries of West Brook, and minor tributary of the River Great Ouse (RGO2)	Conveyance of flows and Biodiversity	Morphology importance is based on desk study and site surveys details of which are provided in Chapter 13 and Appendix 13.1 of the Environmental Statement.	Local and Regional	Abundant	Limited	Low (morphology)	Moderate adverse with appropriate culvert design and compensation enhancements to watercourses	Insignificant
	River Great Ouse	Floodplains	Flood zone 2/3 associated with River Great Ouse.	Regional	Abundant	Possible with flood compensation measures	High	Negligible	Insignificant

<p><u>Study area:</u> Watercourses crossed by the Scheme as listed within Chapter 13 of the ES. <u>Potential Impacts:</u> Exacerbation of flooding potential due to land take within floodplain and/or increased impermeable area within catchment</p>	Watercourses within the Study area with FZ 2 and 3: Stone Brook, South Brook, Begwary Brook, Hen Brook and Top Farm Brook tributary, West Brook, Wintringham Brook and tributaries, Fox brook and Gallow Brook	Floodplains	These watercourses have areas of Flood Zone 3, which overlap with, and adjacent to, between 1 and 100 residential and commercial properties.	Local	Abundant	Possible with flood compensation measures	Low	Negligible	Insignificant
	Watercourses within the Study area with no known overtopping/flooding or no residential receptors: Rockham Ditch and other agricultural ditches	Floodplains	Watercourses within the Study area with no known overtopping/flooding or no residential receptors: Rockham Ditch and other agricultural ditches	Local	Abundant	Possible with flood compensation measures	Low	Negligible	Insignificant
<p><u>Study area:</u> Watercourses crossed by the Scheme as listed within Chapter 13 of the ES. <u>Potential Impacts:</u> Risk of flooding from surface water sources</p>	Land associated with the River Great Ouse	Floodplains	Full details of the risk of flooding from surface sources is described in Appendix 13-4 of the Environmental Statement.	Local	Abundant	N/A	High	Negligible	Insignificant
<p><u>Study area:</u> Watercourses crossed by the Scheme as listed within Chapter 13 of the ES. <u>Potential Impacts:</u> Risk of flooding from surface water sources</p>	Areas associated with watercourses	Floodplains	Full details of the risk of flooding from surface sources is described in Appendix 13-4 of the Environmental Statement.	Local	Abundant	N/A	Low	Negligible	Insignificant
<p><u>Study area:</u> Watercourses crossed by the Scheme as listed within Chapter 13 of the ES. <u>Potential Impacts:</u> Risk of flooding from artificial sources</p>	Scheme area	Floodplains	Full details of the risk of flooding from artificial sources is described in Appendix 13-4 of the Environmental Statement.	Local	Abundant	N/A	Low	Negligible	Insignificant
<p><u>Study area:</u> Watercourses crossed by the Scheme as listed within Chapter 13 of the ES. <u>Potential Impacts:</u> Risk of flooding from groundwater sources</p>	Risk at the A1 Underpass	Floodplains	Full details of the risk of flooding from groundwater sources is described in Appendix 13-4 of the Environmental Statement.	Local	Abundant	N/A	Low	Minor adverse	Insignificant
<p><u>Study area:</u> Superficial Secondary A and undifferentiated aquifers within study area potentially providing baseflow to watercourses <u>Potential Impacts:</u> Impact on groundwater level and flow from deep excavations, cuttings and borrow pits</p>	Groundwater - superficial Secondary A aquifer and Secondary Undifferentiated aquifer	Potential baseflow support to local watercourses; used as a local water resource for abstraction; Biodiversity	Areas of superficial Secondary A aquifer (and potentially localised areas of undifferentiated aquifer) that may support water supply at a local level. However, groundwater does not have WFD waterbody status in the study area.	Local	Abundant	Low	Medium	Minor adverse	Insignificant
	River Great Ouse	Potential baseflow support to local watercourses; used as a water resource for abstraction; Biodiversity	Areas of superficial Secondary A aquifer (and potentially localised areas of undifferentiated aquifer) that may support water supply at a local level. However, groundwater does not have WFD waterbody status in the study area.	Local	Abundant	Low	Very High	Negligible	Low Significance

#### Reference Sources

Highways England A428 Black Cat to Caxton Gibbet improvements ES Report, specifically Chapter 13 and its appendices (13-1 to 13-7) including: Flood Risk Assessment, Drainage Strategy, HEWRAT assessment, WFD assessment, water quality monitoring and groundwater risk assessment from deep excavations and cuttings. These documents refer to site visits, water quality monitoring, ground investigations and desk study information including from the Environment Agency and various online data sources (including EA Catchment Data Explorer, MAGIC map, Ordnance Survey mapping, and Highways England Drainage Data Management System (HADDMS). etc.) for data on water quality, water resources, groundwater vulnerability, aquifer status, aquatic ecology, and the WFD.

#### Summary Assessment Score

Neutral

#### Qualitative Comments

Operational phase impacts assessed include those from highway runoff (including spillage risk and the seasonal use of de-icing salts), the construction of new structures to cross watercourses, permanent de-watering (i.e. the A1 Underpass), and changes in flood risk as a consequence of the proposed development. The magnitude of potential impacts ranges from moderate adverse to negligible, with the vast majority of impacts being either negligible or minor adverse only. A moderate adverse impact is predicted where new culverts (and associated realignments) are proposed as these will result in the partial loss of a section of channel and riparian habitat, and disconnection with the floodplain. However, the importance of water bodies in hydromorphological terms is low, and thus the impact is insignificant with mitigation. This includes the design of each culvert, the replacement of riparian habitat along road and land drainage ditches, and a commitment to provide compensatory enhancement of watercourses within the Order Limits (with interventions to be determined by further site survey and assessment). In the case of the River Great Ouse, which is of very high importance, a viaduct is proposed for its crossing. Negligible impacts are also predicted from routine runoff, spillage risk, seasonal application of de-icing salts, and permanent dewatering in the vicinity of the A1 underpass) are of low significance. Sustainable measures have been proposed to treat highway runoff with ponds (dry only and those with wet treatment zones), swales and ditches (from some outfalls to avoid unnecessary engineered outfalls). Improvement to the existing road drainage network have also been provided where practical to do so (e.g. the existing A421 pond). Finally, the Flood Risk Assessment concluded there would be no significant increase in fluvial flood risk to the adjacent land uses or an increase in surface water runoff as a result of the proposed Scheme.

### 3.12 Physical Activity

#### TAG Physical Activity Impacts Worksheet (Basic)

	Pedestrians (i)	Cyclists (ii)	Equestrians and Others (iii)
Numbers affected* (a)	8.00	1.14	0
Change in journey time in minutes (b)	2.71	0.45	0
Combined impact (c=a*b)	21.68	0.51	0

\*Numbers affected = users per average day

#### Reference Source

TAG Unit A4.1 - Social Impacts  
TAG Unit A5.1 - Active Mode Impacts  
Transport Assessment (TA) - Chapter 8: Sustainable transport (Draft)  
Public Rights of Way (PRoW) survey data - August / September 2020  
PRoW permanent diversion lengths.PDF - Figures from 15th May 2020  
8.1b WCHAR Report (Draft).pdf

#### Summary Assessment Score

Neutral

#### Qualitative Comments

Overall, provision is made within the Scheme to maintain the existing function of PRoW's where possible and where deemed appropriate, resulting in a generally neutral impact (possibly slightly positive where more formal crossing points have been introduced to maintain PRoWs, for instance at Eltislely and Caxton Gibbet; and slightly negative where existing PRoW's have been curtailed or diverted, such as at Wintringham Park). Reduced traffic levels and associated severance affects in Wintringham Park might encourage users of this area to travel via active modes, but given the Scheme and the section of the A428 it affects are largely inter-urban routes, this is not expected to have a significant effect.

### 3.13 Journey Quality

#### TAG Journey Quality Impacts Worksheet

Factor	Sub-factor	Better	Neutral	Worse
Traveller Care	Cleanliness		No impact	
	Facilities		No impact	
	Information		No impact	
	Environment		No impact	
Travellers' Views	-		No impact	
Traveller Stress	Frustration	<p>The Scheme will reduce the level of traffic along the existing A428, due to traffic diverted to the new dual carriageway. This would therefore improve travellers' ability to make good progress along the route which would in turn reduce travellers' frustration when using the existing A428.</p> <p>Similarly, the reduction in congestion on the existing A428 would reduce some travellers' needs to divert to other local roads, thereby reducing other travellers' frustration when using these local roads.</p>		

	Fear of potential accidents	The improved road condition due to the Scheme and lower traffic levels on the existing A428 is likely to reduce travellers fear of potential accidents. This is particularly relevant to travellers switching to the new dual carriageway given the reduced number of junctions those travellers are required to navigate.		
	Route uncertainty	Provision of new scheme link and reducing the traffic on the existing A428 would improve the reliability of the road network thereby reducing route uncertainty and inclination to rat-run along unfamiliar roads during congested periods.  Overall, a reduction in route uncertainty is expected compared to the existing alignment.		

**Reference Source**

WebTAG Unit A4.1: Social Impact Appraisal  
Transport Forecasting Report (TFR) - 2025 With Scheme Traffic Forecasts

**Summary Assessment Score**

Moderate Beneficial

### **Qualitative Comments**

The new dual carriageway would improve travellers' ability to make good progress along the route, reducing driver frustration (bus routes using the Scheme and existing A428 may also see a slight positive effect for this reason).

### 3.14 Security

#### TAG Security Impacts Worksheet

Security Indicator	Relative importance	Without scheme	With scheme
	(High/Medium/Low)	(Poor/Moderate/High)	(Poor/Moderate/High)
Site perimeters	Medium	Moderate	Moderate – fencing where required and/or boundary planting
Entrances and exits	Low	Moderate – entrances and exits from the network are clear and signage is provided to a modern standard	Moderate – entrances and exits from the network will be clear and signage will be provided to modern standards
Formal surveillance	Medium	Poor - no CCTV currently provided along the A428 or A1	High – CCTV to be provided at the Black Cat, Cambridge Road and Caxton Gibbet junctions
Informal surveillance	High	Moderate – the road is surveyed road users and nearby settlements	Moderate – by road users
Landscaping	Low	Moderate – the road is in places obscured by established vegetation, hedgerows and trees	Moderate - scheme seeks to reduce visual intrusion by planting and landform
Lighting and visibility	High	Moderate – the existing roundabouts are lit and some sections of the existing road are too	Moderate – the new dual carriageway will be unlit, the new junctions will be lit
Emergency call	High	Moderate	High – emergency phones will be provided at laybys

#### Approximate Number of Users Affected

Users of the Scheme - ca. 32,000 vehicle users per day on the section west of Cambridge Road junction; 48,000 on the section east of that junction (2025 DS).

#### Reference Source

WebTAG Unit A4.1: Social Impact Appraisal  
Transport Forecasting Report (TFR) - 2025 With Scheme Traffic Forecasts

#### Summary Assessment Score

Neutral

### Qualitative Comments

Negligible impact expected on WCHR, and on rail users.

It is proposed to relocate the two existing bus stops on the A1 north of Black Cat junction that are used by the X5 between Cambridge and Oxford. However, this is not expected to impact on the security or perceived security of the bus users.

In terms of driver security, the conditions on the existing A428 are expected to remain largely as they are now (while traffic flows on the existing A428 are expected to reduce with the implementation of the Scheme, they are not anticipated to reduce to the extent that informal surveillance will be less than 'moderate'). The lighting, visibility, surveillance (formal and informal), site perimeters and emergency call points planned for the Scheme will be provided at the level of the existing A428 or higher.

### 3.15 Severance

#### TAG Severance Impacts Worksheet

Change in Severance	Population Affected							Total Affected
	Black Cat junction (Roxton / Chawston)	Wintringham Park	Cambridge Road junction (St Neots)	Fox Brook Bridge (Weald)	Toseland Road Bridge (Croxtan)	Eltisley link / Pillar Plantation Underpass (Eltisley)	Caxton Gibbet junction (Papworth Everard / Cambourne)	
Large negative								
Moderate negative								
Slight negative		Wintringham Park development proposes reducing the five public footpaths that pass through the site and across the existing A428 down to two (for a short section of these paths only), with the interrupted footpaths diverted to link up to parallel footpaths.						Population approx. 7,000
Neutral	It is proposed to relocate the two existing bus stops on the A1 north of Black Cat junction that are used by the X5, which is an important local bus service between Cambridge and Oxford. Existing access maintained via a new route with safer crossings.				Footpath 59/1 will be diverted. People will cross the dual carriageway using the new Toseland Road bridge. A new route will be created along the south side of the new road to connect to the existing footpath to Croxtan.			Population approx. 500
Slight positive			A new cycleway / footway through the junction with safe crossings for walkers and cyclists will be provided, to link the existing A428 on the western and eastern sides of the new dual carriageway.	People will be able to access bridleway 1/18 via a bridge over the new dual carriageway (previously at-grade with no specific crossing facilities provided). The new bridge will also provide access to the nearby farmland for agricultural vehicles.		Access to bridleway 74/6 maintained via a new route (an underpass to the west of the existing route); also at Eltisley, a new combined cycleway / footway will be provided at road level and over the new St Ives Road bridge.	Dedicated, safer access and crossing points for cyclists and pedestrians to cross Caxton Gibbet junction will be provided via the A1198 (Ermine Street) route. Cycleway / footway 73/17 will be moved further north of the dual carriageway to maintain access to Brockley Road.	Population >10,000
Moderate positive								
Large positive								

#### Reference Source

WebTAG Unit A4.1: Social Impact Appraisal  
8.1b WCHAR Review Report (Draft).pdf  
Transport Assessment -Section 8.4: Public Transport - Bus  
Census 2011 population data (<http://www.nomisweb.co.uk>)

#### Summary Assessment Score

Slight Beneficial

#### Qualitative Comments

The Scheme follows a fairly similar route to the existing A428, but bisects fewer communities. For this reason, and because the existing A428 between St Neots and Caxton Gibbet is being retained, but will see significantly reduced flows once the Scheme is implemented, this should overall help return the existing A428 back to local communities - resulting in a slight positive impact.

In terms of public transport, as part of the Scheme all existing bus stops will be maintained, albeit that it is proposed to relocate two existing bus stops on the A1 north of Black Cat junction that are used by the X5. However, no changes are proposed to any existing bus routes, suggesting a largely neutral impact. There is an opportunity for slightly improved / more reliable bus services, since the existing A428 between St Neots and Caxton Gibbet is to be maintained, but will see significantly lower volumes of traffic.

Finally, the individual changes tabled above are also assessed to result in a slight positive impact on severance overall.