

Appraisal Summary Table

Date produced: 16 Oct 2019

Contact:

Name of scheme:	Phase 1: Cheltenham Cyberpark Highway Improvements - Arle Court Roundabout	Name													
Description of scheme:	Provision of an additional circulatory lane around the roundabout; Corresponding additional lanes to the A40 on the approaches and exits to and from the junction; Widening the Hatherley Lane arm to the south side of the roundabout; Bus Lane modifications to improve capacity; Park and Ride Entrance/Exit westbound (towards Gloucester) from Arle Court Roundabout; Extending widening to the Hatherley Lane arm to the south of the roundabout, specifically additional approach lane length entering the roundabout; Purchase of land (through negotiation and subject to completion) to the west of Hatherley Lane adjacent to the existing Park & Ride site.	Organisation	Gloucestershire County Council/ AECOM												
Impacts	Summary of key impacts	Assessment													
		Quantitative	Qualitative	Monetary £(NPV)											
Economy	<p>Business users & transport providers</p> <p>The scheme will benefit business users due to reduction in congestion and reduction in travel time.</p>	<table border="1"> <tr> <td>Value of journey time changes(£)</td> <td>£25.86m</td> </tr> <tr> <td>Net journey time changes (£)</td> <td></td> </tr> <tr> <td>0 to 2min</td> <td>2 to 5min</td> <td>> 5min</td> </tr> <tr> <td>£8.15m</td> <td>£5.53m</td> <td>£12.18m</td> </tr> </table>	Value of journey time changes(£)	£25.86m	Net journey time changes (£)		0 to 2min	2 to 5min	> 5min	£8.15m	£5.53m	£12.18m	N/A	£25.86	N/A
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Reliability impact on Business users	It is expected that the additional capacity will improve reliability due to the reduction in congestion and result in consistent benefits throughout the day but most significantly during peak hours.	N/A	Moderate beneficial	N/A											
Regeneration	The scheme is expected to improve connectivity between Cheltenham and the Forest of Dean and other destinations along the A40 corridor	N/A	Slight beneficial	N/A											
Wider Impacts	No development is directly linked to the scheme, but it is however likely that without the scheme, the scale of development that can be approved would be constrained and the efficacy of any other mitigation measures reduced	N/A	N/A	N/A											
Environmental	<p>Noise</p> <p>A full/detailed assessment of noise in accordance with the Design Manual for Roads and Bridges Volume 11, Section 3, Part 7 HD 213/11 Noise and Vibration, and the online Transport Analysis Guidance (webTAG) was completed.</p> <p>Overall there is a net increase in noise due to the Scheme throughout the study area, in both the Opening Year (2021) and Design Year (2031). Most of the impact is not due to noise emissions from the improved junction itself, but are associated with the expected reduction in congestion (increase in average speeds and traffic volumes) on major routes, particularly the A40 itself east and west of the junction.</p> <p>As a result, there is little to no opportunity to mitigate these potential impacts as part of the Phase 1 Scheme itself, but there may be opportunities to reduce impacts as part of the design development of Phases 2-4 of the Scheme.</p> <p>It should be noted that there are several Noise Important Areas (NIAs) in the vicinity of the Scheme, and in accordance with DEFRA's Noise Action Plan: Roads (2 July 2019), increases in noise are to be avoided, whilst improvements in noise level (i.e., a reduction) should be delivery, where possible.</p>	<p>An assessment of annoyance in accordance with the DMRB indicates that the number of people bothered 'very much' or 'quite a lot' by road traffic noise in the Design Year (2031), without the Scheme, will decrease by up to 10% at 1348 dwellings, and increase up to 10% at 153 dwellings.</p> <p>With the Scheme, the number of people bothered 'very much' or 'quite a lot' by road traffic noise will increase by <10% at 221 dwellings, by 10-20% at 1209 dwellings, and by 20-30% at 118 dwellings in the Design Year (2031).</p>	N/A	Value of change in noise levels: NPV: = £875,984											
Air Quality	Overall there is expected to be a net increase in the total emissions for both PM2.5 and NOx over the 60-year appraisal period due to an increase in total annual vehicle kilometres travelled. The local air quality assessment identified that the proposed scheme did not result in any air quality strategy objectives being exceeded and modelled changes in air pollutant concentrations at residential receptors within the Cheltenham Borough Council Air Quality Management Area were imperceptible.	Emissions 60-year period (tonnes): PM2.5: 13 NOx: 114	N/A	<p>Value of change in PM2.5 emissions: NPV: -£1,138,847</p> <p>Value of change in NOx emissions: NPV: -£538,452</p> <p>Total value of change in air quality: NPV: -£1,677,299</p>											
Greenhouse gases	There is an overall increase in CO ₂ emissions with the scheme over the 60 year appraisal period, due to a commensurate increase in total annual vehicle kilometres travelled.	<table border="1"> <tr> <td>Change in non-traded carbon over 60 years (CO₂e tonnes)</td> <td>82,379</td> </tr> <tr> <td>Change in traded carbon over 60 years (CO₂e tonnes)</td> <td>0</td> </tr> </table>	Change in non-traded carbon over 60 years (CO ₂ e tonnes)	82,379	Change in traded carbon over 60 years (CO ₂ e tonnes)	0	N/A	-£3,716,694							
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Landscape	Despite the number of properties and businesses there is currently considerable screening vegetation, and this positively contributes to the local landscape character. The majority of existing screening vegetation is expected to remain in most of the locations following the implementation of the scheme. There may be loss of some screening vegetation on the eastbound B4043 including a tree with TPO. Several mature trees on the A40 may have root damage depending upon the final design. There are several opportunities to provide mitigation and enhanced amenity and screening vegetation, including relocation of existing trees where feasible.	N/A	Slight adverse	N/A											
Townscape	Not Required (inc in Landscape)	N/A	N/A	N/A											
Historic Environment	There are three Grade II listed buildings which are located immediately adjacent to the works on A40 Gloucester Road. Consultation with the local Conservation Officer has confirmed that the scheme will not distract from the significance of the heritage assets and that there is a low risk that any archaeology will be impacted by the works. No further assessment or survey is therefore required. The potential for enhancement of the heritage assets should however be taken into consideration in the design of the scheme.	N/A	Neutral	N/A											
Biodiversity	Habitats within the Scheme are all within the urban landscape and planted or managed. None are considered to be rare or distinctive (in a biodiversity context). There is potential for protected species including bats and great crested newts. The scheme will result in a net loss of 'soft landscaped' habitats, but others will be retained and new areas will be planted. Pre-works surveys will identify mitigation appropriate to any protected species on the site.	N/A	Slight adverse	N/A											
Water Environment	<p>Hatherley Brook, a main river, runs beneath the A40 Gloucester Road, to the east of the centre of Arle Court Roundabout for which there is an associated flood risk. The proposed scheme does not fall within the floodplain of the Hatherley Brook. There is an existing ordinary watercourse east of Badgeworth Road culverted underneath the A40 which is likely to require an extension as a result of the earthworks widening. Any culvert extension is likely to require a Water Framework Directive assessment.</p> <p>The Risk of Flooding from Surface Water (RoFSW) maps show that the Arle Court Roundabout itself and sections of the A40 to the south of the roundabout have a medium to high risk of flooding from surface water. The need for improved drainage will be investigated during the detailed design stage and appropriate measures shall be put in place to ensure risk of flooding from potential increased surface water is avoided.</p> <p>A Flood Risk Assessment and Drainage Strategy will be produced for the scheme. Appropriate pollution prevention measures will be implemented during works to prevent contamination to the water environment.</p>	N/A	Neutral	N/A											
Commuting and Other users	The scheme will benefit Commuting and Other users due to reduction in congestion and reduction in travel time.	<table border="1"> <tr> <td>Value of journey time changes(£)</td> <td>£74.92m</td> </tr> <tr> <td>Net journey time changes (£)</td> <td></td> </tr> <tr> <td>0 to 2min</td> <td>2 to 5min</td> <td>> 5min</td> </tr> <tr> <td>£18.96m</td> <td>£13.42m</td> <td>£42.54m</td> </tr> </table>	Value of journey time changes(£)	£74.92m	Net journey time changes (£)		0 to 2min	2 to 5min	> 5min	£18.96m	£13.42m	£42.54m	N/A	£74.92m	Slight Beneficial
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Reliability impact on Commuting and Other users	It is expected that the additional capacity will improve reliability due to the reduction in congestion and result in consistent benefits throughout the day but most significantly during peak hours.	N/A	Moderate beneficial	N/A											
Physical activity	The scheme will introduce a new controlled crossing over Fiddler's Green Lane, enhancing pedestrian facilities and promoting physical activity. Arle Court Roundabout is expected to form part of a dedicated cycle route linking Gloucester and Cheltenham in the future, which will benefit physical activity	N/A	Slight beneficial	N/A											

Social	Journey quality	Traveller care is expected to be improved by road resurfacing, the widening of the underpass below the A40 and upgrading the bus stop. Traveller stress is expected to be improved (particularly for motorists and public transport users) because congestion will be reduced and therefore journey times and reliability will be improved.	N/A	Slight beneficial	N/A	
	Accidents	According to the Traffic Modelling report, the Do Something 3 option was found to marginally improve journey times in the 2021 AM and PM Peaks when compared to the original DS1 scenario and showed significant improvements to queueing on almost all the approach arms to the Arle Court Roundabout. The traffic modelling shows that all approaches to the Arle Court Roundabout generate a greater than 10% increase in traffic speed; this will subsequently lead to an increased probability of accidents occurring. Therefore, it is estimated there will be a slight <u>adverse impact to accidents as a result of this scheme</u> .	N/A	Slight adverse	N/A	Neutral
	Security	The scheme includes a small movement of the existing bus stop at the Arle Court Park and Ride and the addition of a new bus stop on the opposite side of the road. It is assumed that the bus stops will have sufficient lighting and surveillance cameras, so will not impact users' perceptions of personal security. However, journey distances and times will be reduced for bus services using the new link road from the Park & Ride to the A40 westbound. This may make bus travel on these routes a more attractive mode of travel, hence leading to a mode shift from private car to public transport. This would increase the number of people waiting at bus stops and hence improve perceptions of informal security. At this stage of assessment, it is assumed that there will be no change to site perimeters, landscaping or emergency call facilities, hence having a neutral impact. Overall, the beneficial impacts to security resulting from informal surveillance are likely to be small. Hence, the overall impact to security is neutral.	N/A	Neutral	N/A	Slight Beneficial
	Access to services	At this stage in the assessment it is not known if the frequency or routings of buses will be altered as a result of the Arle Court Improvement Scheme. However, it is assumed that there will be journey time savings as a result of reduced congestion through the roundabout, the addition of a bus lane on the B4063 approach to the roundabout and the additional on-slip from the Park and Ride to the A40 westbound. It is assumed that services towards Gloucester, which currently stop at the existing bus stop at the Park & Ride, will instead stop at the new bus stop. Since this is directly across the road from the existing stop, it is unlikely there will be any significant accessibility impact as a result of this. Therefore, there is a slight beneficial impact to accessibility due to the scheme.	N/A	Slight beneficial	N/A	Slight Beneficial
	Affordability	Increased capacity through Arle Court roundabout and a mode shift from private car to public transport will reduce congestion through in the area. This is likely to reduce vehicle operating costs as there's reduced vehicles idling, braking and accelerating while queueing. Increased vehicle speeds can lead to increased fuel consumption which may cause vehicle operating costs to increase in some cases. However, this is small compared to the affordability benefits caused by the scheme	N/A	Moderate beneficial	N/A	Slight Adverse
	Severance	There are three areas that will be impacted by significant changes in speed (used as a proxy for severance) as a result of the scheme. (1) An increase in speed on the dual carriageways on the A40 and M5 will not impact those trying to cross as these areas are not accessible to pedestrians. (2) Speed is expected to significantly increase on a number of minor routes radiating from Arle Court (3) In Insworth and in the eastern suburb of Cheltenham the number of routes where speed will increase and decrease are approximately equal.	N/A	Slight adverse	N/A	Neutral
	Option and non-use values	There will be no step-change in public transport service provision and therefore option and non-use values have not been assessed.	N/A	N/A	N/A	
	Cost to Broad Transport Budget	This is estimated to be £7.742m, in 2010 prices, discounted to 2010. This cost includes construction costs only.	-£7.74m	N/A	-£7.74m	
Public Accounts	Indirect Tax Revenues	There is a benefit to government due to a reduction in congestion. Fuel consumption is increased slightly, thereby increasing indirect tax revenues.	£5.29m	N/A	£5.29m	