

APPENDIX 4D - APPRAISAL MATRIX: A10 BUNTINGFORD

SEA Analysis Table	Major Project: A10 Buntingford		
SEA Objective	Assessment of Effect ✓ Positive impact P+ Potentially positive impact O No relationship/link U Uncertain/ Depends on implementation P- Potentially negative impact X Negative impact	Justification: <ul style="list-style-type: none"> • Likelihood of effect occurring • Permanence of effect • Geographic scale of effect • Cumulative effects • Current env. Social & economic trends of affected area • Likelihood of affecting particularly sensitive locations 	Recommendations (including mitigating negative effects and improving positive effects)
SEA Topic – Biodiversity, fauna and flora			
To protect and enhance biodiversity	O	Minimal impact on local biodiversity for capacity improvements to the roundabout.	
SEA Topic - Population and human health			
To maximise the opportunities for leisure and a healthy lifestyle for all, and to improve the physical and mental health of the population, and reduce health inequalities	P+	This scheme aims to reduce congestion at the junction, and so would improve physical and mental health from less congestion and improved air quality as traffic will be kept moving.	

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To reduce crime and create safe environments	P+	Junction capacity improvements should create a safer road environment at this roundabout.	
SEA Topic - Water and soil			
To improve the sustainable use of resources	P-	This scheme will probably require some raw resources to make the improvements, but amounts will be minimal.	
To move away from waste disposal to minimisation, reuse, recycling and recovery	O		
To ensure the efficient use of water, and safeguard water resources	P+	Any improvements to the carriageway will need to adhere to SUDs.	
To reduce contamination, and safeguard soil quality and quantity	P+	Any carriageway improvements will need to adhere to SUDs which will ensure that local drainage is sufficient for any run-off.	
SEA Topic - Air			
To protect and enhance air quality and minimise noise pollution	P+	By improving this junction it should reduce local congestion and minimise vehicles idling at this roundabout, which should improve local air quality.	

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To improve the choice of sustainable transport modes, encourage their use, and reduce the need to travel by car	X	This scheme will make it easier for cars to travel in and out of Bungtingford.	
SEA Topic - Climatic factors			
To adapt to the impacts of climate change such as flooding	P+	If SUDs are used.	
To reduce greenhouse gases including carbon dioxide, emitted by vehicular transport	X	This scheme will make it easier for cars to travel in and out of Bungtingford.	
To ensure the sustainable supply and use of energy	P-	As this scheme could encourage car use it will not reduce the use of fossil fuels.	
SEA Topic - Historic Environment and Landscape			
To protect and enhance the character of landscape, townscape and green spaces	O	This scheme is just improving the capacity of an existing roundabout, and will not significantly change the existing landscape.	
To conserve and enhance the historic environment, heritage assets and their settings	O		
SEA Topic - Social inclusiveness			
To tackle the causes of poverty and social exclusion by improving access to services and community facilities for all	O		
To empower all sections of the community to participate in decision making and local action	O		

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SEA Analysis Table	Major Project: A10 Buntingford		
SEA Topic - Economic development			
To maintain employment, improve economic competitiveness (consistent with environmental constraints) and create a vibrant economy	P+	Journey time improvements for employers and employees for local businesses.	
To spread economic growth more evenly to benefit deprived areas	O		
To maintain the vitality and viability of existing centres	P+	Potentially improve the road user experience on the main road through the town.	

Significant Positive Effects: The main positive impacts are that the scheme would make the roundabout safer to use, and would reduce congestion bringing air quality benefits.

Significant Negative Effects:

The capacity improvements at this junction would mainly benefit car users, and wouldn't improve the uptake of traveling by sustainable modes. Therefore it would not reduce the need to travel by car, emissions or fossil fuel use.

Timescale: Shortterm if LEP funding is available.

Temporary or Permanent: Impacts from the new road infrastructure would be permanent but positive impacts from any improvements to congestion could be temporary, as this is dependent on travel behaviour.

Likelihood of effects or impacts identified occurring: High.

Recommendation for mitigation for adverse effects and/or enhancement or positive effects: None.

Data Issues: None.

APPENDIX 4D – MAJOR PROJECT – FOCUS FOR CYCLING IMPROVEMENTS

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Project – Focus for cycling improvements		
SEA Objective	Assessment of Effect ✓ Positive impact P+ Potentially positive impact ○ No relationship/link U Uncertain/ Depends on implementation P- Potentially negative impact X Negative impact	Justification: • Likelihood of effect occurring • Permanence of effect • Geographic scale of effect • Cumulative effects • Current env. Social & economic trends of affected area • Likelihood of affecting particularly sensitive locations	Recommendations (including mitigating negative effects and improving positive effects)
SEA Topic – Biodiversity, fauna and flora			
To protect and enhance biodiversity	P+/P-	Reducing levels of car use, traffic growth and congestion, should improve air quality and noise pollution, which should benefit local flora and fauna and habitats. Any new segregated cycle routes could impact on biodiversity if not in current highways boundaries and require additional land.	Where possible keep new infrastructure within current highways boundaries.

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SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Project – Focus for cycling improvements		
SEA Topic - Population and human health			
To maximise the opportunities for leisure and a healthy lifestyle for all, and to improve the physical and mental health of the population, and reduce health inequalities	✓	This policy will contribute towards improving rates of physical activity, and reducing health inequalities.	
To reduce crime and create safe environments	P+	This policy aims to create a safer more attractive cycling environment in urban areas, with segregation from faster moving traffic. Routes would be on quieter low speed roads, green spaces and parks. Cycle parking is mentioned (particularly concerning the security of ebike cycle parking).	Cycle parking should be considered, at destinations i.e. workplace, railways stations, retail areas.
SEA Topic - Water and soil			
To improve the sustainable use of resources	P-	Construction material will be required for any new infrastructure i.e. new segregated routes.	Does the TAMP include the use of and recycling of construction material?
To move away from waste disposal to minimisation, reuse, recycling and recovery	P-	New infrastructure could result in construction waste.	Does the TAMP include the use of and recycling of construction material?

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SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Project – Focus for cycling improvements		
To ensure the efficient use of water, and safeguard water resources	P-	Any new infrastructure could impact on the local drainage network, by creating additional surface runoff.	
To reduce contamination, and safeguard soil quality and quantity	P+	With more people cycling this means lower levels of car traffic on the roads and so fewer heavy metals in any runoff when it rains or in flood situations. Schemes would be intra-urban so minimal impacts on the soil environment.	
SEA Topic - Air			
To protect and enhance air quality and minimise noise pollution	✓	One of the main aims of this policy is to improve air quality by achieving modal shift from cars to cycling.	
To improve the choice of sustainable transport modes, encourage their use, and reduce the need to travel by car	✓	This is the main aim of this policy.	
SEA Topic - Climatic factors			
To adapt to the impacts of climate change such as flooding	P-	Any new infrastructure will need to consider drainage of surface runoff	Consider a County flooding map before schemes are implemented in larger towns.

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SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Project – Focus for cycling improvements		
To reduce greenhouse gases including carbon dioxide, emitted by vehicular transport	P+	One of the benefits to the implementation of this policy is a reduction in carbon emissions if sufficient modal shift is achieved.	
To ensure the sustainable supply and use of energy	P-	New segregated infrastructure could need lighting for safety reasons. Any significant uptake of ebikes would also require additional energy from the national grid.	Could any additional lighting be solar powered?
SEA Topic – Historic Environment and landscape			
To protect and enhance the character of landscape, townscape and green spaces	P+	Increased cycling rates should enhance the urban environment by removing traffic/ congestion, less parking. However, new infrastructure delivered in green spaces and parks could have a minor negative impact.	

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SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Project – Focus for cycling improvements		
To conserve and enhance the historic environment, heritage assets and their settings	P+	Any mode shift from cars to cycling would benefit heritage assets and their settings, by removing traffic, congestion, less pollution, however impacts could be site specific.	
SEA Topic - Social inclusiveness			
To tackle the causes of poverty and social exclusion by improving access to services and community facilities for all	P+	This scheme aims to concentrate on inter-urban cycling trips and aims to broaden the range of people who cycle i.e. young people, females and older people, this should enhance access to local services especially for slightly longer trips.	
To empower all sections of the community to participate in decision making and local action	P+	This scheme should enable more protected equalities groups such as young people, children, women and older people to make more informed and better travel choices, by providing a more attractive environment	

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SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Project – Focus for cycling improvements		
		for both cycling and walking.	
SEA Topic - Economic development			
To maintain employment, improve economic competitiveness (consistent with environmental constraints) and create a vibrant economy	P+	By enabling modal shift this should reduce traffic growth and congestion, which should benefit local businesses delivering goods and services. This scheme should provide economic benefits in urban areas. Research has shown that cycle friendly neighbourhoods can have a positive impact on the local retail spend.	
To spread economic growth more evenly to benefit deprived areas	P+	This policy only concentrates on areas where current cycle routes are heavily used and will possibly overlook smaller towns or rural areas. An improved cycle network within towns should improve access to employment and services especially for those who do not have	

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SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Project – Focus for cycling improvements		
		access to a car.	
To maintain the vitality and viability of existing centres	P+	This scheme would enable high density urban design, which require less parking and so fewer cars would be in town centres allowing road space to be allocated to other modes also improving the public realm.	

Significant Positive Effects:

The aim of this scheme is to reduce the levels of car use and traffic growth and congestion and if successful would improve air quality, carbon levels, noise pollution, and improve physical activity and health. If cycle routes implemented are segregated or on lower speed roads this will improve road safety for cyclists, an issue which currently stops many people from cycling. A reduction in congestion and traffic would provide benefits to the urban environment, local heritage assets, and local business. The scheme aims to broaden the range of people who cycle and so should improve access to services and tackle social exclusion, and empower people to make better transport choices. This policy would also help enable high density urban design which requires less parking spaces. Fewer cars in town centres means road space can be reallocated to more sustainable modes of transport.

Significant Negative Effects:

New segregated cycle routes could require additional land outside the current highway boundary and so would impact on local flora and fauna in the verges that would be converted to cycleways. Any new cycle routes would also require construction material and the disposal of construction waste as well. New cycle infrastructure would result in surface runoff that the current drainage system will need to be able to deal with, especially as the county experiences more extreme weather events such as flooding and snow incidents.

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Timescale:

Short to medium term, for the delivery of new cycle infrastructure depending on the funding available. A possible change in policy would be required in the long term around car parking policies, and workplace parking charges.

Temporary or Permanent: Impacts from any new cycle infrastructure would be permanent, but positive impacts from behavioural change and modal shift could be temporary, as travel choices and trends change over time.

Likelihood of effects or impacts identified occurring:

Dependent on the level of funding received, and reliant on the public making the modal shift over to cycling.

Recommendation for mitigation for adverse effects and/or enhancement or positive effects:

- Where possible keep any new cycling infrastructure within the current highway boundary.
- Cycle parking has not been mentioned in this new policy, especially at destinations i.e. the workplace, railway stations, and town centres and retail areas.
- Further research is required on what is Highway policy around construction practices i.e. the use of raw materials and recycling road aggregate.
- Consult the HCC flooding map, so that schemes are not implemented in areas of known flooding.
- Ensure that any lighting required for new cycle routes uses the latest LED technology.

Data Issues:

- Where is the current cycle parking in larger towns?
- Investigate Highways data around the use of recycled construction material and the recycling of aggregate.
- Population data for specific equalities groups.
- Accessibility maps.
- Where are the main industrial areas in the main towns, with HGV numbers for each.
- Number of people who do not have access to a car split by urban area.

APPENDIX 4d - MAJOR PROJECT: SUSTAINABLE TRAVEL TOWNS

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Project - Sustainable Travel Towns		
SEA Objective	Assessment of Effect ✓ Positive impact P+ Potentially positive impact O No relationship/link U Uncertain/ Depends on implementation P- Potentially negative impact X Negative impact	Justification: <ul style="list-style-type: none"> • Likelihood of effect occurring • Permanence of effect • Geographic scale of effect • Cumulative effects • Current env. Social & economic trends of affected area • Likelihood of affecting particularly sensitive locations 	Recommendations (including mitigating negative effects and improving positive effects)
SEA Topic – Biodiversity, fauna and flora			
To protect and enhance biodiversity	P+	Potential for sustainable transport schemes to reduce the number of vehicles on the road reducing potential for further road infrastructure and car parking spaces. Any infrastructure would be within the current highway boundary. The creation of new cycling/walking infrastructure may impede on woodlands if	Ensure that the connectivity is enhanced through existing infrastructure as opposed to new creating new roads.

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		towns wish to expand into these areas.	
SEA Topic - Population and human health			
To maximise the opportunities for leisure and a healthy lifestyle for all, and to improve the physical and mental health of the population, and reduce health inequalities	✓	It is expected that there will be a significant increase in the number of cycling and walking trips, and with workplace and school travel plans this should encourage healthier lifestyles and active travel arrangements.	<p>Ensure that all towns receive the same focus and attention. Offer public transport, bike purchase discounts to encourage scheme use.</p> <p>Integrate active travel routes with public transport to ensure that alternatives to using the car are available and encourage behaviour change.</p>
To reduce crime and create safe environments	P+/P-	<p>School travel planning offers advice on how to remain safe.</p> <p>Car share sites offer the advantage of being aware of who is sharing with whom, more so than taxis, but there could be personal security issues with sharing with strangers.</p> <p>Cycling and walking at night may involve safety risks.</p>	<p>Car share sites should offer advice on how to remain safe and offer registration checks.</p> <p>LED lighting for pedestrian and cycle routes.</p>

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SEA Topic - Water and soil			
To improve the sustainable use of resources	P+	The promotion of sustainable modes of travel ultimately means that only existing resources and infrastructure will be used and attempts to reduce the amount of resources used for building new roads. There is potential for further infrastructure to be built to enhance existing cycle or bus routes, thus increasing the use of aggregate. This type of infrastructure, however, will not be as intrusive as a bypass (for example).	
To move away from waste disposal to minimisation, reuse, recycling and recovery	P+	Car share is aimed at reducing the need to own a car, and re-use of existing vehicles and modes of transport	Encourage the purchase of used bicycles and sharing of cars where possible, especially in relation to commuter journeys and school trips.

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<p>To ensure the efficient use of water, and safeguard water resources</p>	<p>P+</p>	<p>Sustainable Travel mostly involves soft measures including campaigns and travel planning. It is unlikely that infrastructure will affect water consumption, demand, and drainage systems.</p>	<p>For major infrastructure mitigation measures would be put in place via an EIA, in consultation with the Environment Agency, water companies, local flood authorities, and SuDS would be used.</p>
<p>To reduce contamination, and safeguard soil quality and quantity</p>	<p>U</p>	<p>Depends on the type and number of schemes identified as part of the four Sustainable Travel Towns.</p>	<p>Any new infrastructure should adhere to the Sustainable Urban Drainage System to ensure that any additional road run-off is collected and not released onto adjoining land.</p>
<p>SEA Topic - Air</p>			
<p>To protect and enhance air quality and minimise noise pollution</p>	<p>P+</p>	<p>Sustainable Travel Towns aim to use soft measures to reduce the amount of people travelling alone in their car, which will reduce congestion and provide benefits to air quality (Including Air Quality Management Areas in Hemel Hempstead, Watford and St Albans) and noise levels. This is a potential outcome providing that sufficient</p>	

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<p>To improve the choice of sustainable transport modes, encourage their use, and reduce the need to travel by car</p>	<p>✓</p>	<p>mode shift occurs. Sustainable Travel Towns aim to make modes of travel such as walking cycling, passenger transport and car share more accessible, which will improve the range of travel opportunities for residents in the 4 towns.</p>	<p>Discounts privileges and rewards should be made available to those who would benefit, and in areas where there has previously been a lack of provision. Provide a particular focus on cycling and walking provision in schools, encouraging cycling 'festivals' in the summer months and programmes of family bicycle rides and summer walks.</p>
<p>SEA Topic - Climatic factors</p>			
<p>To adapt to the impacts of climate change such as flooding</p>	<p>P+</p>	<p>Sustainable modes of travel aim to reduce the use of fossil fuels and reduce greenhouse gas emissions, thus adapting to the impacts of climate change such as flooding.</p>	<p>As schemes are being developed, local flood management plans are consulted in the planning stage to ensure that future flooding problems are avoided. Newer systems should also be able to cope with hotter climates and the wetter months.</p>

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<p>To reduce greenhouse gases including carbon dioxide, emitted by vehicular transport</p>	<p>P+</p>	<p>The increased use of sustainable modes of transport in urban centres will reduce the emission tonnage of greenhouse gases including carbon dioxide, provided there is a mode shift from the car to active travel and bus as numbers of single occupancy cars diminish.</p>	<p>The extent of the positive effects depends on the manner by which the schemes are implemented.</p>
<p>To ensure the sustainable supply and use of energy</p>	<p>P+</p>	<p>The sustainable transport schemes to be promoted in Sustainable Travel Towns can reduce the use of fossil fuel provided there is a shift from car to passenger transport and active travel.</p>	
<p>SEA Topic – Historic Environment and landscape</p>			
<p>To protect and enhance the character of landscape, townscape and green spaces</p>	<p>P+</p>	<p>Improvements to passenger transport and cycle lanes can increase the amount of travellers transferring from car use to bus and active travel; this will lead to fewer vehicles having a detrimental effect on the</p>	

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		<p>landscape, townscape and green spaces in Hertfordshire.</p>	
<p>To conserve and enhance the historic environment, heritage assets and their settings</p>	<p>P+</p>	<p>Improved passenger transport, car share and active travel opportunities may lead to fewer vehicles on the road. This would have a beneficial effect on historic buildings as there will be less pollution causing building deterioration and fewer vibrations from cars.</p> <p>Within Watford there are 10 conservation areas and a number of listed buildings, and St Albans and Hertford town centres are of historic interest, but it is expected that the sustainable travel schemes delivered would not detract or impact on the towns' heritage. Impacts could be site specific.</p>	<p>Suggestion to use active travel and passenger transport provision in towns to direct residents and visitors to historic buildings and heritage assets to raise the profile of these sites.</p> <p>Follow the example of Stevenage/ Watford in terms of colour coded directions.</p>

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SEA Topic - Social inclusiveness			
<p>To tackle the causes of poverty and social exclusion by improving access to services and community facilities for all</p>	<p>✓</p>	<p>Sustainable Travel Towns will increase accessibility and have a beneficial impact on people who are on low incomes. Access to sustainable modes of travel will help them to access educational and employment opportunities (especially in Stevenage where access to a private car is considerably higher than the county average). Intra-urban trips by cycle or walking will be more feasible nearer the town centres where deprivation can be centred in Hemel and Stevenage and so residents in those areas will benefit more. By improving travel opportunities to Watford residents it is also expected to provide benefits to St Albans Residents providing better access to shops</p>	<p>There needs to be continued offering of discounted fares for concessionary and disabled travellers, and rewards for those who take part in car share and bike share schemes.</p>

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		and services in both towns.	
To empower all sections of the community to participate in decision making and local action	P+	Sustainable Travel Towns have the potential to empower groups who, without schemes such as car share, bike share, bus provision and adequate pedestrian and cycle routes, would otherwise not have access to transport. Sustainable Transport towns will enable them to take part in decisions that will affect the way they travel.	Discounts for low income groups and places of work for usage of some the schemes will provide incentive to participate in such schemes.
SEA Topic - Economic development			
To maintain employment, improve economic competitiveness (consistent with environmental constraints) and create a vibrant economy	P+	Schemes included in Sustainable Travel towns can help to reduce current congestion issues in the county. Sustainable Travel Town schemes will help to improve the local economy by improving access for businesses and their employees. Most of the schemes will provide improved accessibility,	Offer workplace rewards for not travelling individually by car.

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		connectivity, capacity and resilience.	
To spread economic growth more evenly to benefit deprived areas	P+	A number of the most deprived towns, Watford and Hemel Hempstead in particular will benefit from schemes in this package; improving transport access to groups on low incomes in these areas will benefit businesses. They will have increased access to a greater labour market, as cheaper (and sustainable) alternatives to purchasing and maintaining a car will be made available; those seeking work will be able to commute with more ease.	Passenger transport, bike club and car club discounts made available for those who participate in schemes.
To maintain the vitality and viability of existing centres	P+	Sustainable Travel Towns will have a beneficial impact on the vitality and viability of Hertfordshire's Urban centres, accessibility to employment and key services for those who do not own a car will be	Evidence has shown that pedestrianised shopping centres can fare better economically if designed well; improving the public realm should be integral part of Sustainable Travel Towns.

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		<p>improved and there should be fewer fossil fuelled vehicles on urban roads.</p> <p>School travel planning, promotion of car clubs and Lift share should also provide a greater sense of community cohesion.</p>	<p>School Travel Planning should promote travelling in groups, such as Walking Buses.</p>
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Significant Positive Effects:

Sustainable Travel Towns will reduce the number of vehicles on the road, increase active travel and potentially reduce the need to increase road capacity through new road construction. This in turn will positively impact Hertfordshire’s landscape and heritage assets. Sustainable Travel Towns also have the potential to make access to employment and local services easier for those at a financial or geographical disadvantage and allow for their input in local decision making.

Significant Negative Effects:

There are limited negative effects of implementing Sustainable Travel Towns.

Timescale:

Short to medium term.

Temporary or Permanent: Impacts from any new road infrastructure would be permanent but positive impacts from behavioural change and modal shift from the provision of sustainable infrastructure could be temporary, as trends and travel choices change over time.

Likelihood of effects or impacts identified occurring:

The likelihood of effect occurring depends on the manner by which the schemes are implemented.

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Recommendation for mitigation for adverse effects and/or enhancement or positive effects:

- Encourage integrated ticketing and hire costs between different sustainable modes of transport.
- Ensure that travel plans incorporate the goals of and public realm improvements.
- To help safeguard water supplies and the local soil environment, the Sustainable Urban Drainage System should be used if any projects could result in additional run off.
- Car share sites should offer advice on how to remain safe and offer registration checks.
- Offer workplace rewards for not travelling individually by car.
- LED lighting for pedestrian and cycle routes.
- Encourage the purchase of used bicycles and sharing of cars where possible, especially in relation to commuter journeys and school trips.
- Suggestion to use active travel and passenger transport provision in towns to direct residents and visitors to historic buildings and heritage assets to raise the profile of these sites.

Data Issues:

- Maps, tables which outline locations and a number of listed buildings scheduled ancient monuments, registered parks and guidance, conservations areas etc. (recommendations from Historic England)

APPENDIX 4d – PASSENGER TRANSPORT HUB/COACHWAY (M1 JNC 8, A1(M) JUNC 8)

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Passenger Transport Hub/Coachway (M1 jnc 8, A1(M) junc 8)		
SEA Objective	Assessment of Effect ✓ Positive impact P+ Potentially positive impact O No relationship/link U Uncertain/ Depends on implementation P- Potentially negative impact X Negative impact	Justification: <ul style="list-style-type: none"> • Likelihood of effect occurring • Permanence of effect • Geographic scale of effect • Cumulative effects • Current env. Social & economic trends of affected area • Likelihood of affecting particularly sensitive locations 	Recommendations (including mitigating negative effects and improving positive effects)
SEA Topic – Biodiversity, fauna and flora			
To protect and enhance biodiversity	U	Depends on the location of the hubs and whether or not they are on brownfield sites or require new landtake.	
SEA Topic - Population and human health			
To maximise the opportunities for leisure and a healthy lifestyle for all, and to improve the physical and mental health of the population, and reduce health inequalities	O		
To reduce crime and create safe environments	P-	Such hubs will be on the edges of towns or out of town at major road junctions, there could be personal safety issues at certain times of the day.	Ensure personal security is high priority in any scheme.

APPENDIX 4d – PASSENGER TRANSPORT HUB/COACHWAY (M1 JNC 8, A1(M) JUNC 8)

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Passenger Transport Hub/Coachway (M1 jnc 8, A1(M) junc 8)		
SEA Topic - Water and soil			
To improve the sustainable use of resources	P-	Some infrastructure will need to be delivered to facilitate any major passenger transport/coach hub.	
To move away from waste disposal to minimisation, reuse, recycling and recovery	P-	Any new passenger transport hub will require passenger facilities which will create waste.	
To ensure the efficient use of water, and safeguard water resources	P-	Any new infrastructure will need to ensure that it adheres to SUDs, so that any additional run-off does not enter local water resources.	
To reduce contamination, and safeguard soil quality and quantity	P-	New out of town hubs would create additional surface runoff and soil capping.	
SEA Topic - Air			
To protect and enhance air quality and minimise noise pollution	P+	Transport hubs should improve air quality and noise in town centres that are in the vicinity, as they should encourage bus/coach trips and fewer car trips.	Need to ensure that passenger transport vehicles at any hubs are not parked with engines idling.

APPENDIX 4d – PASSENGER TRANSPORT HUB/COACHWAY (M1 JNC 8, A1(M) JUNC 8)

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Passenger Transport Hub/Coachway (M1 jnc 8, A1(M) junc 8)		
To improve the choice of sustainable transport modes, encourage their use, and reduce the need to travel by car	✓	The hubs would be for sustainable passenger transport modes.	
SEA Topic - Climatic factors			
To adapt to the impacts of climate change such as flooding	P-	Any new infrastructure built will need to adhere to SUDs to accommodate any surface runoff so that it does not impact on local water resources or soil.	
To reduce greenhouse gases including carbon dioxide, emitted by vehicular transport	P+	Any modal shift to buses/coaches as a result of major transport hubs would have a positive impact on reducing greenhouse gases.	
To ensure the sustainable supply and use of energy	P+	Modal shift from cars to passenger transport will reduce the use of fossil fuels.	Buses/coaches that serve such hubs should aim to be the latest Euro rating or electric/alternative fuel.
SEA Topic – Historic Environment and landscape			
To protect and enhance the character of landscape, townscape and green spaces	P-	Any new infrastructure delivered for these hubs will impact on landscape and possibly green spaces, depending on the location.	

APPENDIX 4d – PASSENGER TRANSPORT HUB/COACHWAY (M1 JNC 8, A1(M) JUNC 8)

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Passenger Transport Hub/Coachway (M1 jnc 8, A1(M) junc 8)		
To conserve and enhance the historic environment, heritage assets and their settings	O	There should be minimal impacts on any local heritage at major road junctions where hubs are located.	
SEA Topic - Social inclusiveness			
To tackle the causes of poverty and social exclusion by improving access to services and community facilities for all	P-	These hubs are more likely to accommodate long distance travellers, and therefore will not benefit local residents or increase accessibility to services.	
To empower all sections of the community to participate in decision making and local action	O		
SEA Topic - Economic development			
To maintain employment, improve economic competitiveness (consistent with environmental constraints) and create a vibrant economy	P+	Hubs can be used as consolidation centres, and the aim is for them to be used with regards to online shopping delivery and collection.	
To spread economic growth more evenly to benefit deprived areas	P-	These hubs will generally be out of town at major transport interchanges.	
To maintain the vitality and viability of existing centres	O		

APPENDIX 4d – PASSENGER TRANSPORT HUB/COACHWAY (M1 JNC 8, A1(M) JUNC 8)

Significant Positive Effects:

The main positive impacts are environmental gains, such as improvements to local air quality and noise, emissions, and use of fossil fuels. The scheme will improve the choice of sustainable modes and will provide benefits to the local economy through their use as a consolidation hub.

Significant Negative Effects:

This type of scheme will require significant infrastructure to be developed at existing transport junctions which will impact on the landscape and require raw resources and once the hub is up and running there will be a constant supply of waste that will need to be disposed of. Such schemes will benefit long distance travellers more than local people in urban areas.

Timescale:

Medium to long term.

Temporary or Permanent: Impacts from any new road infrastructure would be permanent, but positive impacts from park and ride and increased bus/coach use could be temporary, as travel choices and trends change over time.

Likelihood of effects or impacts identified occurring:

Most of the negative impacts can be mitigated with careful design.

Recommendation for mitigation for adverse effects and/or enhancement or positive effects:

- Ensure personal security is high priority in any scheme.
- Need to ensure that passenger transport vehicles at any hubs are not parked with engines idling.
- Buses/coaches that serve such hubs should aim to be the latest Euro rating or electric/alternative fuel.

Data Issues:

None.

APPENDIX 4d – PASSENGER TRANSPORT HUB/COACHWAY (M1 JNC 8, A1(M) JUNC 8)

APPENDIX 4d - MAJOR PROJECT: BUS RAPID TRANSIT NETWORK

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Project – Bus Rapid Transit Network		
SEA Objective	Assessment of Effect ✓ Positive impact P+ Potentially positive impact ○ No relationship/link U Uncertain/ Depends on implementation P- Potentially negative impact X Negative impact	Justification: • Likelihood of effect occurring • Permanence of effect • Geographic scale of effect • Cumulative effects • Current env. Social & economic trends of affected area • Likelihood of affecting particularly sensitive locations	Recommendations (including mitigating negative effects and improving positive effects)
SEA Topic – Biodiversity, fauna and flora			
To protect and enhance biodiversity	P-	The scheme would neighbour 2 SSSI's at Bricket Wood Common and Moor Mill Quarry West and a local nature reserve at Garston Park, but impacts would be low due to the alignment using the existing Abbey Line. If new segregated bus lanes are delivered this would impact on local habitats.	A major scheme would be subject to a full Environmental Assessment, which would put in place mitigation for any negative impacts i.e. moving protected species, creating new habitats, resources to build the project and any construction waste

APPENDIX 4d - MAJOR PROJECT: BUS RAPID TRANSIT NETWORK

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Project – Bus Rapid Transit Network		
SEA Topic - Population and human health			
To maximise the opportunities for leisure and a healthy lifestyle for all, and to improve the physical and mental health of the population, and reduce health inequalities	P+	By delivering a new major bus service this should achieve modal shift along the A414 corridor and between Hemel, Watford and St Albans, and get people out of their cars and using a more physically active mode to get to bus stops i.e. walking & cycling. Improvements to air quality as a result of modal shift will also benefit the population who live near the routes.	
To reduce crime and create safe environments	P+/P-	Public transport is currently open to hate crime. Modal shift would result in fewer car accidents, but there could be a minimal increase in accidents to cyclists and pedestrians. Children under 16 and those aged 70+ are expected to use the route in greater proportions than other	Any new passenger transport service will need to consider Hate Crime, i.e. use of CCTV, driver training. Good design of bus stops and infrastructure would minimise new risks to road and personal safety.

APPENDIX 4d - MAJOR PROJECT: BUS RAPID TRANSIT NETWORK

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Project – Bus Rapid Transit Network		
		groups and so should benefit from better road safety. A segregated route would improve road safety for all users.	
SEA Topic - Water and soil			
To improve the sustainable use of resources	X	Building new guided tracks would require significant amounts of resources. However, a major project would be subject to a full Environmental Assessment.	What is the county council's policy for using local recycled aggregates on major projects?
To move away from waste disposal to minimisation, reuse, recycling and recovery	X	This major project will produce construction waste materials – these should be recycled where possible.	Negative effects should be mitigated as much as possible by recycling and reducing the amount of mileage involved sourcing and disposing of material.
To ensure the efficient use of water, and safeguard water resources	P-	The scheme will most likely use the current A414 so would have minor adverse impacts on local drainage. The scheme would cross the floodplain of the River Ver, the River Colne and the River Lea.	Delivery of a major project should be done in consultation with the Environment Agency, water companies, local flood authorities and use Sustainable Drainage systems (SUDS). Any major project would also be

APPENDIX 4d - MAJOR PROJECT: BUS RAPID TRANSIT NETWORK

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Project – Bus Rapid Transit Network		
		Implementing any new segregated routes would produce additional surface runoff which would need appropriate drainage solutions.	subject to an Environmental Impact Assessment.
To reduce contamination, and safeguard soil quality and quantity	U	The scheme proposed would use current transport routes and so should not result in any additional surface run-off that could contaminate the soil environment. Any new segregated route would result in soil capping.	
SEA Topic - Air			
To protect and enhance air quality and minimise noise pollution	P+	The aim of this major project is to reduce car use, which would take traffic off of the roads (particularly on the A414 and A405 corridors) and so improve local air quality for the routes proposed. There are a number of Air Quality Management Areas in the towns involved, that should also benefit from	Ensure that District/Borough Air quality officers are included in any consultation around major projects.

APPENDIX 4d - MAJOR PROJECT: BUS RAPID TRANSIT NETWORK

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Project – Bus Rapid Transit Network		
		<p>traffic reduction. Modal shift along the corridor would have a moderate benefit to noise levels. As the BRT would run on the existing highway any noise from BRT vehicles would only affect those already affected by A414 noise.</p>	
<p>To improve the choice of sustainable transport modes, encourage their use, and reduce the need to travel by car</p>	<p>✓</p>	<p>A new dedicated bus route will improve the choice of sustainable transport. The scheme is expected to have a slight beneficial impact on journey time reliability for public transport along the corridor, especially at key congestion hotspots at the A414 London Colney, Park Street and Green Lane junctions, as well as Hertford and Hatfield.</p>	<p>Marketing and promotion will play a large part in the success of this type of scheme and will need to be carefully considered. Walking and cycling should also be considered alongside this scheme as options of travelling to and from the bus stops.</p>

APPENDIX 4d - MAJOR PROJECT: BUS RAPID TRANSIT NETWORK

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Project – Bus Rapid Transit Network		
SEA Topic - Climatic factors			
To adapt to the impacts of climate change such as flooding	U	All major projects are subject to a full EIA which would consider in detail any flooding/ drainage issues.	Local flood management plans should be consulted in the planning stage to ensure that future flooding problems are avoided.
To reduce greenhouse gases including carbon dioxide, emitted by vehicular transport	P+	A new bus rapid transit scheme would reduce the emission tonnage of greenhouse gases including carbon dioxide, provided there is sufficient mode shift from the car to bus, and numbers of single occupancy cars diminish.	Buses using the segregated routes should be the latest Euro rated buses or alternative fuel buses, and eventually autonomous.
To ensure the sustainable supply and use of energy	P+	If there is sufficient shift from car to bus this should reduce the use of fossils fuels used by car drivers, and that the buses used have the latest Euro rating and consider using alternative fuels. Some bus priority measures along the route will also need	

APPENDIX 4d - MAJOR PROJECT: BUS RAPID TRANSIT NETWORK

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Project – Bus Rapid Transit Network		
		power from the national grid.	
SEA Topic – Historic Environment and landscape			
To protect and enhance the character of landscape, townscape and green spaces	P+	Modal shift from car to bus will lead to fewer vehicles having a detrimental effect on the landscape, townscape and green spaces in Hertfordshire. There could be minor visual impacts on landscape and townscape from BRT signage, lighting and other infrastructure but it is dependent on the BRT technology used.	Any segregated routes to stay within the current highway boundary where possible.
To conserve and enhance the historic environment, heritage assets and their settings	P+/P-	Fewer car vehicles would have a beneficial effect on historic buildings; less pollution causing building deterioration and fewer vibrations from cars. Several listed buildings are located adjacent to the route in particular in the historic core of St Albans and Hertford.	The County Council’s map of historic assets should be considered when developing any routes for the guided busway. The scheme would be subject to a full EIA which would mitigate any impacts on historic assets. Any new development should follow NPPF

APPENDIX 4d - MAJOR PROJECT: BUS RAPID TRANSIT NETWORK

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Project – Bus Rapid Transit Network		
		The scheme could impact on three registered parks and gardens at Hatfield House (grade 1), Panshanger (grade 2) and Napsbury Hospital (grade 2), but the impact should be low as the scheme will run on the existing A414.	guidance on conserving and enhancing the historic environment.
SEA Topic - Social inclusiveness			
To tackle the causes of poverty and social exclusion by improving access to services and community facilities for all	P+	Car ownership within the towns served by this new BRT is lower than the surrounding rural areas and east-west public transport access is limited, therefore a new bus rapid transit route would significantly increase accessibility, especially benefitting people who are on low incomes. This will help them to access educational and employment opportunities which can help overcome poverty	There needs to be continued offering of discounted fares for concessionary and disabled travellers.

APPENDIX 4d - MAJOR PROJECT: BUS RAPID TRANSIT NETWORK

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Project – Bus Rapid Transit Network		
		by potentially increasing earnings. Other equalities groups could also benefit including disabled and BME groups. The focus on interurban routes could improve accessibility for those living in rural areas.	
To empower all sections of the community to participate in decision making and local action	P+	This scheme has the potential of empowering groups, who would otherwise not have access to transport, to enable them to participate in decision making and local action.	
SEA Topic - Economic development			
To maintain employment, improve economic competitiveness (consistent with environmental constraints) and create a vibrant economy	P+	This scheme aims to improve east west links across the county which are currently poor by passenger transport, which would open up access to employment and provide local employers better access to the labour market. The scheme itself would	

APPENDIX 4d - MAJOR PROJECT: BUS RAPID TRANSIT NETWORK

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Project – Bus Rapid Transit Network		
		<p>also provide a number of employment opportunities. The scheme would provide a moderate benefit to business users from reduced journey times, and the scheme would service a number of key offices including Hatfield business park, and the Hemel Hempstead Industrial estate.</p>	
<p>To spread economic growth more evenly to benefit deprived areas</p>	<p>P+</p>	<p>If the route from Hemel Hempstead to Hertford is delivered this would open up employment to all towns along this east/west route, and especially for those who do not have access to a car. Improved accessibility to areas of high unemployment i.e. Hemel Hempstead will reduce the cost of an individual's commute, and increase the incentive to work.</p>	

APPENDIX 4d - MAJOR PROJECT: BUS RAPID TRANSIT NETWORK

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Project – Bus Rapid Transit Network		
To maintain the vitality and viability of existing centres	P+	This scheme would open up accessibility to the urban centres along the 2 routes (including rural areas), which have previously been difficult to get to if you do not have access to a car, as east/west passenger transport is limited.	

Significant Positive Effects:

Health improvements for people along the A414 corridor, if there is modal shift onto the bus, by getting people out of their cars and more physically active by walking and cycling to the bus stops. Air quality benefits along the corridor and any air quality management areas along the route. This major project would improve road safety especially for children and older people who would use the facility more. The local townscape, landscape and historic environment would benefit from less pollution and environmental damage as a result of fewer motor vehicles. The corridor as a whole would benefit from better accessibility east/west to employment and education, providing improvements to rural areas, deprived areas and town centres.

Significant Negative Effects:

Construction of a new guided track and its associated infrastructure would require construction material and the disposal of construction waste. Passenger transport is open to hate crime. Such a large scheme could have a significant impact on the local drainage system and local water courses if a route is chosen offline from the current highway boundary.

Timescale:

Short to medium term. Long term for Abbey Line links.

Temporary or Permanent: Impacts from any new road infrastructure would be permanent but positive impacts from modal shift to the bus could be temporary, as travel choices change over time.

APPENDIX 4d - MAJOR PROJECT: BUS RAPID TRANSIT NETWORK

Likelihood of effects or impacts identified occurring:

The likelihood of the above impacts occurring is dependent on the amount of funding that the County Council receives to deliver major projects up to 2050.

Recommendation for mitigation for adverse effects and/or enhancement or positive effects:

- A full Environment Impact Assessment would be undertaken.
- That issues around hate crime be considered i.e. CCTV on buses, driver training.
- Look at what highway policy is on the use of raw materials for construction and the recycling of construction waste.
- Ensure that any major project is developed in consultation with the Environment Agency, water companies, the local flood authority to safeguard local water resources (flood management plans)
- Ensure that district/borough air quality officers are consulted upon at all stages of consultation.
- Success of the scheme in achieving modal shift will be very dependent on marking and promotion of the scheme.
- Consider walking and cycling alongside the scheme as options for travelling to and from the bus stops and to use the BRT corridor also for walking and cycling routes.
- Ensure that the buses using the route are the latest Euro rated buses or alternative fuel buses.
- Ensure that a map of heritage assets is consulted before any routes are finalised.
- Any new development should follow NPPF guidance on conserving and enhancing the historic environment.
- The scheme should continue to offer discounted fares for concessionary and disabled travellers.

Data Issues:

- Numbers of buses with CCTV
- Which operators in the county offer driver training that includes hate crime
- Hate crime police reports
- The use of recycled materials in construction and the recycling of used aggregates.

APPENDIX 4d – MAJOR PROJECT: HERTFORD BYPASS and/ or HERTFORD AND WARE SUSTAINABLE TRAVEL TOWNS

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Project – Hertford Bypass &/or Hertford and Ware Sust. Travel		
SEA Objective	Scoring System ✓ Positive impact P+ Potentially positive impact O No relationship/link U Uncertain/ Depends on implementation P- Potentially negative impact X Negative impact	Justification: • Likelihood of effect occurring • Permanence of effect • Geographic scale of effect • Cumulative effects • Current env. Social & economic trends of affected area • Likelihood of affecting particularly sensitive locations	Recommendations (including mitigating negative effects and improving positive effects)
SEA Topic – Biodiversity, fauna and flora			
To protect and enhance biodiversity	X	The land requirement of the Hertford bypass would remove habitat. The proposed bypass alignment would pass within close proximity to ancient woodland and a SSSI. Further woodlands along the route would also be severed. The bypass could encourage greater growth in private car usage – thus increasing air pollution impacting on local flora and fauna. However the sustainable travel town element will encourage modal shift benefiting noise and air	Any major scheme is subject to a full Environmental Impact Assessment which would look into such impacts in detail and propose mitigation and monitoring to deal with the negative impacts.

APPENDIX 4d – MAJOR PROJECT: HERTFORD BYPASS and/ or HERTFORD AND WARE SUSTAINABLE TRAVEL TOWNS

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Project – Hertford Bypass &/or Hertford and Ware Sust. Travel		
		<p>pollution.</p> <p>It is unlikely that this scheme would result in the loss of habitat within the boundary of the Wormley Woods SAC and Lee Valley SPA/Ramsar Site, but it could impact on bird species within areas of functionally connected land, especially in the Lee Valley site. Both sites could be affected by light pollution and vibrations if within 500m of the bypass route.</p>	<p>A Habitats Regulation Assessment has concluded that even assuming the worst case scenario, the effects of aerial pollution on the Wormley Hoddesdonpark Woods SAC are considered to be de minimis</p>
SEA Topic - Population and human health			
<p>To maximise the opportunities for leisure and a healthy lifestyle for all, and to improve physical and mental health of population and reduce health inequalities</p>	<p>P+ / U</p>	<p>This scheme will see improved interurban active travel links and freed highway capacity that could provide active travel infrastructure bringing significant beneficial impact on levels of physical activity. Personalised travel planning can support access to health and leisure facilities.</p> <p>The alleviation of</p>	<p>Freed highway capacity should be used to encourage active travel infrastructure.</p>

APPENDIX 4d – MAJOR PROJECT: HERTFORD BYPASS and/ or HERTFORD AND WARE SUSTAINABLE TRAVEL TOWNS

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Project – Hertford Bypass &/or Hertford and Ware Sust. Travel		
		congestion in and around Hertford should reduce driver stress.	
To reduce crime and create safe environments	P+ / U	Reduced traffic in Hertford town centre reduces the risk of accidents, with new cycle infrastructure helping to reduce on-road cycling collisions. Any new bypass would be built to current safety standards. Any increase in personal security risk with walking and cycling should be mitigated by upgrading the walking and cycling network, using current design standards.	Personalised travel plans could offer 'quiet' routes that avoid heavy traffic and are safer.
SEA Topic - Water and soil			
To improve the sustainable use of resources	U	The bypass construction should use renewable resources and promote the use of recycled products.	Bypass construction should use renewable resources
To move away from waste disposal to minimisation, reuse, recycling and recovery	U	The bypass construction process should utilise recycled resources where possible.	

APPENDIX 4d – MAJOR PROJECT: HERTFORD BYPASS and/ or HERTFORD AND WARE SUSTAINABLE TRAVEL TOWNS

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Project – Hertford Bypass &/or Hertford and Ware Sust. Travel		
To ensure the efficient use of water, and safeguard water resources	U	When possible the bypass construction process should minimise water demand. Once constructed the bypass could increase run off which may contain heavy metals from road construction – draining into local water resources. A new bypass would cross the River Lea and its floodplain around Bayfordbury.	Leaching rates of heavy metals from road construction could be investigated. Construction should promote the Sustainable Urban Drainage System.
To reduce contamination, and safeguard soil quality and quantity	U	Once constructed any new bypass could increase run off which may contain heavy metals which could contaminate the neighbouring soil environment, and would involve a large amount of soil capping.	Any construction should adhere to the Sustainable Urban Drainage System.
SEA Topic – Air			
To protect and enhance air quality and minimise noise pollution	P+	Hertford Bypass should remove some traffic from Hertford town centre reducing the number of homes affected by noise, but some homes at the junctions of the new bypass could experience higher	Ensure appropriate noise screening methods are applied to the scheme, and the use of noise reducing road surfaces.

APPENDIX 4d – MAJOR PROJECT: HERTFORD BYPASS and/ or HERTFORD AND WARE SUSTAINABLE TRAVEL TOWNS

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Project – Hertford Bypass &/or Hertford and Ware Sust. Travel		
		<p>noise levels. With regard to air quality similar improvements will be experienced in the town centre (particularly at the Air Quality Management Area on the A414) and at the new bypass junctions.</p> <p>Hertford and Ware sustainable travel town encourages modal shift to sustainable modes whilst reducing congestion of A414, and so will reduce noise and air quality levels.</p> <p>The bypass could impact on air and noise pollution relating to a protected European site (Lee Valley SPA/Ramsar Site) if within 500m for noise pollution impacts or within 200m for air pollution impacts.</p>	<p>A Habitats Regulation Assessment has concluded that even assuming the worst case scenario, the effects of aerial pollution on the Wormley Hoddesdonpark Woods SAC are considered to be de minimis.</p>

APPENDIX 4d – MAJOR PROJECT: HERTFORD BYPASS and/ or HERTFORD AND WARE SUSTAINABLE TRAVEL TOWNS

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Project – Hertford Bypass &/or Hertford and Ware Sust. Travel		
To improve the choice of sustainable transport modes, encourage their use, and reduce the need to travel by car	P+	Sustainable travel town approach could improve sustainable transport between Ware and Hertford. Upgraded walking, cycling and shared mobility infrastructure is encompassed with the project. However the bypass may encourage travel by car due to greater capacity.	Promote bypass bus routes e.g. to Harlow.
SEA Topic - Climatic factors			
To adapt to the impacts of climate change such as flooding.	U	Ensure appropriate drainage in line with Sustainable Urban Drainage Systems.	Undertake flood risk assessment on Hertford bypass location.
To reduce greenhouse gases including carbon dioxide, emitted by vehicular transport.	P+ / P-	The new bypass would provide a more reliable journey and so less queuing and stop-start driving, this would mean reduced emissions. The bypass would also allow vehicles to travel at a constant speed reducing the emissions. However the bypass could provide a small amount of traffic growth which would	

APPENDIX 4d – MAJOR PROJECT: HERTFORD BYPASS and/ or HERTFORD AND WARE SUSTAINABLE TRAVEL TOWNS

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Project – Hertford Bypass &/or Hertford and Ware Sust. Travel		
		slightly increase emissions. Reduced emissions may occur as part of any sustainable travel schemes between Hertford & Ware.	
To ensure the sustainable supply and use of energy.	U	New bypass street lights could be LED / solar to ensure they are more sustainable. Encouraging active travel could result in reduced fuel consumption by replacing the need to travel by car.	Encourage the use of renewable energy for road infrastructure energy supply.
SEA Topic – Historic Environment and landscape			
To protect landscape and townscape character	X	The proposed southern bypass would have a significant negative impact on the landscape, there is a large land requirement for the bypass, which will require development in the greenbelt land. Constructing the bypass may reduce tranquillity in rural areas.	Any major scheme would be subject to a full environmental impact assessment that would mitigate and monitor any adverse impacts.
To conserve and enhance the historic environment, heritage assets and their settings	P+	By diverting A414 traffic out of Hertford, there will be reduced congestion in Hertford’s historic town centre. Increased active travel	Any new development should follow NPPF guidance on conserving and enhancing the historic environment.

APPENDIX 4d – MAJOR PROJECT: HERTFORD BYPASS and/ or HERTFORD AND WARE SUSTAINABLE TRAVEL TOWNS

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Project – Hertford Bypass &/or Hertford and Ware Sust. Travel		
		promotes a more attractive environment, and any additional cycling or pedestrian improvements should not impact from any historic buildings or on the towns’ heritage.	
SEA Topic - Social inclusiveness			
To tackle the causes of poverty and social exclusion by improving access to services and community facilities for all.	P+	Scheme promotes improved sustainable travel access between towns, increasing access to services for residents. Improvements to walking and cycling should improve the range of travel opportunities for residents, especially for those without access to a car. Personalised travelling planning proposed by the scheme can help support isolated groups in reaching community facilities and services. Both schemes would improve issues of severance that the current A414 poses, by allowing residents to cross the A414 easier due to less traffic and congestion.	Encourage travel planning for socially isolated groups

APPENDIX 4d – MAJOR PROJECT: HERTFORD BYPASS and/ or HERTFORD AND WARE SUSTAINABLE TRAVEL TOWNS

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Project – Hertford Bypass &/or Hertford and Ware Sust. Travel		
To empower all sections of the community to participate in decisions making and local action.	P+ /U	Personalised travel planning improves access to information through improved access to services.	
SEA Topic - Economic development			
To maintain employment, improve economic competitiveness (consistent with environmental constraints) and create a vibrant economy.	P+	By improving congestion and ensuring reliable journey times, the scheme will help maintain employment by improving access to employment and increasing the incentive to work.	Try to source materials for construction locally, to give local economic benefits.
To spread economic growth more evenly to benefit deprived areas.	P+	The scheme will help improve access through sustainable modes to a number of services, encouraging economic growth by facilitating travel between locations.	

APPENDIX 4d – MAJOR PROJECT: HERTFORD BYPASS and/ or HERTFORD AND WARE SUSTAINABLE TRAVEL TOWNS

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Project – Hertford Bypass &/or Hertford and Ware Sust. Travel		
To maintain the vitality and viability of existing centres.	P+	Reduced congestion in and around Hertford town centre encourages visitors whilst improved active travel infrastructure maintains levels of accessibility. Reduced congestion on the A414 reduces the severance of Hertford causes by the road.	

APPENDIX 4d – MAJOR PROJECT: HERTFORD BYPASS and/ or HERTFORD AND WARE SUSTAINABLE TRAVEL TOWNS

Significant Positive Effects:

The Hertford bypass will help to reduce congestion and improve journey times on the A414 at Hertford. Reduced congestion will benefit air quality in the area (particularly in the Air Quality Management Area on the A414), contributing to greater public health, which will also be supported by active travel proposals as part of the sustainable travel town element of the scheme. The scheme will also support economic development by reducing congestion and improving journey times, as well as by promoting access between Ware and Hertford.

Significant Negative Effects:

The Hertford bypass will be resource intensive to build as well as generating large volumes of construction waste. There is a large land requirement for the bypass, which will be constructed in green belt land and threatens nearby rural tranquillity. The bypass will have significant negative impacts on the landscape and biodiversity in the area due to the impacts on local woodlands. Providing additional road capacity may facilitate traffic growth and result in greater greenhouse gas emissions.

Timescale:

The proposed projects are for the medium term between 2021 and 2031.

Temporary or Permanent:

Impacts from the new road infrastructure would be permanent, but positive impacts from behavioural change and any modal shift could be temporary, as travel choices and trends change over time.

Likelihood of effects or impacts identified occurring:

The likelihood of impacts identified occurring is dependent on the funding available for major project construction, as well as feedback from the public consultation period and HCC members. If the scheme is approved, there is a high likelihood of the impacts occurring.

Recommendation for mitigation for adverse effects and/or enhancement or positive effects:

- A full Environmental Impact Assessment would be undertaken.
- Construction of the bypass should aim to source construction materials locally, and when possible used recycled or renewable resources.
- Freed highway capacity as a result of the bypass should be sectioned off for sustainable or active travel infrastructure e.g. new cycle lanes.
- Bus routes should be promoted on the bypass itself as a way of promoting sustainable transport from the scheme.

APPENDIX 4d – MAJOR PROJECT: HERTFORD BYPASS and/ or HERTFORD AND WARE SUSTAINABLE TRAVEL TOWNS

- Travel plans which accounts for newly introduced active and sustainable travel infrastructure should be used to improve accessibility for Hertford and Ware’s residents. Personalised travel plans should have ‘quiet route’ options, especially for cycling, helping to promote cycling among different demographics.
- Additional measures should be taken to screen local residents from noise, and by using the latest noise reducing road surfaces.
- That this major project is subject to a further round of Habitats Regulation assessment in 2017 if it is to be included in the final LTP4 for impacts on two protected European sites (Wormley Woods and the Lee Valley SPA/Ramsar Site).
- The Sustainable Urban Drainage System should be used to help safeguard the water and soil environment to prevent run off contamination from new road lanes.
- Any new development should follow NPPF guidance on conserving and enhancing the historic environment.

Data Issues:

- Investigation into increased traffic growth with increased highway capacity.
- Information should be gathered on vehicle emissions at different speeds. This can be used to determine whether there will be an increase or decrease in emissions, as vehicles travel at faster speeds on the bypass.
- Appropriate heavy metal leaching rates should be investigated. This will help determine the risk of heavy metals from the bypass and bypass construction are likely to significantly affect water courses in the area such as the River Lea.

APPENDIX 4d - MAJOR PROJECT: MAYLANDS ACCESS IMPROVEMENTS

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Scheme – Maylands Access Improvements		
SEA Objective	Assessment of Effect ✓ Positive impact P+ Potentially positive impact O No relationship/link U Uncertain/ Depends on implementation P- Potentially negative impact X Negative impact	Justification: <ul style="list-style-type: none"> • Likelihood of effect occurring • Permanence of effect • Geographic scale of effect • Cumulative effects • Current env. Social & economic trends of affected area • Likelihood of affecting particularly sensitive locations 	Recommendations (including mitigating negative effects and improving positive effects)
SEA Topic – Biodiversity, fauna and flora			
To protect and enhance biodiversity	P-	The area around this planned upgrade does not appear to have much protected natural flora and fauna as it is already a busy traffic environment therefore the likelihood of affecting a particularly sensitive location is low. However agricultural land will be required to undertake the junction upgrade, this could impact on arable assemblage farmland birds and grassland assemblage	As with any major upgrade, there should be consultation with the appropriate experts in this field before work begins, and the scheme would be subject to a full Environmental Impact Assessment.

APPENDIX 4d - MAJOR PROJECT: MAYLANDS ACCESS IMPROVEMENTS

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Scheme – Maylands Access Improvements		
		farmland birds.	
SEA Topic - Population and human health			
To maximise the opportunities for leisure and a healthy lifestyle for all, and to improve the physical and mental health of the population, and reduce health inequalities	P-	There will be homes close to the proposed major upgrade and the residents are likely to experience more traffic noise pollution and possibly air pollution.	A health impact assessment needs to be undertaken before the scheme is implemented.
To reduce crime and create safe environments	U	It depends on the design and implementation of the scheme. The latest safety standards will be used at the new junction.	A safety audit needs to be undertaken prior to the scheme to check that the scheme is as safe for vehicles as it can be. Also pedestrians, cyclists and motor bike users must be considered in the design as each group will also play a part in the transport hierarchy.
SEA Topic - Water and soil			
To improve the sustainable use of resources	U	Depends on scheme delivery methods.	
To move away from waste disposal to minimisation, reuse, recycling and recovery	U	Depends on scheme delivery methods	

APPENDIX 4d - MAJOR PROJECT: MAYLANDS ACCESS IMPROVEMENTS

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Scheme – Maylands Access Improvements		
To ensure the efficient use of water, and safeguard water resources	U	Depends on scheme design with regard to drainage, but the scheme is not in the vicinity of any rivers or within any flood zones.	The scheme design must comply with emerging regulatory requirements of the SuDS Approval Body (SAB).
To reduce contamination, and safeguard soil quality and quantity	U	Depends on the scheme design for the upgrades proposed.	Any scheme delivered should adhere to SuDS principles.
SEA Topic - Air			
To protect and enhance air quality and minimise noise pollution	P+/P-	In theory the upgrade of A414 junction should allow for less congestion and faster traffic flow which may mitigate high levels of air pollution. However the scheme description states that in time as traffic flow increases, congestion is likely to worsen again. There are no homes or businesses next to the junction upgrade so there will be minimal impacts with regards to noise.	Certain road surfaces can lessen the impact of traffic noise, this could be considered in this scheme if it reduces noise pollution. As regards air pollution, it can be hoped that in time as new vehicle technology improves, air pollution will become less of a problem.

APPENDIX 4d - MAJOR PROJECT: MAYLANDS ACCESS IMPROVEMENTS

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Scheme – Maylands Access Improvements		
To improve the choice of sustainable transport modes, encourage their use, and reduce the need to travel by car	P-	By opening up the opportunity to make the car an easier choice for travel in East Hemel, less people may choose to use sustainable modes. The scheme also proposes a shared use footway and cycleway as part of the layout.	Despite the major upgrade, continue to plan for passenger transport to use the A414 junction and travel into the Maylands business park. A single bus journey can accommodate a number of commuters who might otherwise drive. Also promote car clubs, lift share and bike share as soon as the scheme is finished to get commuters into the habit of modal shift.
SEA Topic - Climatic factors			
To adapt to the impacts of climate change such as flooding	U	Depends on scheme design	The scheme design must comply with emerging regulatory requirements of the SuDS Approval Body (SAB).
To reduce greenhouse gases including carbon dioxide, emitted by vehicular transport	P-	The scheme could lead to higher levels of traffic which will include higher levels of carbon dioxide, but the scheme should stop some of the stop-start traffic offering some positive impacts to emissions.	

APPENDIX 4d - MAJOR PROJECT: MAYLANDS ACCESS IMPROVEMENTS

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Scheme – Maylands Access Improvements		
To ensure the sustainable supply and use of energy	U	More fuel will be used if there are more vehicles on the road.	As above, use the opportunity of more road space to promote more sustainable solutions such as PT, lift share and car clubs. LED lighting is being rolled across the county – this is proving to reduce the use of energy.
SEA Topic – Historic Environment and landscape			
To protect and enhance the character of landscape, townscape and green spaces	P-	Likely to have little effect on landscape, townscape and green spaces in this particular location, as it is already built up. Some agricultural land will be required.	
To conserve and enhance the historic environment, heritage assets and their settings	U	Likely to have little effect on the historic environment, heritage assets and their settings in this location.	The County Council’s map of historic assets should be checked to ensure that the scheme would not worsen any effects on any local historic assets. Any new development should follow NPPF guidance on conserving and enhancing the historic environment.

APPENDIX 4d - MAJOR PROJECT: MAYLANDS ACCESS IMPROVEMENTS

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Scheme – Maylands Access Improvements		
SEA Topic - Social inclusiveness			
To tackle the causes of poverty and social exclusion by improving access to services and community facilities for all	P+	If by adding more road space, this leads to more passenger transport, the opportunities available at the Maylands Business park may be opened up to more people. The scheme will provide a shared use footway/cycleway to improve connections between East Hemel Hempstead North and South (residential and employment). This shared use connection would also address current severance issues with the A414.	Encourage more passenger transport into Maylands Business Park – the faster journeys/reduction in congestion may be of interest to bus operators.
To empower all sections of the community to participate in decision making and local action	U	It is not clear if this will have any effect.	

APPENDIX 4d - MAJOR PROJECT: MAYLANDS ACCESS IMPROVEMENTS

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Scheme – Maylands Access Improvements		
SEA Topic - Economic development			
To maintain employment, improve economic competitiveness (consistent with environmental constraints) and create a vibrant economy	P+	With 70% of the morning peak traffic either commuting to Maylands or is LGV/HGV traffic then the access improvements will have significant benefits to business users. If the scheme can lead to more passenger transport, the opportunities available at the Maylands Business park may be opened up to more people.	Encourage more passenger transport into Maylands Business Park – the faster journeys/reduction in congestion may be of interest to bus operators.
To spread economic growth more evenly to benefit deprived areas	P+	If by adding more road space, this leads to more passenger transport, the opportunities available at the Maylands Business park may be opened up to more people, including people who live in deprived areas.	Encourage more passenger transport into Maylands Business Park – the faster journeys/reduction in congestion may be of interest to bus operators.

APPENDIX 4d - MAJOR PROJECT: MAYLANDS ACCESS IMPROVEMENTS

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Scheme – Maylands Access Improvements		
To maintain the vitality and viability of existing centres	P+/P-	<p>If people living in Hemel who are currently on low incomes are enabled to access work at Maylands, it can have an effect on their spending patterns which in turn will vitalise the town centre.</p> <p>Alternatively by enabling more vehicles into Hemel it could have a detrimental effect on the existing centre.</p>	Sustainable modes of transport must be encouraged when the scheme is complete, rather than allow the car to dominate.

APPENDIX 4d - MAJOR PROJECT: MAYLANDS ACCESS IMPROVEMENTS

Significant Positive Effects:

This major project will mainly have economic benefits for the area, and in particular the Maylands Business Park. The project will improve access to this significant employment area by car and by public transport, with some improvements to walking and cycling routes. This should allow more local people to access employment on this site especially for those without access to a car, and provide a wider labour market for the local businesses. By improving access to such a large local business area this should also benefit any deprived areas in Hemel Hempstead. Businesses should also benefit from improved journey times for both staff and deliveries as a result of improved congestion.

Significant Negative Effects:

All major projects are subject to an Environmental Impact Assessment, and this scale of environmental assessment would provide mitigation for any negative impacts on biodiversity (in particular on farmland birds), the local environment, drainage/local water courses, air and noise pollution (especially for those living in the vicinity of the development). This type of major project would require significant amounts of construction material and would produce large amounts of construction waste. By improving access for the car this could create traffic growth in the area.

Timescale:

Medium term (2021-31) – dependent on government funding.

Temporary or Permanent: Impacts from the new road junction would be permanent with regards to impacts on habitat and resources required, but positive economic impacts could be temporary, as congestion levels and sustainable travel choices could change over time.

Likelihood of effects or impacts identified occurring:

Impacts are all dependent on how the scheme is implemented and what mitigation an EIA would propose.

Recommendation for mitigation for adverse effects and/or enhancement or positive effects:

- An Environmental Impact assessment should pick up any negative impacts and mitigation measure put in place.
- A separate health impact assessment should be undertaken on this major project, to assess the impact of the development on the homes that are in close proximity, particularly for air and noise pollution impacts.
- It is also recommended that a separate safety audit is undertaken to consider the impacts on pedestrians, cyclists and motor cyclists.

APPENDIX 4d - MAJOR PROJECT: MAYLANDS ACCESS IMPROVEMENTS

- Checks need to be made on the current Highway Policy on construction practices with regards to the use of recycled materials and the recycling of construction waste.
- Need to encourage more buses to serve the business park especially if the scheme can improve access to the site and improve journey times.
- Sustainable projects such as car clubs, and lift share should also be developed alongside the access improvements to encourage modal shift.
- A map of historic assets should be consulted to ensure that there are no negative impacts on local areas/buildings of historic importance.
- Any new development should follow NPPF guidance on conserving and enhancing the historic environment.
- To help safeguard water supplies and the local soil environment, the Sustainable Urban Drainage System should be used if any projects could result in additional run off.

Data Issues:

- Travel Plan data that already exists for the business park
- The numbers of buses that already serve the business park.

APPENDIX 4d - MAJOR PROJECT: NEW RAIL STATIONS

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Scheme – New rail stations		
SEA Objective	Assessment of Effect ✓ Positive impact P+ Potentially positive impact O No relationship/link U Uncertain/ Depends on implementation P- Potentially negative impact X Negative impact	Justification: <ul style="list-style-type: none"> • Likelihood of effect occurring • Permanence of effect • Geographic scale of effect • Cumulative effects • Current env. Social & economic trends of affected area • Likelihood of affecting particularly sensitive locations 	Recommendations (including mitigating negative effects and improving positive effects)
SEA Topic – Biodiversity, fauna and flora			
To protect and enhance biodiversity	P-	In particular the Turnford station proposal would be very close to the Lea Valley Nature Reserve.	The LTP4 HRA assessment recommends that a project level HRA assessment would be required (by Network Rail) for any new stations for impacts on the Lee Valley Ramsar site.
SEA Topic - Population and human health			
To maximise the opportunities for leisure and a healthy lifestyle for all, and to improve the physical and mental health of the population, and reduce health inequalities	U	Any new railway station should put active travel ahead of any parking requirements.	

APPENDIX 4d - MAJOR PROJECT: NEW RAIL STATIONS

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Scheme – New rail stations		
To reduce crime and create safe environments	P-	With smart-ticketing, there is less need for staff at railway stations, this could make people feel less safe, and mean that hate crime incidents or anti-social behaviour rises.	Any new station will need to consider personal security.
SEA Topic - Water and soil			
To improve the sustainable use of resources	X	Any new station will require significant supplies of building materials.	
To move away from waste disposal to minimisation, reuse, recycling and recovery	P-	Railway stations will need to dispose of customer waste.	
To ensure the efficient use of water, and safeguard water resources	O		
To reduce contamination, and safeguard soil quality and quantity	O		
SEA Topic - Air			
To protect and enhance air quality and minimise noise pollution	P-	New stations on existing lines will create additional train noise with trains stopping and starting for residents in the immediate vicinity.	Consider the implementation of noise barriers for those in the immediate vicinity of any new station.
To improve the choice of sustainable transport modes, encourage their use, and reduce the need to travel by car	P+	This will allow more people to access the rail system.	

APPENDIX 4d - MAJOR PROJECT: NEW RAIL STATIONS

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Scheme – New rail stations		
SEA Topic - Climatic factors			
To adapt to the impacts of climate change such as flooding	P-	The Turnford and Waltham cross proposals are close to the River Lea, and need to be mindful of flooding issues.	
To reduce greenhouse gases including carbon dioxide, emitted by vehicular transport	P+	New railway stations should enable more people to travel by rail, and electrified rail travel is a sustainable mode which does not emit greenhouse gases. Any modal shift to rail travel will also have a positive impact as there will be fewer road vehicles emitting pollution.	
To ensure the sustainable supply and use of energy	P-	Stations and passenger trains require electricity, how much is provided by green electricity?	

APPENDIX 4d - MAJOR PROJECT: NEW RAIL STATIONS

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Scheme – New rail stations		
SEA Topic – Historic Environment and landscape			
To protect and enhance the character of landscape, townscape and green spaces	P+	If access to rail is improved by providing new stations, there is the potential for modal shift to rail, resulting in fewer vehicles on the roads which will have a positive impact on local landscape, townscape and green spaces.	
To conserve and enhance the historic environment, heritage assets and their settings	P+	Improvements to integrated ticketing could improve access to local historic assets.	
SEA Topic - Social inclusiveness			
To tackle the causes of poverty and social exclusion by improving access to services and community facilities for all	P-	At the moment rail journeys are not affordable for those on lower incomes.	
To empower all sections of the community to participate in decision making and local action	O		
SEA Topic - Economic development			
To maintain employment, improve economic competitiveness (consistent with environmental constraints) and create a vibrant economy	✓	New railway stations at Turnford, Waltham Cross, Stevenage South and Hemel may encourage more people to access work via rail.	

APPENDIX 4d - MAJOR PROJECT: NEW RAIL STATIONS

SEA Analysis Table	Name of Option/Policy/Strategy/Package/Major Scheme Major Scheme – New rail stations		
To spread economic growth more evenly to benefit deprived areas	P+	New railway stations will support regeneration in towns i.e. Stevenage.	
To maintain the vitality and viability of existing centres	P-	New stations may only make it easier for commuter journeys into London, and may not improve access to existing town centres.	

Significant Positive Effects:

Rail travel has the potential to facilitate active travel, especially at the start and end of a journey, new stations should assist in achieving this. Rail is a sustainable mode and potentially can reduce car trips. so does not contribute to air pollution or greenhouse gases. Rail travel can play a large part in access to employment both locally and into London, and any new stations will improve access to the rail network.

Significant Negative Effects:

Significant negative impacts is that new railway stations would require large amounts of raw resources to construct and daily would produce waste from customers that would need disposal. Personal safety and fear of crime at stations could be an issue with minimal/zero staffing levels. Police statistics show that crime at stations ranges from cycle thefts to anti-social behaviour, and more vulnerable sectors of the community may be put off travelling on public transport. The Turnford and Waltham Cross proposals could impact on the Lea Valley Nature Reserve which is adjacent to the railway line, the waterways in this reserve could pose a flooding risk in particular for the Turnford scheme. There is a risk that new stations will only improve access for commuters into London.

Timescale:

Medium to longterm.

Temporary or Permanent: Impacts from any new rail infrastructure would be permanent, but positive impacts with resulting reduced car trips could be temporary, as travel choices and trends change over time.

APPENDIX 4d - MAJOR PROJECT: NEW RAIL STATIONS

Likelihood of effects or impacts identified occurring:

This would be dependent on the level of use of any new station and its design and car parking provision. Any new railway stations would be delivered by Network Rail, and would be subject to an Environmental Impact Assessment which would mitigate any negative impacts.

Recommendation for mitigation for adverse effects and/or enhancement or positive effects:

- The LTP4 HRA assessment recommends that a project level HRA assessment would be required (by Network Rail) for any new stations for impacts on the Lee Valley Ramsar site.
- Any new station will need to consider personal security.
- Consider the implementation of noise barriers for those in the immediate vicinity of any new station.

Data Issues:

- Station crime statistics (types of crimes)
- Rail noise complaints

APPENDIX 4d - APPRAISAL MATRIX: A1(M) J4, A414/A1001, A414/GREAT NORTH RD

SEA Analysis Table	Major Project: A1(M) J4, A414 /A1001, A414/Great North Rd		
SEA Objective	Assessment of Effect ✓ Positive impact P+ Potentially positive impact O No relationship/link U Uncertain/ Depends on implementation P- Potentially negative impact X Negative impact	Justification: <ul style="list-style-type: none"> • Likelihood of effect occurring • Permanence of effect • Geographic scale of effect • Cumulative effects • Current env. Social & economic trends of affected area • Likelihood of affecting particularly sensitive locations 	Recommendations (including mitigating negative effects and improving positive effects)
SEA Topic – Biodiversity, fauna and flora			
To protect and enhance biodiversity	P-	Major reconstruction of this A1(M) junction could attract more vehicles to use the junction, and so result in more emissions and worse air quality which would impact on the flora and fauna in the green spaces in the vicinity of the junction.	
SEA Topic - Population and human health			
To maximise the opportunities for leisure and a healthy lifestyle for all, and to improve the physical and mental health of the population, and reduce health inequalities	U	If cycle lanes/routes are incorporated into the junction upgrade, then this would encourage cycling.	

APPENDIX 4d - APPRAISAL MATRIX: A1(M) J4, A414/A1001, A414/GREAT NORTH RD

SEA Analysis Table	Major Project: A1(M) J4, A414 /A1001, A414/Great North Rd		
To reduce crime and create safe environments	P+	Any major junction improvement scheme would consider safety engineering measures.	
SEA Topic - Water and soil			
To improve the sustainable use of resources	X	Any major construction project will require raw resources.	Use as much recycled aggregate as possible, and from local suppliers.
To move away from waste disposal to minimisation, reuse, recycling and recovery	X	Construction waste will be produced where the old road surface needs to be taken up.	Where possible recycle existing aggregate for the new scheme, and dispose of other materials sustainably. What is HCCs policy on the disposal of construction waste?
To ensure the efficient use of water, and safeguard water resources	P+	Any new major junction upgrade would need to adhere to SUDs, to deal with surface run-off.	
To reduce contamination, and safeguard soil quality and quantity	P+	With SUDs being used in any major junction upgrade this would protect further contamination of soil in the local vicinity.	

APPENDIX 4d - APPRAISAL MATRIX: A1(M) J4, A414/A1001, A414/GREAT NORTH RD

SEA Analysis Table	Major Project: A1(M) J4, A414 /A1001, A414/Great North Rd		
SEA Topic - Air			
To protect and enhance air quality and minimise noise pollution	U	By improving the east west connectivity of the A414, there could be positive or negative impacts. By increasing the capacity of the junction this could have negative impacts by attracting more vehicles, but if it makes the junction function better and traffic is kept moving this can have positive impacts on local air quality levels.	
To improve the choice of sustainable transport modes, encourage their use, and reduce the need to travel by car	U	Depends on the junction design and whether or not it includes improvements for bus priority and cycle lane provision.	
SEA Topic - Climatic factors			
To adapt to the impacts of climate change such as flooding	P+	The use of SUDs for any junction upgrade.	
To reduce greenhouse gases including carbon dioxide, emitted by vehicular transport	U	Dependant on the scheme design and whether or not it attracts more vehicles to use it.	

APPENDIX 4d - APPRAISAL MATRIX: A1(M) J4, A414/A1001, A414/GREAT NORTH RD

SEA Analysis Table	Major Project: A1(M) J4, A414 /A1001, A414/Great North Rd		
To ensure the sustainable supply and use of energy	U	Depends on scheme design, any lighting reinstated would be low energy LED, but if there is an increase in the number of vehicles using the junction it would not reduce the use of fossil fuels.	
SEA Topic - Historic Environment and Landscape			
To protect and enhance the character of landscape, townscape and green spaces	U	This scheme would be improving a junction that already exists, but design could make a difference visually on the local landscape.	
To conserve and enhance the historic environment, heritage assets and their settings	P+	No known historic assets in the vicinity of the junction, but it could improve access to Hatfield House by car.	
SEA Topic - Social inclusiveness			
To tackle the causes of poverty and social exclusion by improving access to services and community facilities for all	U	It is unknown at this stage the exact design for this junction upgrade, but it includes bus priority it could improve access by bus.	

APPENDIX 4d - APPRAISAL MATRIX: A1(M) J4, A414/A1001, A414/GREAT NORTH RD

SEA Analysis Table	Major Project: A1(M) J4, A414 /A1001, A414/Great North Rd		
To empower all sections of the community to participate in decision making and local action	O		
SEA Topic - Economic development			
To maintain employment, improve economic competitiveness (consistent with environmental constraints) and create a vibrant economy	P+	Improvements to east west connectivity on the A414 would benefit local businesses.	
To spread economic growth more evenly to benefit deprived areas	O		
To maintain the vitality and viability of existing centres	O	Out of town junction.	

Significant Positive Effects:

There are no significant positive impacts that this junction upgrade would provide, and at this stage with no clear project design or preferred option a lot of the impacts would depend on scheme design, but broadly a junction upgrade at this location could provide safety benefits, it would improve the local drainage of the road layout with new SUDs being implemented, and local businesses would find journey time improvements travelling east west on the A414.

Significant Negative Effects:

The main negative impacts will centre around the actual works that would need to be carried out with regards to resources required for construction and waste disposal of the existing road aggregates.

Timescale:

Medium term.

Temporary or Permanent: it is unclear at this stage as there is no clear project design or preferred option, but any new infrastructure delivered would result in permanent impacts, any positive impacts as a result of the redesigned junction are unknown but are more likely to be temporary, as travel choices and trends change over time.

APPENDIX 4d - APPRAISAL MATRIX: A1(M) J4, A414/A1001, A414/GREAT NORTH RD

Likelihood of effects or impacts identified occurring:

This scheme is to be investigated as part of the A414 Corridor Strategy, and would be dependent on the levels of funding available.

Recommendation for mitigation for adverse effects and/or enhancement or positive effects:

- Use as much recycled aggregate as possible, and from local suppliers.
- Where possible recycle existing aggregate for the new scheme, and dispose of other materials sustainably. What is HCCs policy on the disposal of construction waste?

Data Issues:

None.

APPENDIX 4d - APPRAISAL MATRIX: A414/A1081 LONDON COLNEY ROUNDABOUT

SEA Analysis Table	Major Project: A414/A1081 London Colney Roundabout		
SEA Objective	Assessment of Effect ✓ Positive impact P+ Potentially positive impact O No relationship/link U Uncertain/ Depends on implementation P- Potentially negative impact X Negative impact	Justification: <ul style="list-style-type: none"> • Likelihood of effect occurring • Permanence of effect • Geographic scale of effect • Cumulative effects • Current env. Social & economic trends of affected area • Likelihood of affecting particularly sensitive locations 	Recommendations (including mitigating negative effects and improving positive effects)
SEA Topic – Biodiversity, fauna and flora			
To protect and enhance biodiversity	U	The aim of this scheme would be to improve congestion at and on the approaches to this roundabout, by keeping traffic moving this can reduce air pollution but it would probably have minimal benefits to local flora and fauna as traffic growth is expected at this location.	

APPENDIX 4d - APPRAISAL MATRIX: A414/A1081 LONDON COLNEY ROUNDABOUT

SEA Analysis Table	Major Project: A414/A1081 London Colney Roundabout		
SEA Topic - Population and human health			
To maximise the opportunities for leisure and a healthy lifestyle for all, and to improve the physical and mental health of the population, and reduce health inequalities	O		
To reduce crime and create safe environments	U	A junction improvement of this size would need to adhere to safety standards, initial investigations have found that design standards recommend that a hamburger layout should not be used on junctions in excess of 4 arms therefore this scheme would require a departure from standard.	
SEA Topic - Water and soil			
To improve the sustainable use of resources	P-	A small amount of construction would be required to build a short length of carriageway through the existing roundabout which would require raw resources.	Use as much recycled aggregate as possible, and from local suppliers.

APPENDIX 4d - APPRAISAL MATRIX: A414/A1081 LONDON COLNEY ROUNDABOUT

SEA Analysis Table	Major Project: A414/A1081 London Colney Roundabout		
To move away from waste disposal to minimisation, reuse, recycling and recovery	P-	A small amount of construction waste will be produced where the new carriageway route is constructed, and the existing structure needs to be taken up.	Where possible recycle existing aggregate for the new scheme, and dispose of other materials sustainably. What is HCCs policy on the disposal of construction waste?
To ensure the efficient use of water, and safeguard water resources	P+	Any new road layout work would need to adhere to SUDs, to deal with surface run-off.	
To reduce contamination, and safeguard soil quality and quantity	U	With SUDs being used in any new carriageway work this would protect further contamination of soil in the local vicinity. To create the hamburger design an amount of soil would need to be removed from the existing roundabout, this could be used in the redesign of the splitter islands.	

APPENDIX 4d - APPRAISAL MATRIX: A414/A1081 LONDON COLNEY ROUNDABOUT

SEA Analysis Table	Major Project: A414/A1081 London Colney Roundabout		
SEA Topic - Air			
To protect and enhance air quality and minimise noise pollution	U	Depends on the impact of the new hamburger design and if it can reduce congestion and keep traffic moving as this can reduce air pollution.	
To improve the choice of sustainable transport modes, encourage their use, and reduce the need to travel by car	U	With regards to bus priority and journey times for buses.	Would this junction improvement make provision for any bus priority?
SEA Topic - Climatic factors			
To adapt to the impacts of climate change such as flooding	P+	Any new road layouts would need to adhere to SUDs, which should minimise the impact of extreme rainfall, by having adequate drainage.	
To reduce greenhouse gases including carbon dioxide, emitted by vehicular transport	U	Dependant on the scheme design and whether or not it attracts more vehicles to use it.	
To ensure the sustainable supply and use of energy	U	Depends on scheme design, any lighting reinstated would be low energy LED, and any traffic lights/gantries installed would need an	

APPENDIX 4d - APPRAISAL MATRIX: A414/A1081 LONDON COLNEY ROUNDABOUT

SEA Analysis Table	Major Project: A414/A1081 London Colney Roundabout		
		electricity supply, but the demand would be minimal.	
SEA Topic - Historic Environment and Landscape			
To protect and enhance the character of landscape, townscape and green spaces	U	This scheme would be improving a junction that already exists, but design could make a difference visually on the local landscape.	
To conserve and enhance the historic environment, heritage assets and their settings	U	It is unknown at this stage if there are any local assets that would be affected, and impacts could be site specific.	Check the HCC map of historic assets.
SEA Topic - Social inclusiveness			
To tackle the causes of poverty and social exclusion by improving access to services and community facilities for all	O		
To empower all sections of the community to participate in decision making and local action	O		

APPENDIX 4d - APPRAISAL MATRIX: A414/A1081 LONDON COLNEY ROUNDABOUT

SEA Analysis Table	Major Project: A414/A1081 London Colney Roundabout		
SEA Topic - Economic development			
To maintain employment, improve economic competitiveness (consistent with environmental constraints) and create a vibrant economy	P+	There could be potential journey time benefits if the capacity of the junction is increased and is safer and fewer incidents as a result which contribute to local congestion, particularly for the industrial area to the south of the junction.	
To spread economic growth more evenly to benefit deprived areas	O		
To maintain the vitality and viability of existing centres	O	Out of town junction.	

Significant Positive Effects:

This is a congestion and capacity scheme, a lot of the impacts will depend on final scheme design and implementation but at this early stage of development the scheme could provide benefits to local drainage with new SUDs being implemented, and local businesses could find journey time improvements with fewer accidents causing congestion at that site.

Significant Negative Effects:

There are no significant negative impacts, but the actual works would need resources for construction and waste disposal of the existing road aggregates for the short length of road that would be constructed in the roundabout.

Timescale:

Medium term.

APPENDIX 4d - APPRAISAL MATRIX: A414/A1081 LONDON COLNEY ROUNDABOUT

Temporary or Permanent:

Impacts from any new road infrastructure would be permanent, but positive impacts as a result from congestion/journey time benefits could be temporary, as travel choices and trends change over time.

Likelihood of effects or impacts identified occurring:

This scheme is to be investigated as part of the A414 Corridor Strategy, and would be dependent on the levels of funding available.

Recommendation for mitigation for adverse effects and/or enhancement or positive effects:

- Use as much recycled aggregate as possible, and from local suppliers.
- Where possible recycle existing aggregate for the new scheme, and dispose of other materials sustainably. What is HCCs policy on the disposal of construction waste?
- Would this junction improvement make provision for any bus priority?
- Check the HCC map of historic assets.

Data Issues:

There is minimal data on projected delays from COMET, and data for the update COMET 2031 forecast year is not available.

APPENDIX 4d - APPRAISAL MATRIX: A414/A1081 LONDON COLNEY ROUNDABOUT

APPENDIX 4d - APPRAISAL MATRIX: A414 COLNEY HEATH/SMALLFORD LANE LONGABOUT

SEA Analysis Table	Major Project: A414 Colney Heath/Smallford Lane Longabout		
SEA Objective	Assessment of Effect ✓ Positive impact P+ Potentially positive impact O No relationship/link U Uncertain/ Depends on implementation P- Potentially negative impact X Negative impact	Justification: <ul style="list-style-type: none"> • Likelihood of effect occurring • Permanence of effect • Geographic scale of effect • Cumulative effects • Current env. Social & economic trends of affected area • Likelihood of affecting particularly sensitive locations 	Recommendations (including mitigating negative effects and improving positive effects)
SEA Topic – Biodiversity, fauna and flora			
To protect and enhance biodiversity	P+	The aim of this scheme would be to improve congestion at and on the approaches to this longabout, any reductions in emissions, and noise would benefit local flora and fauna.	
SEA Topic - Population and human health			
To maximise the opportunities for leisure and a healthy lifestyle for all, and to improve the physical and mental health of the population, and reduce health inequalities	P+	The revised junction layout would still maintain provision for cyclists, pedestrians and equestrians.	

APPENDIX 4d - APPRAISAL MATRIX: A414 COLNEY HEATH/SMALLFORD LANE LONGABOUT

SEA Analysis Table	Major Project: A414 Colney Heath/Smallford Lane Longabout		
To reduce crime and create safe environments	✓	This is a road safety scheme and any engineering works would adhere to current safety standards.	
SEA Topic - Water and soil			
To improve the sustainable use of resources	P-	A small amount of construction would be required to build a short length of carriageway which would require raw resources.	Use as much recycled aggregate as possible, and from local suppliers.
To move away from waste disposal to minimisation, reuse, recycling and recovery	P-	A small amount of construction waste will be produced where the new carriageway route is constructed, and the existing structure needs to be taken up.	Where possible recycle existing aggregate for the new scheme, and dispose of other materials sustainably. What is HCCs policy on the disposal of construction waste?
To ensure the efficient use of water, and safeguard water resources	P+	Any new road layout work would need to adhere to SUDs, to deal with surface run-off.	
To reduce contamination, and safeguard soil quality and quantity	P+	With SUDs being used in any new carriageway work this would protect further contamination of soil in the local vicinity.	

APPENDIX 4d - APPRAISAL MATRIX: A414 COLNEY HEATH/SMALLFORD LANE LONGABOUT

SEA Analysis Table	Major Project: A414 Colney Heath/Smallford Lane Longabout		
SEA Topic - Air			
To protect and enhance air quality and minimise noise pollution	U	Depends on the impact of the traffic lights and new road layout, if traffic can be kept moving this can reduce air pollution.	
To improve the choice of sustainable transport modes, encourage their use, and reduce the need to travel by car	O	This scheme would only maintain provision for walking and cycling	
SEA Topic - Climatic factors			
To adapt to the impacts of climate change such as flooding	P+	Any new road layouts would need to adhere to SUDs, which should minimise the impact of extreme rainfall, by having adequate drainage.	
To reduce greenhouse gases including carbon dioxide, emitted by vehicular transport	U	Dependant on the scheme design and whether or not it attracts more vehicles to use it.	
To ensure the sustainable supply and use of energy	U	Depends on scheme design, any lighting reinstated would be low energy LED, and any traffic lights installed would need an electricity supply, but the demand would be minimal.	

APPENDIX 4d - APPRAISAL MATRIX: A414 COLNEY HEATH/SMALLFORD LANE LONGABOUT

SEA Analysis Table	Major Project: A414 Colney Heath/Smallford Lane Longabout		
SEA Topic - Historic Environment and Landscape			
To protect and enhance the character of landscape, townscape and green spaces	U	This scheme would be improving a junction that already exists, but design could make a difference visually on the local landscape.	
To conserve and enhance the historic environment, heritage assets and their settings	U	It is unknown at this stage if there are any local assets that would be affected.	Check the HCC map of historic assets.
SEA Topic - Social inclusiveness			
To tackle the causes of poverty and social exclusion by improving access to services and community facilities for all	U	It is unknown at this stage the exact design for this junction upgrade, but it could improve access across the A414 for local residents especially from Colney Heath to St Albans.	
To empower all sections of the community to participate in decision making and local action	O		
SEA Topic - Economic development			
To maintain employment, improve economic competitiveness (consistent with environmental constraints) and create a vibrant economy	P+	There could be potential journey time benefits if the junction is safer and fewer incidents as a result which contribute to local congestion.	

APPENDIX 4d - APPRAISAL MATRIX: A414 COLNEY HEATH/SMALLFORD LANE LONGABOUT

SEA Analysis Table	Major Project: A414 Colney Heath/Smallford Lane Longabout		
To spread economic growth more evenly to benefit deprived areas	○		
To maintain the vitality and viability of existing centres	○	Out of town junction.	

Significant Positive Effects:

This is a road safety scheme, and at this early stage the scheme could provide benefits to local drainage with new SUDs being implemented, and local businesses could find journey time improvements with fewer accidents causing congestion at that site.

Significant Negative Effects:

There are no significant negative impacts, but the actual works would need resources for construction and waste disposal of the existing road aggregates for the short length of road that would be constructed.

Timescale:

Short to Medium term.

Temporary or Permanent:

Impacts from any new road infrastructure would be permanent but positive impacts from journey time improvements could be temporary, as travel choices and trends change over time.

Likelihood of effects or impacts identified occurring:

This scheme is dependent on the levels of funding available.

Recommendation for mitigation for adverse effects and/or enhancement or positive effects:

- Use as much recycled aggregate as possible, and from local suppliers.
- Where possible recycle existing aggregate for the new scheme, and dispose of other materials sustainably. What is HCCs policy on the disposal of construction waste?
- Check the HCC map of historic assets.

APPENDIX 4d - APPRAISAL MATRIX: A414 COLNEY HEATH/SMALLFORD LANE LONGABOUT

Data Issues:

None.